

**9. OUTAGES.**

**9.1 Coordination and Approval for Outages.**

The CAISO shall have authority to coordinate and approve Outages and returns to service of all facilities comprised in the CAISO Controlled Grid and Reliability Must-Run Units in accordance with Section 9.3. The CAISO will coordinate and approve Maintenance Outages and coordinate responses to Forced Outages of all transmission facilities in the CAISO Controlled Grid and Reliability Must-Run Units in accordance with this Section 9. Any scheduled Outages that are cancelled by CAISO Real-Time operations due to system requirements must be rescheduled with the CAISO Outage Coordination Department in accordance with Section 9.3.

**9.2 Responsibility for Authorized Work on Facilities.**

The CAISO shall have authority to approve requests by Participating TOs to work on all energized transmission equipment under the Operational Control of the CAISO.

**9.3 Coordination of Outages and Maintenance.**

**9.3.1 CAISO Outage Coordination Office.**

The CAISO Outage Coordination Office shall be established by the CAISO and shall coordinate and approve Maintenance Outages of: (i) all facilities that comprise the CAISO Controlled Grid and (ii) Participating Generators. The CAISO shall additionally coordinate and approve Outages required for new construction and for work on de-energized and live transmission facilities (e.g., relay maintenance or insulator washing) and associated equipment. The CAISO Outage Coordination Office will be operational Monday through Friday, except holidays. The Outage Coordination Office is located in Folsom. Each office and the areas of responsibility of that office are detailed in the most recent version of the applicable CAISO Operating Procedures, which are posted on the CAISO Website.

**9.3.1A Coordinating Maintenance Outages of UDC Facilities.**

Each UDC and the Participating TO with which it is interconnected shall coordinate their Outage requirements that will have an effect on their transmission interconnection prior to the submission by that Participating TO of its Maintenance Outage requirements under Section 9.3.

**9.3.1.1 California Department of Water Resources.**

The provisions of Section 9.3 shall apply to the California Department of Water Resources ("CDWR"). However, the CAISO shall be permitted to deny a requested Maintenance Outage or a requested change to an Approved Maintenance Outage, or cancel an Approved Maintenance Outage, relating to hydroelectric Generating Units owned and operated by the CDWR, only if, in the reasonable opinion of the CAISO, the requested Maintenance Outage, Approved Maintenance Outage, or requested change to an Approved Maintenance Outage, is likely to have a detrimental effect on the reliable operation of the CAISO Controlled Grid. Furthermore, if CDWR informs the CAISO Outage Coordination Office that an action of the CAISO Outage Coordination Office, made pursuant to Section 9.3, will result in a violation of federal or state law affecting hydroelectric operations or compromise CDWR's ability to deliver water to its customers, the CAISO will use all other options at its disposal under Section 9.3 in order to ensure the reliable operation of the CAISO Controlled Grid before rejecting a requested Maintenance Outage or a requested change to an Approved Maintenance Outage, or canceling an Approved Maintenance Outage, relating to the hydroelectric Generating Units owned and operated by the CDWR.

**9.3.2 Requirement for Approval.**

An Operator shall not take: (i) facilities that comprise the CAISO Controlled Grid or (ii) Participating Generators out of service for the purposes of planned maintenance or for new construction or other work except as approved by the CAISO Outage Coordination Office. The information relating to each Maintenance Outage submitted by a Participating Generator in accordance with Section 9.3.5 or by a Participating TO in accordance with Section 9.3.5 constitutes a request for a long-range Maintenance Outage and is not considered an Approved Maintenance Outage until the CAISO has notified the

Participating Generator of such approval pursuant to Section 9.3.6 or the Participating TO pursuant to Section 9.3.6.

**9.3.3 Requests for Outages in Real-Time Operation.**

Requests for Outages of: (i) facilities that comprise the CAISO Controlled Grid or (ii) Participating Generators in Real-Time operation shall be made by the Operator to the CAISO Control Center. The CAISO will not approve any Outage request made within seventy-two (72) hours of the requested Outage start time unless: (i) the requested Outage could not have been reasonably foreseen and scheduled through the Outage coordination process provided in Section 9.3; and (ii) the requested Outage will not compromise CAISO Controlled Grid reliability.

**9.3.4 Single Point of Contact.**

Requests for approvals and coordination of all Maintenance Outages (consistent with Section 9.3.1) will be through a single point of contact between the CAISO Outage Coordination Office and each Operator. The Operator shall provide in its initial request and specify from time to time the identification of the single point of contact along with primary and alternate means of communication pursuant to the detailed procedures referred to in Section 9.3.6.

**9.3.5 Method of Communications.**

The primary method of communication from an Operator to the CAISO with regard to maintenance and outage planning will be as described in the Operating Procedure on the CAISO Website. Emergency capabilities, to be used only as a back-up if the primary communication method is unavailable, will include:

- (a) voice;
- (b) fax; and
- (c) electronic (E-mail, FTP file, etc.).

**9.3.5.1 Confirmation.**

When fax or electronic communication is utilized, confirmation from the CAISO must be received by the Operator to validate the receipt of the request.

**9.3.5.2 Communication of Approval or Rejection.**

The CAISO shall use the same methods in communicating the approval or rejection of an Outage request or approval of a request to change an Approved Maintenance Outage to the relevant Operator.

**9.3.5.2A** Information regarding planned outages for resources providing Regulatory Must-Take Generation shall be provided to the CAISO Outage Coordination Office by the Participating TO or UDC having an existing contract with such resource or by a Participating Generator. Information provided will be that obtained by the Participating TO, UDC or a Participating Generator pursuant to the terms of the existing agreement with the Regulatory Must-Take Generation resource or as requested by the CAISO. Scheduling and approvals of Maintenance Outages for resources providing Regulatory Must-Take Generation shall continue to be coordinated as detailed in the applicable contract with the Participating TO or UDC, provided the Regulatory Must-Take Generator has not executed a Participating Generator Agreement. If the Regulatory Must-Take Generator has executed a Participating Generator Agreement, it shall comply with Section 9.3.5 and other provisions applicable to Participating Generators.

**9.3.6 Maintenance Outage Planning.**

Each Operator shall, by not later than October 15 each year, provide the CAISO with a proposed schedule of all Maintenance Outages it wishes to undertake in the following year. The proposed schedule shall include all of the Operator's transmission facilities that comprise the CAISO Controlled Grid and Participating Generators (including its Reliability Must-Run Units). In the case of a Participating TO's transmission facilities, that proposed schedule shall be developed in consultation with the UDCs interconnected with that Participating TO's system and shall take account of each UDC's planned maintenance requirements. The nature of the information to be provided and the detailed Maintenance Outage Planning Procedure shall be established by the CAISO. This information shall include:

The following information is required for each Generating Unit of a Participating Generator:

- (a) the Generating Unit name and Location Code;
- (b) the MW capacity unavailable;
- (c) the scheduled start and finish date for each Outage; and
- (d) where there is a possibility of flexibility, the earliest start date and the latest finish date, along with the actual duration of the Outage once it commences.

The following information is required for each transmission facility:

- (a) the identification of the facility and location;
- (b) the nature of the proposed Maintenance Outage;
- (c) the preferred start and finish date for each Maintenance Outage; and
- (d) where there is a possibility of flexibility, the earliest start date and the latest finish date, along with the actual duration of the Outage once it commences.

Either the CAISO, pursuant to Section 9.3.7, or an Operator, subject to Section 9.3.6.10, may at any time request a change to an Approved Maintenance Outage. An Operator may, upon seventy-two (72) hours advance notice, schedule with the CAISO Outage Coordination Office a Maintenance Outage on its system, subject to the conditions of Sections 9.3.6.4A, 9.3.6.7, and 9.3.6.8.

#### **9.3.6.1 Quarterly Updates.**

**9.3.6.1A** Each Participating Generator will provide the CAISO with quarterly updates of its long-range Outage schedule referred to in Section 9.3.6 for Generating Units and System Units by the close of business on the fifteenth (15th) day of each January, April, and July. These updates must identify known changes to any previously planned Generating Unit Outages and any additional Outages anticipated over the next twelve months from the time of this report. In this report, each Participating Generator must include all known planned Outages for the following twelve months.

**9.3.6.1B** Each Participating TO will provide the CAISO with quarterly updates of the data provided under 9.3.6 by close of business on the fifteenth (15th) day of each January, April, and July. These updates must identify known changes to any previously planned CAISO Controlled Grid facility Maintenance Outages and any additional Outages anticipated over the next twelve months from the time of the report. As part of this update, each Participating TO must include all known planned Outages for the following twelve months.

**9.3.6.2 90 Day Look Ahead.**

In addition to changes made at quarterly Outage submittals, each Participating Generator shall notify the CAISO in writing of any known changes to a Generating Unit or System Unit Outage scheduled to occur within the next 90 days and may submit changes to its planned Maintenance Outage schedule at any time. Participating Generators must obtain the approval of the CAISO Outage Coordination Office in accordance with Section 9. Such approval may be withheld only for reasons of System Reliability or security.

**9.3.6.3 Timeframe for Scheduling Generation and Transmission Outages.**

**9.3.6.3.1 72 Hours Ahead for Generating Units.**

An Operator may, upon seventy-two (72) hours advance notice (or within the notice period in the Operating Procedures posted on the CAISO Website), schedule with the CAISO Outage Coordination Office a Maintenance Outage for a Generating Unit, subject to the conditions of Sections 9.3.6.4A, 9.3.6.7 and 9.3.6.8.

**9.3.6.3.2 45-Days Ahead for Transmission Facilities.**

An Operator may, upon forty five (45) days advance notice (or within the notice period in the Operating Procedures posted on the CAISO Website), schedule with the CAISO Outage Coordination Office a Maintenance Outage for transmission facilities on its system, subject to the conditions of Sections 9.3.6.4A, 9.3.6.7 and 9.3.6.8.

**9.3.6.4 Changes to Planned Maintenance Outages.**

A Participating TO may submit changes to its planned Maintenance Outage information at any time, provided, however, that if the Participating TO cancels an Approved Maintenance Outage after 5:00 a.m. of the day prior to the day upon which the Outage is scheduled to commence and the CAISO determines that the change was not required to preserve System Reliability, the CAISO may disregard the availability of the affected facilities in determining the availability of transmission capacity in the Day-Ahead Market. The CAISO will, however, notify Market Participants and reflect the availability of transmission capacity in the HASP and RT Market as promptly as practicable.

**9.3.6.4A** The CAISO Outage Coordination Office shall evaluate whether the requested Maintenance Outage or change to an Approved Maintenance Outage is likely to have a detrimental effect on the efficient use and reliable operation of the CAISO Controlled Grid or the facilities of a Connected Entity. The CAISO may request additional information or seek clarification from Participating Generators or Participating TOs of the information submitted in relation to a planned Generating Unit and System Unit Outage or a planned Maintenance Outage. This information may be used to assist the CAISO in prioritizing conflicting requests for Outages.

**9.3.6.4B CAISO Analysis of Generating Unit Outage Plans.**

**9.3.6.4B.1 Calculation of Aggregate Generating Capacity.**

The CAISO will use the long-range Generating Unit or System Unit Outage schedule referenced in Section 9.3.6 and, as appropriate, additional approved Outage requests scheduled to start within 90 days, to calculate the aggregate Generation capacity projected to be available in the following time frames:

- (a) on an annual and quarterly basis, the CAISO will calculate the aggregate weekly peak Generation capacity projected to be available during each week of the following year and quarter, respectively; and
- (b) on a monthly basis, the CAISO will calculate the aggregate daily peak Generation capacity projected to be available during the month.

**9.3.6.5 Withdrawal or Modification of Request.**

The Operator of a Participating Generator or a Participating TO's Operator may withdraw a request at any time prior to actual commencement of the Outage. The Operator of a Participating Generator or Participating TO's Operator may modify a request at any time prior to receipt of any acceptance or rejection notice from the CAISO Outage Coordination Office or pursuant to Sections 9.3.8.1, 9.3.8.2 and 9.3.8.3, but the CAISO Outage Coordination Office shall have the right to reject such modified request for reasons of System Reliability, system security or market impact, because of the complexity of the modifications proposed, or due to insufficient time to assess the impact of such modifications.

**9.3.6.6** Each Participating Generator or Participating TO which has scheduled a planned Maintenance Outage pursuant to Section 9.3.4 must schedule and receive approval of the Outage from the CAISO Outage Coordination Office prior to initiating the Approved Maintenance Outage. The CAISO Outage Coordination Office will review the Maintenance Outages to determine if any one or a combination of Maintenance Outage requests relating to CAISO Controlled Grid facilities, Generating Units or System Units may cause the CAISO to violate the Applicable Reliability Criteria. This review will take consideration of factors including, but not limited to, the following:

- (a) forecast peak Demand conditions;
- (b) other Maintenance Outages, previously Approved Maintenance Outages, and anticipated Generating Unit Outages;
- (c) potential to cause Congestion;
- (d) impacts on the transfer capability of Interconnections; and
- (e) impacts on the market.

**9.3.6.7** The CAISO Outage Coordinator Office shall acknowledge receipt of each request to confirm or approve a Maintenance Outage for a Generation Unit, System Unit, or Aggregated Unit. Where the CAISO Outage Coordination Office reasonably determines that the requested Maintenance Outage or the requested change to an Approved Maintenance Outage, when evaluated together with existing



Approved Maintenance Outages, is not likely to have a detrimental effect on the efficient use and reliable operation of the CAISO Controlled Grid, the CAISO shall authorize the Maintenance Outage or change to the Approved Maintenance Outage, and shall so notify the requesting Operator and other entities who may be directly affected.

**9.3.6.8** Where, in the reasonable opinion of the CAISO Outage Coordination Office, the requested Maintenance Outage or requested change to an Approved Maintenance Outage is likely to have a detrimental effect on the efficient use and reliable operation of the CAISO Controlled Grid, the CAISO Outage Coordination Office may reject the requested Maintenance Outage or requested change to Approved Maintenance Outage. If in the CAISO's determination, any of the Maintenance Outages would cause the CAISO to violate the Applicable Reliability Criteria, the CAISO will notify the relevant Operator, and the Operator will then revise the proposed Maintenance Outage and inform the CAISO of the proposed changes. The CAISO Outage Coordination Office shall, in a rejection notice, identify the CAISO's reliability, security and market concerns which prompt the rejection and suggest possible remedies or schedule revisions which might mitigate any such concerns. The CAISO Outage Coordination Office may provide each Operator in writing with any suggested amendments to those Maintenance Outage requests rejected by the CAISO Outage Coordination Office. Any such suggested amendments will be considered as a CAISO maintenance request and will be approved in accordance with the process set forth in Section 9.3.7 of the CAISO Tariff. The determination of the CAISO Outage Coordination Office shall be final and binding on the Operator. If, within fourteen (14) days of having made its determination, the Operator requests the CAISO Outage Coordination Office to provide reasons for its determination, it shall do so as soon as is reasonably practicable. The CAISO will give reasons for informational purposes only and without affecting in any way the finality or validity of the determination.

**9.3.6.9 Failure to Meet Requirements.**

Any request to consider maintenance that does not meet the notification requirements contained in Sections 9.3.8.2 and 9.3.8.3 will be rejected without further consideration, unless Section 9.3.10 applies.

**9.3.6.10 Cancellation of Approved Maintenance Outage.**

In the event an Operator of facilities forming part of the CAISO Controlled Grid cancels an Approved Maintenance Outage after 5:00 a.m. of the day prior to the day upon which the Outage is scheduled to commence and the CAISO determines that the change was not required to preserve System Reliability, the CAISO may disregard the availability of the affected facilities in determining the availability of transmission capacity in the Day-Ahead Market, provided, however, that the CAISO will, as promptly as practicable, notify Market Participants and reflect the availability of the affected facilities in determining the availability of transmission capacity in the HASP and Real-Time Market.

**9.3.7 Maintenance Outage Requests by the CAISO.**

The CAISO Outage Coordination Office may at any time request a Maintenance Outage or a change to an Approved Maintenance Outage from an Operator if, in the opinion of the CAISO Outage Coordination Office, the requested Maintenance Outage or change is required to secure the efficient use and reliable operation of the CAISO Controlled Grid. In addition, the CAISO Outage Coordination Office may, by providing notice no later than 5:00 a.m. of the day prior to the day upon which the Outage is scheduled to commence, direct the Operator to cancel an Approved Maintenance Outage, when necessary to preserve or maintain System Reliability or, with respect to Reliability Must-Run Units or facilities that form part of the CAISO Controlled Grid, to avoid unduly significant market impacts that would arise if the Outage were to proceed as scheduled. The Operator, acting in accordance with Good Utility Practice, shall comply with the CAISO's direction and the provisions of Sections 9.3.7.1 and 9.3.7.2 shall apply. The CAISO shall give notice of any such direction to Market Participants prior to the deadline for submission of Day-Ahead Bids for the day on which the Outage was to have commenced. For purposes of this section and Section 9.3.3, an "unduly significant market impact" means an unplanned event or circumstance (e.g., unseasonable weather, a Forced Outage of a facility, or other occurrence) that adversely affects the competitive nature and efficient workings of the CAISO Markets, and is of such severity that a prudent Operator would not have scheduled a Maintenance Outage of its facility if the unplanned event or circumstance could have been anticipated.

**9.3.7.1** The Operator may: (1) refuse the request; (2) agree to the request; or (3) agree to the request subject to specific conditions. The Operator, acting in accordance with Good Utility Practice, shall make every effort to comply with requests by the CAISO Outage Coordination Office. In the event that the Operator refuses the CAISO's request, it shall provide to the CAISO Outage Coordination Office written justification for its position within seventy-two (72) hours.

**9.3.7.2** In response the CAISO Outage Coordination Office may: (1) overrule any refusal of a Maintenance Outage or a change to an Approved Maintenance Outage by an Operator, in which case the CAISO Outage Coordination Office determination shall be final; (2) accept any changes or conditions proposed by the Operator, in which case the Maintenance Outage request or the request to change an Approved Maintenance Outage shall be deemed to be amended accordingly; or (3) reject the change or condition, in which case the CAISO Outage Coordination Office and the Operator shall determine if acceptable alternative conditions or changes can be agreed. If the Operator and the CAISO Outage Coordination Office cannot agree on acceptable alternative conditions or changes to the CAISO Outage Coordination Office's request for a Maintenance Outage or change to an Approved Maintenance Outage, the CAISO Outage Coordination Office determination shall be final. If the Operator and the CAISO Outage Coordination Office cannot agree on acceptable alternative conditions or changes to the CAISO Outage Coordination Office's request for a Maintenance Outage or change to an Approved Maintenance Outage, the CAISO may notify the FERC of the dispute and take any other steps that are within its authority to maintain the reliability of the CAISO Controlled Grid.

**9.3.7.3** The CAISO will compensate the applicable Participating TO or Participating Generator for any direct and verifiable costs that such Participating TO or Participating Generator incurs as a result of the CAISO's cancellation of an Approved Maintenance Outage pursuant to this Section 9.3.7. For purposes of this section, direct costs include verifiable labor and equipment rental costs that have been incurred by the applicable Participating TO or Participating Generator solely as a result of the CAISO's cancellation of the Approved Maintenance Outage. Each Participating TO or Participating Generator must make a reasonable effort to avoid incurring any such direct costs through such measures as, but not

limited to, the prompt cancellation of all contractual arrangements with third parties related to the Approved Maintenance Outage.

**9.3.7.4** The amount used to compensate each applicable Participating TO and Participating Generator, as described in Section 9.3.7.3, shall be charged to the Scheduling Coordinators in proportion to their metered Demand (including exports) during the Settlement Period(s) of the originally scheduled Outage.

**9.3.8** The CAISO Outage Coordination Office shall provide notice to the Operator of the approval or disapproval of any requested Maintenance Outage. Additionally, the CAISO Outage Coordination Office shall notify any Connected Entity that may in the reasonable opinion of the CAISO Outage Coordination Office be directly affected by an Approved Maintenance Outage. The content of and procedures for such notice shall be established by the CAISO.

**9.3.8.1 Data Required.**

The Operator of a Participating Generator owned or controlled by a Participating Generator shall submit to the CAISO pursuant to Section 9.3.4 its request to confirm the schedule of a planned Maintenance Outage or to change the schedule of a planned Maintenance Outage. Such request must be made to the CAISO Outage Coordination Office by no later than 11:30 am three (3) working days prior to the starting date of the proposed Outage (or as specified on the CAISO Website). Likewise, all Participating TOs shall submit a formal request to confirm or change an Approved Maintenance Outage with respect to any CAISO Controlled Grid facility to the CAISO Outage Coordination Office in accordance with Sections 9.3.8.2 and 9.3.8.3.

Such schedule confirmation request shall specify the following:

- (a) the Generating Unit or System Unit name and Location Code, or the identification of the transmission system element(s) to be maintained including location;
- (b) the nature of the maintenance to be performed;
- (c) the date and time the Outage is to begin;

- (d) the date and time the Outage is to be completed;
- (e) the time required to terminate the Outage and restore the Generating Unit to normal capacity or the transmission system to normal operation;
- (f) identification of primary and alternate telephone numbers for the Operator's single point of contact; and
- (g) in the case of a request for a change to an Approved Maintenance Outage, the date and time of the original Approved Maintenance Outage.

**9.3.8.2 Three (3) Day Prior Notification.**

Any request to confirm an Approved Maintenance Outage that may affect the transfer capability of any part of the CAISO Controlled Grid must be submitted no later than 11:30 am at least three (3) working days prior to the starting date of the Approved Maintenance Outage (or as posted on the CAISO Website). This Section applies to facilities as described on the CAISO Website.

Failure to submit a request for an Outage by the proper time may mean a delay in approval from the CAISO or may cause that Outage to be designated as a Forced Outage based on the nearness of the request to the requested Outage date.

**9.3.8.3 One (1) Day Prior Notification.**

Any request to confirm or change the Schedule for an Approved Maintenance Outage requiring only one day notice (as detailed on the CAISO Website) must be submitted no later than 11:30 am at least one (1) day prior to the starting date of the Outage (or as specified on the CAISO Website). Failure to submit a request for an Outage by the proper time may mean a delay in approval from the CAISO or may cause that Outage to be designated as a Forced Outage.

**9.3.8.4 Priority of Outage Requests.**

Outage requests which are listed in the long-range maintenance schedules submitted to and approved by the CAISO will be given a priority in the scheduling and approval of Outage requests over those which have not been listed.

**9.3.8.5 Delay.**

The CAISO Outage Coordination Office may delay its approval of an Approved Maintenance Outage schedule if sufficient or complete information is not received by the CAISO Outage Coordination Office within the time frames provided in Sections 9.3.8.2 and 9.3.8.3.

**9.3.9 Final Approval, Delay and Withholding.**

On the day on which an Approved Maintenance Outage is scheduled to commence, the Operator shall contact the CAISO Control Center for final approval of the Maintenance Outage. No Maintenance Outage shall commence without such final approval (including the time of release, in hours and minutes) being obtained from the CAISO Control Center whose decision shall be final. The CAISO Outage Coordination Office may delay its approval of a scheduled Maintenance Outage for a Participating Generator if sufficient or complete information is not received by the CAISO Outage Coordination Office within the time frames set forth in Section 9.3.8.1. The CAISO Control Center shall have the authority to withhold a Final Approval for an Approved Maintenance Outage for reasons of System Reliability, security or system status of the CAISO Controlled Grid or market impact. The CAISO Control Center shall immediately notify the relevant Operator of its intention to withhold the Final Approval. The Generator Maintenance Outage or CAISO Controlled Grid facility Maintenance Outage will then be rescheduled pursuant to this CAISO Tariff.

**9.3.10 Forced Outages.**

**9.3.10.1** Coordination of all Forced Outages (consistent with Section 9.3.4) will be through the single point of contact between the Operator and the CAISO Control Center.

**9.3.10.1A** Each PTO shall report any change or potential change in equipment status of the PTO's transmission assets turned over to the control of the CAISO or in equipment that affects transmission assets turned over to the control of the CAISO immediately to the CAISO (this will include line and station equipment, line protection, Remedial Action Schemes and communication problems, etc.). Each PTO shall also keep the CAISO immediately informed as to any change or potential change in the PTO's

transmission system that could affect the reliability of the CAISO Controlled Grid. This would include, but is not limited to, adverse weather conditions, fires, bomb threats, system failures, etc.

**9.3.10.2** Any Operator, upon identification of a situation likely to result in a Forced Outage within the next twenty-four (24) hours unless immediate corrective action is taken, where such action requires the removing from service or restricting an operating Generating Unit or removing a transmission facility from service, shall communicate directly with the CAISO Control Center. All notifications of Forced Outages shall be communicated to the CAISO Control Center with as much notice as possible in order that the necessary security analysis and CAISO Controlled Grid assessments may be performed. If prior notice of a Forced Outage cannot be given, the Operator shall notify the CAISO of the Forced Outage within thirty (30) minutes after it occurs. Any Operator, upon identification of a situation likely to result in a Forced Outage but of a nature not requiring a removal from service until some time more than twenty-four (24) hours in the future will be subject to the provisions of Section 9 with respect to any necessary Outage except the requirements imposing time limits for notification will be waived and the request will be expedited by the CAISO provided notice is given as soon as possible.

**9.3.10.3** The CAISO Control Center shall coordinate any operational changes necessary to accommodate a Forced Outage and Market Participants shall comply with the CAISO's instructions given for that purpose.

**9.3.10.4** All Forced Outages shall be communicated by the CAISO Control Center to Operators likely to be affected by the Outage using the same procedures adopted for Maintenance Outage coordination procedures.

**9.3.10.5** Within forty-eight (48) hours of the commencement of a Forced Outage, the Operator shall provide to the CAISO an explanation of the Forced Outage, including a description of the equipment failure or other cause and a description of all remedial actions taken by the Operator. Upon request of the CAISO, Operators, and where applicable, Eligible Customers, Scheduling Coordinators, UDCs and MSSs promptly shall provide information requested by the CAISO to enable the CAISO to review the explanation submitted by the Operator and to prepare reports on Forced Outages. If the CAISO

determines that any Forced Outage may have been the result of gaming or other questionable behavior by the Operator, the CAISO shall submit a report describing the basis for its determination to the FERC. The CAISO shall consider the following factors when evaluating the Forced Outage to determine if the Forced Outage was the result of gaming or other questionable behavior by the Operator: 1) if the Forced Outage coincided with certain market conditions such that the Forced Outage may have influenced market prices or the cost of payments associated with Exceptional Dispatches; 2) if the Forced Outage coincided with a change in the Bids submitted for any units or resources controlled by the Operator or the Operator's Scheduling Coordinator; 3) if the CAISO had recently rejected a request for an outage for, or to shut down, the Generating Unit experiencing the Forced Outage; 4) if the timing or content of the notice of the Forced Outage provided to the CAISO was inconsistent with subsequent reports of or the actual cause of the outage; 5) if the Forced Outage or the duration of the Forced Outage was inconsistent with the history or past performance of that Generating Unit or similar Generating Units; 6) if the Forced Outage created or exacerbated Congestion; 7) if the Forced Outage was extended with little or no notice; 8) if the Operator had other alternatives to resolve the problems leading to the Forced Outage; 9) if the Operator took reasonable action to minimize the duration of the Forced Outage; or 10) if the Operator failed to provide the CAISO an explanation of the Forced Outage within forty-eight (48) hours or failed to provide any additional information or access to the generating facility requested by the CAISO within a reasonable time.

**9.3.10.6 Other Control Areas.**

The CAISO Outage Coordination Office shall make all reasonable efforts to coordinate Outages involving other Control Areas or affecting an intertie, import or export capability not under the Operational Control of the CAISO to the extent that they may affect the reliability of the CAISO Controlled Grid.

**9.4 Outage Coordination For New Facilities.**

**9.4.1 Coordination by CAISO.**



The procedure to energize and place in service any new or relocated piece of equipment, connected to the CAISO Controlled Grid, must be set out by the Operator or Connected Entity in a written procedure and coordinated by the CAISO Outage Coordination Office.

#### **9.4.2 Types of Work Requiring Coordination.**

The types of work which the CAISO will coordinate includes any new addition, replacement or modification to the CAISO Controlled Grid, including:

- (a) transmission lines forming part of the CAISO Controlled Grid;
- (b) equipment including circuit breakers, transformers, disconnects, reactive devices, wave traps, forming part of the CAISO Controlled Grid;
- (c) Generating Unit interconnections; and
- (d) protection and control schemes, including RAS, SCADA, EMS, or AGC.

#### **9.4.3 Uncomplicated Work.**

When line rearrangements and/or station equipment work is uncomplicated and easily understood, the CAISO Outage Coordination Office may determine that the work can be accomplished using Outages approved in accordance with Section 9.3.6. The CAISO Outage Coordination Office will make this determination in coordination with the respective requesting Operator or Connected Entity.

#### **9.4.4 Special Procedures for More Complex Work.**

##### **9.4.4.1 Responsibility for Preparation.**

In cases to which 9.4.3 does not apply, it is the responsibility of the requesting Operator or Connected Entity to prepare a written procedure to enable the CAISO to approve Outages in a manner that enables the necessary work to proceed. The CAISO Outage Coordination Office must approve the procedure.

##### **9.4.4.2 Information to be Provided to the CAISO.**

The written procedure must be received by the CAISO Outage Coordination Office a minimum of four (4) weeks prior to the start of procedure. Adequate drawings will be attached to the procedure to help clarify

the work being performed and the Outages that will be required to complete the work must be specified. The procedure shall include all of the information referred to on the CAISO Website.

**9.4.4.3 Approval of the Procedure.**

Upon receipt of the procedure and drawings referred to in Section 9.4.4.2, the CAISO Outage Coordination Office will review the procedure and notify the Operator or Connected Entity of any required modifications. The CAISO Outage Coordination Office may, at its discretion, require changes to and more detail to be inserted in the procedure. The requesting Operator or Connected Entity will consult with other entities likely to be affected and will revise the procedure, following any necessary or appropriate discussions with the CAISO to reflect the requirements of the CAISO. Following the CAISO approval, an approved copy of the procedure will then be transmitted to the Operator or Connected Entity and the other entities likely to be affected.

**9.4.4.4 Changes to Procedure.**

Once the procedure is approved by the CAISO Outage Coordination Office any modifications to the procedure will require the requesting Operator or Connected Entity to notify the CAISO Outage Coordination Office with as much lead time as possible of the recommended changes. The modified procedure will then have to be approved by the CAISO Outage Coordination Office in accordance with Section 9.4.4.2 and 9.4.4.3.

**9.4.4.5 Approval of Work Requiring Coordination.**

No work can begin pursuant to any approved procedure unless approved by the CAISO Outage Coordination Office.

**9.5 Records.**

The CAISO and all Operators shall develop procedures to keep a record of Approved Maintenance Outages as they are implemented and to report the completion of Approved Maintenance Outages. Such records are available for inspection by Operators and Connected Entities at the CAISO Outage Coordination Office. Only those records pertaining to the equipment or facilities owned by the relevant

Operator or Connected Entity will be made available for inspection at the CAISO Outage Coordination Office, and such records will only be made available provided notice is given in writing to the CAISO fifteen (15) days in advance of the requested inspection date.

**9.6 Facility Owner.**

The Facility Owner shall remain solely and directly responsible for the performance of all maintenance work, whether on energized or de-energized facilities, including all activities related to providing a safe working environment.

**10 METERING.**

**10.1 General Provisions.**

**10.1.1 Role of the CAISO.**

The CAISO is responsible for establishing and maintaining the revenue meter data acquisition and processing system (RMDAPS). RMDAPS will acquire revenue quality meter data for use in the CAISO's Settlement and billing process. The CAISO is also responsible for:

- (a) setting standards and procedures for the registration, certification, auditing, testing and maintenance of revenue quality meters and meter data servers; and
- (b) for establishing procedures for the collection, security, validation and estimation of Meter Data for metered entities that are subject to the CAISO Tariff.

**10.1.2 Meter Data Retention by the CAISO.**

The CAISO will maintain a record of all Revenue Quality Meter Data and Settlement Quality Meter Data provided to it, as well as the Settlement Quality Meter Data it produces, for a period of 18 months on site at the CAISO's facilities and for a period of 10 years in the CAISO's archive storage facilities. The CAISO will, on reasonable notice, provide a Scheduling Coordinator with access to Meter Data or Settlement Quality Meter Data provided that the Scheduling Coordinator requesting access represented the entity that submitted that data at the time the data was submitted to the CAISO.

**10.1.3 Netting.**

**10.1.3.1 Permitted Netting.**

CAISO Metered Entities and Scheduling Coordinators may, when providing Meter Data to the CAISO, net MWh values for Generating Unit output and auxiliary Load equipment electrically connected to that Generating Unit at the same point provided that the Generating Unit is on-line and is producing sufficient output to serve all of that auxiliary Load equipment. For example, where a Generating Unit's auxiliary load equipment is served via a distribution line that is separate from the switchyard to which the

Generating Unit is connected, that Generating Unit and auxiliary load equipment will not be considered to be electrically connected at the same point.

**10.1.3.2 Prohibited Netting.**

CAISO Metered Entities or Scheduling Coordinators may not net values for Generating Unit output and Load. CAISO Metered Entities or Scheduling Coordinators that serve third party Load connected to a Generating Unit's auxiliary system must add that third party Load to the Generating Unit's output. The CAISO Metered Entity may add that third party Load to the Generating Unit's output either by means of a hard wire local meter connection between the metering systems of the third party Load and the Generating Unit or by requesting the CAISO to use RMDAPS to perform the addition. Scheduling Coordinators representing SC Metered Entities that Serve third party Load connected to the auxiliary system of a Generating Unit must ensure that those SC Metered Entities add the Energy consumed by such third parties to that Generating Unit's output so as to ensure proper settlement of that Generating Unit's gross output. The CAISO Metered Entity or the Scheduling Coordinator must ensure that the third party Load has Metering Facilities that meet the standards referred to in this Section 10 and the Business Practice Manuals.

**10.1.4 Meter Service Agreements.**

If a CAISO Metered Entity is also a Scheduling Coordinator, it shall be treated as a CAISO Metered Entity for the purposes of this Section 10 and will be required to enter into a CAISO Meter Service Agreement. A CAISO Metered Entity will not be required to enter into a Scheduling Coordinator Meter Service Agreement unless it represents any metered entities other than itself. A Scheduling Coordinator Meter Service Agreement entered into by an CAISO Metered Entity shall only apply to those metered entities that the CAISO Metered Entity represents; the Scheduling Coordinator Meter Service Agreement shall not apply to the CAISO Metered Entity other than in its capacity as Scheduling Coordinator for those other Scheduling Coordinator Metered Entities.

**10.1.5 Access to Meter Data.**

The CAISO has complete authority over all rights of access to (and has authority to deny access to) the CAISO's RMDAPS and Settlement Quality Meter Data Systems including servers (where used), interface equipment, and software needed to collect the relevant information for Settlement, billing and related purposes. Each Market Participant acknowledges this CAISO authority as a condition of CAISO Controlled Grid service and participation. For CAISO Metered Entities, authority over the sealing of meters, and all related metering facilities, shall reside solely with the CAISO for all CAISO designated Meter Points, regardless of any remote electronic access that a CAISO Metered Entity or its Scheduling Coordinator may have provided to third parties, except as otherwise may be required by law, FERC, any Local Regulatory Authority or other provision of this CAISO Tariff. Meter Data supplied by a CAISO Metered Entity shall be made available by the CAISO to the Scheduling Coordinator representing such CAISO Metered Entity and the other authorized users identified in its Meter Service agreement, but shall not be disclosed to any other third party except as may otherwise be required by law, FERC, any Local Regulatory Authority or other provision of this CAISO Tariff. Access by third parties other than authorized users to Meter Data held by the CAISO shall be coordinated through the Scheduling Coordinator representing the relevant CAISO Metered Entity that supplied the data and shall not be obtained directly from the CAISO on any basis including, without limitation, by accessing the RMDAPS.

**10.1.6 Failure of CAISO Facilities or Systems.**

In the event facility and/or systems failures impact the CAISO's ability to accept, collect, and process Revenue Quality Meter Data or Settlement Quality Meter Data, alternative measures may be required by the CAISO, CAISO-Metered Entities, and Scheduling Coordinator Metered Entities. These measures will be maintained in the metering area of the CAISO Website.

**10.2 Metering for CAISO Metered Entities.**

Unless otherwise expressly stated to the contrary, the requirements set forth in Section 10.1 and 10.2 apply to CAISO Metered Entities. CAISO Metered Entities will either provide Revenue Quality Meter Data

directly to the CAISO via Compatible Meter Data Systems or their revenue quality meters will be directly polled by the CAISO's RMDAPS as specified in this CAISO Tariff and Business Practice Manuals.

**10.2.1 Responsibilities of CAISO Metered Entities.**

**10.2.1.1 Duty to Provide Meter Data.**

CAISO Metered Entities shall ensure that Meter Data from their meters directly connected to the CAISO Controlled Grid or at interconnections thereto, including interconnections between utility Service Areas which have separate UFE calculations, is made available to the CAISO RMDAPS in accordance with the requirements of this Section 10 and the Business Practice Manuals.

**10.2.1.2 Format for Data Submission.**

**10.2.1.2.1 Data Provided Directly From Meters.**

CAISO Metered Entities must ensure that the Meter Data obtained by the CAISO directly from their revenue quality meters is raw, unedited and unaggregated Meter Data in kWh and kVarh values. The CAISO will be responsible for the validation, editing and estimation of that Meter Data in order to produce Settlement Quality Meter Data.

**10.2.1.2.2 Data Provided From Meter Data Servers.**

CAISO Metered Entities or Scheduling Coordinators representing CAISO Metered Entities must ensure that the Meter Data provided to the CAISO from a Compatible Meter Data System identifies the relevant CAISO Metered Entity and is raw, unedited and unaggregated Meter Data in kWh and kVarh values. The CAISO will be responsible for the validation, editing and estimation of that Meter Data in order to produce Settlement Quality Meter Data.

**10.2.1.3 Access to Settlement Quality Meter Data.**

Scheduling Coordinators may obtain Settlement Quality Meter Data relating to the CAISO Metered Entities they represent by directly accessing the Settlement Quality Meter data systems using the Meter Data Request Formats. The CAISO will use its best efforts to ensure that such data is made available to Scheduling Coordinators within 5 Business Days of the relevant Trading Day.

**10.2.2 Duty to Install and Maintain Meters.**

CAISO Metered Entities, at their cost, shall install and maintain, or cause to be installed and maintained, metering equipment and associated communication devices at CAISO-designated Meter Points to meet the requirements of this Section 10 and the applicable Business Practice Manuals. The CAISO may require CAISO Metered Entities to install, at the cost of CAISO Metered Entities, additional meters and relevant metering system components, including Real-Time metering, at CAISO-specified Meter Points or other locations as deemed necessary by the CAISO, in addition to those connected to or existing on the CAISO Controlled Grid at the CAISO Operations Date. In directing the addition of meters and metering system components that would impose increased costs on a CAISO Metered Entity, the CAISO shall give due consideration to whether the expected benefits of such equipment are sufficient to justify such increased costs. Nothing in this Section 10 shall preclude CAISO Metered Entities from installing additional meters, instrument transformers and associated communications facilities not deemed necessary by the CAISO at their own cost. A CAISO Metered Entity may not commence installing such additional metered facilities until the CAISO has approved the Metering Entity's Proposal for Installation. If a CAISO Metered Entity installs such additional metering, such metering must: (i) be installed and maintained at the CAISO Metered Entity's cost and (ii) not unduly interfere with the accuracy of any primary meter and, if that primary meter is directly polled by the CAISO, the CAISO's ability to poll directly that meter.

**10.2.3 Metering Standards.**

Each CAISO Metered Entity shall ensure that each of its meters used to provide Meter Data to the CAISO complies with the meter standards and accuracy requirements for meters set forth in this Tariff and the applicable Business Practice Manuals. In relation to revenue quality meters, the CAISO will publish on the CAISO Website, for information purposes and without liability on the part of the CAISO, a list of the types and manufacturers of revenue quality meters that have been independently certified as meeting the standards for revenue quality meters referred to in the CAISO Tariff.



#### **10.2.4 Certification of Meters.**

Each CAISO Metered Entity that makes Meter Data available to the CAISO shall ensure that metering facilities used to produce such Meter Data have been certified by the CAISO as meeting the requirements of Section 10. Certification of the relevant metering facilities shall only be provided upon the production of such evidence as the CAISO may reasonably require to demonstrate that the facilities in question have been documented, inspected and successfully tested by the CAISO or a CAISO Authorized Inspector for conformance to the standards and accuracy requirements referred to in the Business Practice Manuals and this Section 10. Meters of End-Use Scheduling Coordinator Metered Entities in place as of the CAISO Operations Date are deemed to be certified as in compliance with this CAISO Tariff and the applicable Business Practice Manuals and such End-Users shall not be required to enter into meter service agreements with the CAISO provided that their Scheduling Coordinators have entered into a meter service agreement with the CAISO. CAISO certification pursuant to this Section 10.2.4 shall not relieve the CAISO Metered Entity from the obligation to ensure that its metering facilities continue to remain in compliance with the requirements of this CAISO Tariff and the applicable Business Practice Manuals.

##### **10.2.4.1 Requesting Certification.**

A CAISO Metered Entity seeking certification of its Metering Facilities shall independently engage a CAISO Authorized Inspector to perform certification of its Metering Facilities. A CAISO Metered Entity may request the CAISO to perform the certification of its Metering Facilities if it would be impractical or impossible for that CAISO Metered Entity to engage a CAISO Authorized Inspector to perform the certification. The CAISO may refuse any such request by a CAISO Metered Entity if it is of the opinion that it is not impractical or impossible for that CAISO Metered Entity to engage a CAISO Authorized Inspector.

**10.2.4.2 Certification by the CAISO.**

All requests made to the CAISO to perform the certification of Metering Facilities must be made in accordance with the Certification Process for Metering Facilities and technical specifications published in the Business Practice Manuals and be accompanied by the documents referred to in the applicable Business Practice Manual. If the CAISO agrees to perform the certification of Metering Facilities, the CAISO and that CAISO Metered Entity will agree the terms and conditions on which the CAISO will undertake the certification, including the assistance to be provided by the CAISO Metered Entity, the responsibility for costs and the indemnities to be provided.

**10.2.4.3 Criteria for Certification.**

Subject to any exemption granted by the CAISO, the criteria for certifying the Metering Facilities of CAISO Metered Entities pursuant to the CAISO Tariff are the criteria set forth in the Business Practice Manuals.

**10.2.4.4 Certificate of Compliance.**

If the Metering Facilities satisfy the certification criteria as specified in this CAISO Tariff and in the Business Practice Manuals (after taking into account any exemptions to the certification criteria granted by the CAISO), the CAISO will issue a Certificate of Compliance in respect of those Metering Facilities and provide the original Certificate of Compliance to the CAISO Metered Entity that requested the certification of those Metering Facilities.

**10.2.4.5 Obligation to Maintain Certification.**

CAISO Metered Entities must ensure that their Metering Facilities continue to comply with the certification criteria referred to in the CAISO Tariff and the Business Practice Manuals.

**10.2.4.6 Revocation of Certification.**

The CAISO may revoke in full or in part any Certificate of Compliance if:

- (a) it has reasonable grounds to believe that all or some of the Metering Facilities covered by that Certificate of Compliance no longer meet the certification criteria for Metering Facilities contained in the CAISO Tariff and the Business Practice Manuals; and
- (b) it has given written notice to the relevant CAISO Metered Entity stating that it does not believe that the identified Metering Facilities meet the certification criteria (including the reasons for that belief) and that CAISO Metered Entity fails to satisfy the CAISO, within the time period specified in the CAISO's notice, that the Metering Facilities meet the certification criteria.

If the CAISO revokes in full or part a Certificate of Compliance, the relevant CAISO Metered Entity may seek recertification of the relevant Metering Facilities by requesting certification. Such request must indicate that it relates to Metering Facilities in respect of which the CAISO has previously revoked a Certificate of Compliance.

Subject to any exemption granted by the CAISO under this CAISO Tariff, the CAISO will not accept Revenue Quality Meter Data from a CAISO Metered Entity unless that Meter Data is produced by Metering Facilities that are certified in accordance with this CAISO Tariff and the CAISO Metered Entity has a current certificate of compliance.

#### **10.2.4.7 Changes to Certified Metering Facilities.**

The CAISO's approval must be obtained before any modifications or changes are made to any Metering Facilities of a CAISO Metered Entity which have been certified pursuant to the CAISO Tariff. The CAISO may, at its discretion, require those Metering Facilities to be recertified.

#### **10.2.5 CAISO Authorized Inspectors.**

##### **10.2.5.1 Published List of Inspectors.**

The CAISO will publish on the CAISO Website, for informational purposes only, a list of the CAISO Authorized Inspectors and details of the procedure for applying to become a CAISO Authorized Inspector.

The CAISO will, on request, provide a copy of that list to entities that do not have access to the CAISO Website.

**10.2.5.2 Current Certificates.**

It is the responsibility of the relevant CAISO Metered Entity to ensure that any inspector it engages to undertake the certification of its Metering Facilities holds a current certificate of approval issued by the CAISO which authorizes that inspector to carry out the duties of a CAISO Authorized Inspector.

**10.2.6 Metering Communications.**

The CAISO's RMDAPS shall collect and process Revenue Quality Meter Data made available by CAISO Metered Entities pursuant to meter service agreements. Revenue Quality Meter Data for CAISO Metered Entities shall be made available to the CAISO's RMDAPS either directly by the CAISO Metered Entity or via a central data server which collects Revenue Quality Meter Data for various CAISO Metered Entities provided that the central data server does not aggregate or adjust that data. Revenue Quality Meter Data on the CAISO's RMDAPS may be provided or made accessible to other CAISO systems as deemed necessary by the CAISO, subject to the CAISO being satisfied that such access by such authorized users and/or systems will not adversely effect the security of the data held by the CAISO. CAISO Metered Entities shall ensure that their Metering Facilities are compatible with the CAISO's RMDAPS for these purposes. The CAISO may, at its discretion, exempt a CAISO Metered Entity from the requirement to make Meter Data directly available to the CAISO's RMDAPS, for example, where the installation of communication links is unnecessary, impracticable or uneconomic. The CAISO shall maintain the RMDAPS and remedy any faults occurring in such system. Scheduling Coordinators and other authorized users requiring Settlement Quality Meter Data for CAISO Metered Entities on whose behalf they Bid may obtain such data by accessing the CAISO's Settlement Quality Meter Data systems in accordance with the CAISO Tariff and applicable Business Practice Manuals. Scheduling Coordinators and other authorized users shall not poll the CAISO revenue meters for any other purpose, unless specifically authorized in their Meter Service Agreement.

**10.2.7 Meter Service Agreements for CAISO Metered Entities.**

The CAISO shall establish Meter Service Agreements with CAISO Metered Entities for the collection of Revenue Quality Meter Data. Such agreements shall specify that CAISO Metered Entities shall make available to the CAISO's RMDAPS, Revenue Quality Meter Data meeting the requirements of this Section 10. The Meter Service Agreement and this Section 10 shall specify the format of Meter Data to be submitted, which shall be identified by Transmission Owner, Distribution System, PNode, CAISO Controlled Grid interface point and other information reasonably required by the CAISO. A Meter service agreement entered into by a CAISO metered entity shall only apply to those entities that the CAISO Metered Entity represents. Meter Service Agreements will identify other authorized users that are allowed to access the Settlement Quality Meter Data relating to the CAISO Metered Entities they represent that is held by the CAISO.

**10.2.8 Security and Meter Data Validation Procedures.**

The Meter Service Agreement for each CAISO Metered Entity, this CAISO Tariff, and the applicable Business Practice Manuals shall specify, in such detail as the CAISO may deem necessary, the Meter Data security and validation procedures that the CAISO shall apply to the Meter Data made available by each CAISO Metered Entity. The CAISO may base the security and validation procedures on historical data or an appropriate alternative data source. The CAISO shall correct or replace or cause to be corrected or replaced inaccurate or missing data. The procedure may include data correction and substitution algorithms which shall estimate, substitute and flag such inaccurate or missing data. Any necessary correction or replacement shall be approved by the CAISO prior to the data being sent to the CAISO for settlement purposes. Security and validation measures for existing Tie Point Meters shall be consistent with existing arrangements with the operators in adjacent Control Areas. Any additional measures or changes to the existing arrangements shall only be implemented upon mutual agreement of the CAISO and the operator in the adjacent Control Area.

**10.2.8.1 Meter Site Security.**

Metering Facilities of CAISO Metered Entities (including communications devices) and secondary devices that could have any impact on the performance of the Metering Facilities must be sealed by the CAISO.

**10.2.8.2 Third Party Access to Meters.**

(a) Local Access.

If a CAISO Metered Entity desires to grant a third party local access to its revenue quality meters, those meters must be equipped with CAISO approved communications capabilities in accordance with the applicable Business Practice Manuals. The CAISO may set the password and any other security requirements for locally accessing the revenue quality meters of CAISO Metered Entities so as to ensure the security of those meters and their Meter Data. The CAISO may alter the password and other requirements for locally accessing those meters from time to time as it determines necessary. The CAISO must provide CAISO Metered Entities with the current password and other requirements for locally accessing their revenue quality meters. CAISO Metered Entities must not give a third party local access to its revenue quality meters or disclose to that third party the password to its revenue quality meters without the CAISO's prior approval which shall not unreasonably be withheld. CAISO Metered Entities will be responsible for ensuring that a third party approved by the CAISO to access its revenue quality meters only accesses the data it is approved to access and that the data are only accessed for the purposes for which the access was approved.

(b) Remote Access.

The CAISO may set the password and any other security requirements for remotely accessing the revenue quality meters of CAISO Metered Entities so as to ensure the security of those meters and their Meter Data. The CAISO will alter the password and other requirements for remotely accessing those meters from time to time as it determines necessary. The CAISO must provide CAISO Metered Entities with the current password and other requirements for remotely accessing their revenue quality meters.

CAISO Metered Entities must not give a third party remote access to its revenue quality meters or disclose to that third party the password to its revenue quality meters without the CAISO's prior approval which shall not unreasonably be withheld. CAISO Metered Entities will be responsible for ensuring that a third party approved by the CAISO to access its revenue quality meters only accesses the data it is approved to access and that the data are only accessed for the purposes for which the access was approved.

**10.2.8.3 Third Party Access Withdrawn.**

If, in the reasonable opinion of the CAISO, access granted to a third party by a CAISO Metered Entity in any way interferes or impedes with the CAISO's ability to poll any revenue quality meter, the CAISO may require that CAISO Metered Entity to immediately withdraw any access granted to a third party.

**10.2.8.4 RMDAPS Security.**

The CAISO will provide any needed information to entities that are permitted to access RMDAPS. The CAISO must maintain the security and integrity of Revenue Quality Meter Data brought into RMDAPS.

**10.2.9 Validation, Editing and Estimating of Meter Data.**

Subject to any exemption granted by the CAISO, Revenue Quality Meter Data that CAISO Metered Entities provide to the CAISO will be processed using the validation, editing and estimation procedures published in the Business Practice Manuals from time to time in order to produce Settlement Quality Meter Data.

**10.2.9.1 Obligation to Assist.**

At the request of the CAISO, CAISO Metered Entities shall assist the CAISO in correcting or replacing defective data and in detecting and correcting underlying causes for such defects. Such assistance shall be rendered in a timely manner so that the Settlement process is not delayed.

**10.2.9.2 Availability of Meter Data.**

Subject to any exemption granted by the CAISO, Meter Data must be recorded:

- (a) at 5-minute intervals by Loads and Generating Units providing Ancillary Services and/or Imbalance Energy; and
- (b) at 1-hour intervals by other CAISO Metered Entities.

Meter Data will be collected regularly in accordance with the frequency for collection determined by the CAISO from time to time. The CAISO may also collect Meter Data on demand. The CAISO will issue such demands using voice communications. If the CAISO issues a demand for Meter Data, the CAISO Metered Entity from which the CAISO demands that Meter Data must provide that Meter Data to the CAISO within 10 minutes of receiving the demand from the CAISO or, if that CAISO Metered Entity has been granted an exemption from directly interfacing with RMDAPS, within the time period specified in that exemption.

**10.2.9.3 Failure to Achieve Required Standards.**

Meter service agreements shall set out appropriate measures and rights the CAISO may exercise upon any failure by the other party to meet the requirements for meter standards and accuracy set out in this Section 10.

**10.2.9.4 CAISO Imposed Penalties and Sanctions.**

The CAISO shall have the authority to impose penalties and sanctions, including but not limited to suspension of trading rights, if an CAISO Metered Entity provides fraudulent metering data to the CAISO. Such penalties shall be approved by FERC.

**10.2.10 Low Voltage Side Metering.**

**10.2.10.1 Requirement for CAISO Approval.**

CAISO Metered Entities may only install revenue quality meters on the low voltage side of step-up transformers if they have obtained the prior approval of the CAISO in accordance with Section 10.2.10 of the CAISO Tariff. CAISO Metered Entities that have installed low voltage side metering, whether such installation was before or after the CAISO Operations Date, shall apply the Transformer Loss Correction Factor in accordance with Section 10.2.10.4.



**10.2.10.2 Request for Approval.**

If a CAISO Metered Entity wishes to install low voltage side metering, it shall submit a written request to the CAISO. That CAISO Metered Entity must:

- (a) request approval to apply the Transformer and/or Line Loss Correction Factor to its revenue quality meter or request approval to have the CAISO apply the Transformer and/or Line Loss Correction Factor;
- (b) provide detailed reasons to support the request for low side metering;
- (c) provide all of the information in relation to the Transformer and/or Line Loss Correction Factor required by the Business Practice Manuals; and
- (d) any other information reasonably requested by the CAISO.

**10.2.10.3 CAISO's Grounds for Approval.**

The CAISO shall approve a request made under Section 10.2.10.2 only if the CAISO is satisfied that adequate accuracy and security of Meter Data obtained can be assured in accordance with Section 10.2.10 of the CAISO Tariff. The CAISO's rejection of such a request may be referred to the CAISO ADR Procedures if, after using all reasonable good faith efforts, the CAISO and a CAISO Metered Entity are unable to reach agreement.

**10.2.10.4 Application of Transformer and/or Line Loss Correction Factor.**

CAISO Metered Entities will apply the Transformer and/or Line Loss Correction Factor as set forth in the Business Practice Manuals. If the CAISO has approved a request from a CAISO Metered Entity for RMDAPS to apply the Transformer and/or Line Loss Correction Factor, RMDAPS will apply the Transformer and/or Line Loss Correction Factor set forth in the Business Practice Manuals. If the CAISO applies the Transformer and/or Line Loss Correction Factor, the CAISO may require the CAISO Metered Entity to pay the reasonable costs incurred by it in applying the Transformer and/or Line Loss Correction Factor

**10.2.11 Audit, Testing Inspection and Certification Requirements.**

CAISO Metered Entities are subject to CAISO audit, testing and certification requirements for their entire metering system(s), including all relevant communication facilities and instrument transformers. The CAISO will have the right to either conduct any audit or test it considers necessary or to witness such audit or test carried out by the CAISO Metered Entity or a CAISO Authorized Inspector engaged by the CAISO Metered Entity or the CAISO to carry out those audits or tests.

**10.2.12 Exemptions.**

The CAISO has the authority to grant exemptions from certain CAISO metering standards for a CAISO Metered Entity provided the CAISO annually publishes details of the criteria the CAISO will use when considering an application for an exemption and details of specific exemptions which are available. A CAISO Metered Entity with an interim exemption shall provide site specific Settlement Quality Meter Data to the CAISO in accordance with its meter service agreement and the CAISO Tariff. A Generator connected directly to a UDC Distribution System and that sells its entire output to the UDC in which the Generator is located is not subject to the audit, testing or certification requirements of the CAISO.

**10.2.13 Maintenance of Metering Facilities.**

**10.2.13.1 Duty to Maintain Metering Facilities.**

CAISO Metered Entities must maintain their Metering Facilities so that those Metering Facilities continue to meet the standards prescribed by the CAISO Tariff and the applicable Business Practice Manuals.

If the Metering Facilities of a CAISO Metered Entity require maintenance in order to ensure that they operate in accordance with the requirements of the CAISO Tariff the CAISO Metered Entity shall notify the CAISO by telephone or other means specified by the CAISO of the need for such maintenance. The CAISO Metered Entity must also inform the CAISO of the time period during which such maintenance is expected to occur. During that period, the CAISO Metered Entity or its authorized representative shall be entitled to access those sealed Metering Facilities to which access is required in order to undertake the required maintenance.

During periods for which no Meter Data is available from a meter which has a current Certificate of Compliance, the CAISO will substitute estimated meter data for that CAISO Metered Entity using the estimation procedures referred to in Section 10.2.9. That estimated meter data will be used by the CAISO in its Settlement and billing process.

**10.2.13.2 Repairs.**

If a revenue quality meter of a CAISO Metered Entity requires repairs to ensure that it operates in accordance with the requirements of the CAISO Tariff and the applicable Business Practice Manuals, the CAISO Metered Entity must immediately notify the CAISO of the need for repairing that meter and must ensure that those repairs are completed:

- (a) where there is no Check Meter installed, within 12 hours of the notification to the CAISO; or
- (b) where there is a Check Meter installed, within 5 Business Days of the notification to the CAISO.

During periods for which no Meter Data is available from a meter which has a current Certificate of Compliance, the CAISO will substitute estimated meter data for that CAISO Metered Entity using the estimation procedures referred to in Section 10.2.9. That estimated meter data will be used by the CAISO in its Settlement and billing process.

In respect of Metering Facilities (other than a revenue quality meter) of a CAISO Metered Entity that need repair, the CAISO Metered Entity shall notify the CAISO of that need and, after consultation with the CAISO Metered Entity, the CAISO will set the time period in which such repairs must be completed.

**10.2.14 Installation of Additional Metering Facilities.**

**10.2.14.1 CAISO Requirement to Install Additional Metering.**

**10.2.14.1.1 CAISO Authority to Require Additional Metering Facilities.**

The CAISO has authority under Section 10.2.2 the CAISO Tariff to require a CAISO Metered Entity to install Metering Facilities in addition to those Metering Facilities on the CAISO Controlled Grid at the

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Issued on: February 9, 2006

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CAISO Operations Date. In directing the addition of meters and metering system components that would impose increased costs on a CAISO Metered Entity, the CAISO shall give due consideration to whether the expected benefits of such equipment are sufficient to justify such increased costs. A CAISO Metered Entity may not commence installing those additional Metering Facilities until the CAISO has approved its Proposal for Installation.

**10.2.14.1.2 Requirement to Install.**

If the CAISO determines that there is a need to install additional Metering Facilities on the CAISO Controlled Grid, it will notify the relevant CAISO Metered Entity of that need. The CAISO's notice to that CAISO Metered Entity will include the following information:

- (a) the location of the Meter Point at which the additional Metering Facilities are required;
- (b) the date by which the CAISO Metered Entity must install the relevant Metering Facilities;
- (c) the reason for the need to install the additional metering Facilities; and
- (d) any other information that the CAISO considers relevant.

**10.2.14.1.3 Obligations of CAISO Metered Entity.**

A CAISO Metered Entity that is notified by the CAISO that it is required to install additional Metering Facilities must:

- (a) give the CAISO written confirmation of receipt of that notice within 3 Business Days of receiving that notice;
- (b) submit a Proposal for Installation to the CAISO within 45 Business Days of receiving that notice. The Proposal for Installation must set out the following information:

- i. a description of the proposed Metering Facilities to be installed (which shall include all relevant schematic drawings and one-line drawings);
- ii. a proposed timetable for the installation; and
- iii. any other information requested by the CAISO in the notice referred to in Section 10.2.14.1.2.

**10.2.14.1.4 Approval or Rejection of a Proposal for Installation.**

The CAISO may either:

- (a) unconditionally approve;
- (b) conditionally approve; or
- (c) reject, a Proposal for Installation.

**10.2.14.1.5 Unconditional Approval.**

If the CAISO unconditionally approves a Proposal for Installation, it will promptly notify the CAISO Metered Entity that the Proposal for Installation has been approved. The CAISO Metered Entity shall then commence installation of the Metering Facilities in accordance with the Proposal for Installation.

**10.2.14.1.6 Conditional Approval.**

- (a) Notification of Conditional Approval.

If the CAISO conditionally approves a Proposal for Installation, it will promptly notify the CAISO Metered Entity that the Proposal for Installation has been conditionally approved and set out in that notice the conditions on which approval is granted and the time period in which each such condition must be satisfied by the CAISO Metered Entity.

- (b) Ability to Satisfy Conditions.

If the CAISO Metered Entity disputes any condition imposed by the CAISO, the CAISO Metered Entity must immediately notify the CAISO of its concerns and provide the CAISO

with the reasons for its concerns. If the CAISO Metered Entity gives the CAISO such a notice, the CAISO may amend or waive any of the conditions on which it granted its approval or it may require the CAISO Metered Entity to satisfy other conditions. The CAISO and the CAISO Metered Entity will use all reasonable good faith efforts to reach agreement, and in the absence of agreement either entity may refer the dispute to the CAISO ADR Procedures.

(c) Notification of Satisfaction of Conditions.

The CAISO Metered Entity must promptly notify the CAISO when each condition in the approval has been satisfied and provide to the CAISO any information reasonably requested by the CAISO as evidence that such condition has been satisfied.

(d) Confirmation of Satisfaction of Conditions.

If the CAISO determines that a condition in the approval of the Proposal for Installation has been satisfied, it will give the CAISO Metered Entity written confirmation that the condition has been satisfied.

(e) Unsatisfied Conditions.

If the CAISO determines that a condition has not been satisfied after having received notice from a CAISO Metered Entity, the CAISO will notify the CAISO Metered Entity that it does not consider the condition satisfied and shall set out in that notice the reason(s) that it does not consider the condition satisfied. If, after using all reasonable good faith efforts, the CAISO and the CAISO Metered Entity are unable to agree on whether that condition is satisfied, either entity may refer the dispute to the CAISO ADR Procedures.

**10.2.14.1.7 Rejection.**

If the CAISO rejects a Proposal for Installation, it will promptly notify the CAISO Metered Entity that the Proposal for Installation has been rejected and set out in that notice the reason for its rejection. The CAISO Metered Entity must submit to the CAISO a revised Proposal for Installation within 14 Business

Days of receiving such notice of rejection. If the CAISO rejects for a second time a Proposal for Installation submitted by a CAISO Metered Entity in respect of the same or similar notice issued by the CAISO under Section 10.2.14.1.2, the CAISO and the CAISO Metered Entity will use all reasonable good faith efforts to reach agreement on the requirements and disputed items and in the absence of agreement either entity may refer the dispute to the CAISO ADR Procedures.

**10.2.14.1.8 CAISO Metered Entities' Election to Install Additional Metering.**

In accordance with Section 10.2.2 of the CAISO Tariff, a CAISO Metered Entity may choose to install additional metering, including Check Meters. If a CAISO Metered Entity installs such additional metering, such metering must, unless the CAISO agrees otherwise:

- (a) be installed and maintained at the CAISO Metered Entity's cost;
- (b) be located on the CAISO Metered Entity's side of any primary meter; and
- (c) not interfere with the accuracy of any primary meter and, if that primary meter is directly polled by the CAISO, the CAISO's ability to directly poll that meter.

Any Meter Data produced by any such additional metering may be used by the CAISO for Settlement and billing purposes in the event of the failure, or during tests or repairs of, the primary meter provided that such additional metering has a current Certificate of Compliance, the CAISO Metered Entity gives the CAISO prior verbal notice that such meter will be used and the period for which it will be used and, if the primary meter is directly polled by the CAISO, the additional metering must also be capable of being directly polled by the CAISO.

**10.3 Metering for Scheduling Coordinator Metered Entities.**

**10.3.1 Applicability.**

The requirements set forth in this Section 10.3 shall apply only to Scheduling Coordinators representing Scheduling Coordinator Metered Entities. The requirements in Section 10.1 also apply to Scheduling Coordinators. If a Scheduling Coordinator Metered Entity is also a Scheduling Coordinator, it shall be treated as a Scheduling Coordinator for the purposes of Section 10 of the CAISO Tariff and any

references to entities that such a Scheduling Coordinator represents shall be deemed to include that Scheduling Coordinator itself.

**10.3.2 Responsibilities of Scheduling Coordinators and the CAISO.**

**10.3.2.1 Duty to Provide Settlement Quality Meter Data.**

Scheduling Coordinators shall be responsible for: (i) the collection of Meter Data for the Scheduling Coordinator Metered Entities it represents; (ii) the provision of Settlement Quality Meter Data to the CAISO; and (iii) ensuring that the Settlement Quality Meter Data supplied to the CAISO meets the requirements of Section 10. Scheduling Coordinators shall provide the CAISO with Settlement Quality Meter Data for all Scheduling Coordinator Metered Entities served by the Scheduling Coordinator no later than the day specified in Section 10.3.6. Settlement Quality Meter Data for Scheduling Coordinator Metered Entities shall be either (1) an accurate measure of the actual consumption of Energy by each Scheduling Coordinator Metered Entity in each Settlement Period; (2) for Scheduling Coordinator Metered Entities connected to a UDC Distribution System and meeting that Distribution System's requirement for load profiling eligibility, a profile of that consumption derived directly from an accurate cumulative measure of the actual consumption of Energy over a known period of time and an allocation of that consumption to Settlement Periods using the applicable Approved Load Profile; or (3) an accurate calculation by the Scheduling Coordinator representing Existing Contracts

Scheduling Coordinators must use Compatible meter Data Systems to submit Settlement Quality Meter Data to the CAISO for those Scheduling Coordinator Metered Entities that they represent. Scheduling Coordinators shall provide the CAISO with the current password and any other information it needs to access, at all times the Compatible Meter Data Systems of those Scheduling Coordinators so as to ensure the security of those servers. Each Scheduling Coordinator must also provide the CAISO with connectivity to the Scheduling Coordinator's systems with which the CAISO will interface to obtain or prove Settlement Quality Meter Data.



**10.3.2.2 Format for Data Submission.**

Scheduling Coordinators shall submit Settlement Quality Meter Data to the Settlement Quality Meter Data System for the Scheduling Coordinator Metered Entities they represent using one of the CAISO's approved Meter Data Exchange Formats. Subject to any exemption granted by the CAISO, Scheduling Coordinators must ensure that Settlement Quality Meter Data submitted to the CAISO is in intervals of 5 minutes for Loads and Generators providing Ancillary Services and/or Imbalance Energy, and 1 hour for other Scheduling Coordinator Metered Entities.

Each Scheduling Coordinator shall submit Settlement Quality Meter Data in either kWh or kVarh values for all of the Scheduling Coordinator Metered Entities that it schedules aggregated by:

- (a) LAPS and PNode;
- (b) the relevant PNode unit for Generating Units; or
- (c) the Scheduling Point for imports and exports.

**10.3.2.3 Format for Data Requests.**

Scheduling Coordinators may obtain Settlement Quality Meter Data relating to the Scheduling Coordinator Metered Entities they represent by requesting extracts from the CAISO's Settlement Quality Meter Data Systems using the Meter Data Request Formats as published in the Business Practice Manuals. The CAISO will ensure that such data is made available in a timely manner.

**10.3.3 Loss Factors.**

Where a Scheduling Coordinator Metered Entity is connected to a UDC's Distribution System, the responsible Scheduling Coordinator shall adjust the Meter Data by an estimated Distribution System loss factor to derive an equivalent CAISO Controlled Grid level measure. Such estimated Distribution System loss factors shall be approved by the relevant Local Regulatory Authority prior to their use. The Scheduling Coordinator shall aggregate its equivalent CAISO Controlled Grid-level Meter Data for Scheduling Coordinator Metered Entities

**10.3.4 Load Profile Authorization.**

Scheduling Coordinators shall be responsible for obtaining all necessary authorizations from Local Regulatory Authorities having jurisdiction over the use of profiled Meter Data in any Settlement process in which load profiles are used to allocate consumption to Settlement Periods.

**10.3.5 Communication of Meter Data.**

Each Scheduling Coordinator shall submit Settlement Quality Meter Data for Scheduling Coordinator Metered Entities to the CAISO in accordance with Section 11.29.24.1, Section 37.5, and applicable Business Practice Manuals.

**10.3.6 Timing of Meter Data Submission.**

Scheduling Coordinators shall submit either hourly time-stamped Settlement Quality Meter Data for Scheduling Coordinator Metered Entities or profiled cumulative Settlement Quality Meter Data to the CAISO for each Settlement Period in an Operating Day according to the timelines established in the CAISO Payments Calendar.

Scheduling Coordinators shall submit Settlement Quality Meter Data to the CAISO when required to do so by this CAISO Tariff and the CAISO Payments Calendar. Scheduling Coordinators must also submit Settlement Quality Meter Data on demand. The CAISO will issue such demands using voice communications. If the CAISO issues a demand for Settlement Quality Meter Data, the Scheduling Coordinator from which the CAISO demands that data must submit it to the CAISO within 4 hours of receiving the demand from the CAISO.

**10.3.7 Meter Standards.**

Each Scheduling Coordinator, in conjunction with the relevant Local Regulatory Authority, shall ensure that each of its Scheduling Coordinator Metered Entities connected to and served from the Distribution System of a UDC shall be metered by a revenue meter complying with any standards of the relevant Local Regulatory Authority or, if no such standards have been set by that Local Regulatory Authority, the

metering standards set forth in this CAISO Tariff and as further detailed in the Business Practice Manuals.

**10.3.8 Access to Meter Data.**

The CAISO has complete authority over rights of access to (and has authority to deny access to) its Settlement Quality Meter Data Systems by Scheduling Coordinator Metered Entities for Settlement, billing and related purposes. Each Scheduling Coordinator, on behalf of itself and Scheduling Coordinator Metered Entities that it serves or represents, acknowledges this CAISO authority as a condition of access to the CAISO Controlled Grid. Meter Data of a Scheduling Coordinator Metered Entity remains the property of that Scheduling Coordinator Metered entity and shall be made available to third parties only with its express permission or as otherwise required by law or provided for in this CAISO Tariff.

**10.3.9 Certification of Meters.**

Scheduling Coordinators shall ensure that revenue meters and related metering facilities of those Scheduling Coordinator Metered Entities whom they represent are certified in accordance with any certification criteria prescribed by the relevant Local Regulatory Authority or, if no such criteria have been prescribed by that Local Regulatory Authority, certified in accordance with this Section 10. Scheduling Coordinators shall upon request of the CAISO supply promptly copies of all certificates issued by the relevant Regulatory Authority. The End Use Meter of a CAISO Metered Entity or a Scheduling Coordinator Metered Entity in place as of the CAISO Operations Date is deemed to be certified as in compliance with this CAISO Tariff and Business Practice Manuals. Once certified, meters for Scheduling Coordinator Metered Entities need not be recertified provided such meters are maintained so as to meet the standards and accuracy requirements prescribed by any relevant Local Regulatory Authority or, if no such standards have been prescribed by that Local Regulatory Authority, such requirements as referred to in the Business Practice Manuals and this Section 10. Recertification is not required by the CAISO upon an election by a Scheduling Coordinator Metered Entity to change its Scheduling Coordinator from which it takes service.

**10.3.10 Requirement for Audit and Testing.**

**(a) Audit and Testing by Scheduling Coordinator**

Each Scheduling Coordinator shall at least annually conduct (or engage an independent, qualified entity to conduct) audits and tests of the Metering Facilities of the Scheduling Coordinator Metered Entities that it represents and the Meter Data provided to the Scheduling Coordinator in order to ensure compliance with all applicable requirements of any relevant Local Regulatory Authority. Scheduling Coordinators shall undertake any other actions that are reasonable necessary to ensure the accuracy and integrity of the Settlement Quality Meter Data provided by them to the CAISO.

**(b) Audit and Testing by CAISO**

Subject to any applicable Local Regulatory Authority requirements, the Metering Facilities and data handling and processing procedures of Scheduling Coordinators and Scheduling Coordinator Metered Entities are subject to audit and testing by the CAISO or a CAISO Authorized Inspector in accordance with Section 10.3.14.2 of the CAISO Tariff. Subject to any applicable Local Regulatory Authority requirements, the CAISO will have the right to either conduct any audit or test it considers necessary or to witness such audit or test carried out by the Scheduling Coordinator, Scheduling Coordinator Metered Entity or a CAISO Authorized Inspector engaged by the Scheduling Coordinator, Scheduling Coordinator Metered Entity or the CAISO to carry out those audits or tests.

**10.3.11 Scheduling Coordinator to Ensure Certification.**

If the relevant Local Regulatory Authority has not prescribed any certification criteria for the Metering Facilities of a Scheduling Coordinator Metered Entity, the Scheduling Coordinator representing that Scheduling Coordinator Metered Entity must promptly notify the CAISO in writing that no such criteria have been prescribed. That Scheduling Coordinator will then be responsible for ensuring that the Scheduling Coordinator Metered Entities it represents obtain and maintain Certificates of Compliance in respect of all of the Metering Facilities of those Scheduling Coordinator Metered Entities in accordance with Section 10.2.4. Scheduling Coordinators must engage a CAISO Authorized Inspector to perform the certification of any Metering Facilities that are to be certified under the CAISO Tariff.

**10.3.12 Certification of Meter Data Servers.**

Subject to any exemption granted by the CAISO, the CAISO will not accept Settlement Quality Meter Data relating to a Scheduling Coordinator Metered Entity from a meter data server unless that meter data server is a Compatible Meter Data Server.

**10.3.12.1 Confirmation of Certification.**

On the written request of the CAISO, each Scheduling Coordinator must give the CAISO written confirmation that the Metering Facilities of each Scheduling Coordinator Metered Entity that it represents are certified in accordance with either the criteria of the relevant Local Regulatory Authority or the criteria prescribed by the CAISO Tariff and Business Practice Manuals within 5 Business Days of receiving a request from the CAISO.

**10.3.12.2 Deemed Certification.**

Revenue Quality meters of Scheduling Coordinator Metered Entities that are subject to certification and which were installed and operational as of the CAISO Operations Date will be deemed to be certified for the purposes of the CAISO Tariff. Revenue quality meters that have been fully installed as of the CAISO Operations Date but which are not operational as of that date because they were undergoing maintenance or repairs will also be deemed to be certified in accordance with the CAISO Tariff.

**10.3.13 Meter Service Agreements for Scheduling Coordinator Metered Entities.**

The CAISO shall enter into Meter Service Agreements with Scheduling Coordinators responsible for providing Settlement Quality Meter Data for Scheduling Coordinator Metered Entities to the CAISO. Such agreements shall specify that Scheduling Coordinators require their Scheduling Coordinator Metered Entities to adhere to the meter requirements set forth in this Section 10. A Meter Service Agreement entered into by a Scheduling Coordinator shall apply to the Scheduling Coordinator only in its capacity as Scheduling Coordinator for those Metered Entities.

**10.3.14 Approval by Local Regulatory Authority of Security and Validation Procedures.**

Scheduling Coordinators shall be responsible for obtaining any necessary approval of the relevant Local Regulatory Authority to its proposed security, validation, editing and estimation procedures. The CAISO will not perform any validation, editing or estimating on the Settlement Quality Meter Data it receives from Scheduling Coordinators.

**10.3.14.1 UDC and TO Agreements.**

Each Scheduling Coordinator shall be responsible for obtaining any necessary consent from the UDCs on whose Distribution Systems or the Participating TOs on whose transmission facilities the Scheduling Coordinator has Scheduling Coordinator Metered Entities as is necessary to give effect to the procedures governing Meter Data validation and security and inspection and testing of metering facilities. Scheduling Coordinators must verify with the relevant UDC and/or Participating TO the identity of each Scheduling Coordinator Metered Entity they represent and must notify the UDC and/or Participating TO of any discrepancies of which they become aware.

**10.3.14.2 Failure to Achieve Required Standards.**

Subject to any Local Regulatory Authority requirements, Meter Service Agreements shall set out appropriate measures and rights the CAISO may exercise upon any failure by the other party to meet the requirements for meter standards set out in Section 10.3.

**10.3.15 Exemptions from CAISO Metering Standards.**

The CAISO has the authority to grant exemptions from certain CAISO metering standards for Scheduling Coordinator Metered Entities that are subject to CAISO metering standards provided the CAISO annually publishes details of the criteria the CAISO will use when considering an application for an exemption and details of specific exemptions which are available.

**10.3.16 COMMUNICATIONS**

**10.3.16.1 Facilities Provided by the CAISO.**

The CAISO will provide the facilities referred to in this Section 10.3.16.1 to acquire Meter Data from CAISO Metered Entities and receive Settlement Quality Meter Data from Scheduling Coordinators.

**10.3.16.1.1 RMDAPS Master Station.**

The RMDAPS master station will have a redundant configuration. The primary master station is located in Folsom, the redundant master station is located in Alhambra.

**10.3.16.1.2 CAISO's Secure Communication System.**

RMDAPS will use a secure communication system to acquire Meter Data from CAISO Metered Entities and receive Settlement Quality Metered Data from Scheduling Coordinators.

**10.3.16.1.3 Facilities Failure.**

In the event that the primary or redundant RMDAPS master station or CAISO's secure communication system fails, the procedures referred to in the applicable Business Practice Manual will be followed by the CAISO, CAISO Metered Entities and Scheduling Coordinators.

**10.3.16.2 Facilities Provided by CAISO Metered Entities.**

CAISO Metered Entities must provide the telecommunication facilities referred to in 10.3.16.2.1 to 10.3.16.2.3 inclusive to connect their Compatible Meter Data Servers to the CAISO's secure communication system.

**10.3.16.2.1 Telecommunications Channels.**

The CAISO Metered Entity must provide one of the following types of telecommunication channels from the CAISO's secure communication system to its Compatible Meter Data Servers:

- (a) Digital leased line;
- (b) ISDN channel; or

(c) frame relay channel.

With the CAISO's approval, the revenue quality meters of two or more CAISO Metered Entities may be served by one telecommunications channel.

**10.3.16.2.2 Router/Terminal Server.**

CAISO Metered Entities must provide router/terminal servers to interface the telecommunication channels to revenue quality meters. Each revenue quality meter will use an RS-232 interface nominally operating at 9600 bits/second.

**10.3.16.2.3 Meter Data Server.**

CAISO Metered Entities must use a Compatible Meter Data Server to interface with RMDAPS.

**10.3.16.3 Facilities provided by Scheduling Coordinators.**

Scheduling Coordinators must use a Compatible Meter Data Server to interface with RMDAPS.

**10.3.17 METER IDENTIFICATION.**

**10.3.17.1 Scheduling Coordinator Metered Entities.**

If a Scheduling Coordinator Metered Entity is required to identify its revenue quality meters by the relevant:

- (a) Local Regulatory Authority; or
- (b) UDC,

then the Scheduling Coordinator representing that Scheduling Coordinator Metered Entity must, at the CAISO's request, provide the CAISO with a copy of that information within 5 Business Days of a request by the CAISO in a format to be prescribed by the CAISO.

If a Scheduling Coordinator Metered Entity is not required by either the relevant Local Regulatory Authority or UDC to identify its revenue quality meters, the Scheduling Coordinator representing that Scheduling Coordinator Metered Entity shall maintain an accurate record of the revenue quality meter of



each of the Scheduling Coordinator Metered Entities that it represents from time to time. The record maintained by Scheduling Coordinators must include the information set out in the applicable Business Practice Manuals. The Scheduling Coordinator must, at the CAISO's request, provide the CAISO with a copy of any information contained in that record within 5 Business Days of a request by the CAISO in a format to be prescribed by the CAISO.

### **10.3.18 EXEMPTIONS FROM COMPLIANCE.**

#### **10.3.18.1 Authority to Grant Exemptions.**

In addition to the specific exemptions granted under the CAISO Tariff, the CAISO has the authority under the CAISO Tariff to grant exemptions from compliance with certain requirements imposed by the CAISO Tariff.

#### **10.3.18.2 Guidelines for Granting Exemptions.**

The CAISO will use the following guidelines when considering applications for exemptions from compliance with the CAISO Tariff.

##### **(a) Publication of Guidelines**

The CAISO will from time to time publish the general guidelines that it may use when considering applications for exemptions so as to achieve consistency in its reasoning and decision making and to give prospective applicants an indication of whether an application will be considered favorably.

##### **(b) Publication of Exemption Applications**

The CAISO will promptly publish on the CAISO Website a description of each application it receives for an exemption.

##### **(c) Publication of Decision**

The CAISO will publish on the CAISO Website details of whether the application was approved or rejected by it and, if the CAISO considers it appropriate, the reasons for rejecting the application.

##### **(d) Class Exemptions**

In addition to exemptions granted to individual entities, the CAISO may grant exemptions that will apply to a class of entities. The CAISO may grant class exemptions whether or not it has received any application for an exemption. The CAISO will publish details of the class exemptions it has granted on the CAISO Website.

**10.3.18.3 Procedure for Applying for Exemptions.**

All applications to the CAISO for exemptions from compliance with the requirements of the CAISO Tariff must be made in writing addressed to the Meter and Data Acquisition Manager, Client Service Department. The CAISO will confirm receipt of each application it receives within 3 Business Days of receiving the application. The CAISO will decide whether to grant the exemption within 45 Business Days of receiving the application. At any time during that period, the CAISO may require the applicant to provide additional information in support of its application. The applicant must provide such additional information to the CAISO within 5 Business Days of receiving the request for additional information or within such other period as the CAISO may notify to the applicant. If the CAISO makes a request for additional information more than 40 Business Days after the date on which it received the application, the CAISO will have an additional 7 Business Days after receiving that additional information in which to consider the application. If the applicant does not provide the additional information requested, the CAISO may refuse the application in which case it will notify the applicant that its application has been rejected for failure to provide the additional information.

**10.3.18.4 Information to be Included in the Application.**

The application submitted to the CAISO must provide:

- (a) a detailed description of the exemption sought (including specific reference to the relevant section(s) of the CAISO Tariff giving the CAISO authority to grant the exemption) and the facilities to which the exemption will apply;
- (b) a detailed statement of the reason for seeking the exemption (including any supporting documentation);

- (c) details of the entity(s) (if any) to which the exemption will apply;
- (d) details of the location (if any) to which the exemption will apply;
- (e) details of the period of time for which the exemption will apply (including the proposed start and finish dates of that period); and
- (f) any other information requested by the CAISO.

**10.3.18.5 Permitted Exemptions.**

**10.3.18.5.1 Exemptions from Providing Meter Data Directly to RMDAPS.**

(a) General

The CAISO has the authority under 10.2.6 of the CAISO Tariff to exempt CAISO Metered Entities from the requirement to make Meter Data directly available to the CAISO via RMDAPS. In addition to the specific exemptions provided under this Section 10.3.18.5.1, the CAISO may, at its discretion, grant such an exemption where it considers the requirement to install communication links (or related facilities) between the CAISO Metered Entity and CAISO's secure communication system to allow the CAISO to directly poll that CAISO Metered Entity would be unnecessary, impractical or uneconomic.

(b) Specific Exemptions Available

i. Tie Points

Meters located at tie points are exempted from the requirement that they be directly polled by the CAISO provided that the meters at those tie points are revenue quality and they provide hourly, raw Meter Data to the CAISO's Power Management System.

The entities responsible for Tie Point Meters must designate a primary meter and the entity responsible for providing the relevant Meter Data to the CAISO. Meter Data from any other meter located at that tie point may be provided to the CAISO in the event that the primary meter is unable to provide Meter Data to the CAISO.

Existing Tie Point Meters will be exempt from the metering standards referred to in the CAISO Tariff, if such meters are only used to measure bi-directional Energy.

ii. Generation not Providing Regulation

CAISO Metered Entities that are Generators or Participating Generators that are not directly connected to the CAISO Controlled Grid and which do not provide Regulation may request the CAISO for an exemption from the requirement that they be directly polled by the CAISO in which case they will be treated as Scheduling Coordinator Metered Entities for the purposes of the CAISO Tariff.

iii. Scheduling Coordinators inability to directly poll RMDAPS

If a Scheduling Coordinator does not have the ability as at the CAISO Operations Date to directly poll RMDAPS for the Settlement Quality Meter Data of the CAISO Metered Entities that it represents, that Scheduling Coordinator shall have a period of 12 months from the CAISO Operations Date in which to install the necessary equipment to enable it to directly poll RMDAPS. During the period in which a Scheduling Coordinator is unable to directly poll RMDAPS, that Scheduling Coordinator will be responsible for providing the CAISO with Settlement Quality Meter Data for its CAISO Metered Entities in accordance with the CAISO Tariff.

iv. Generator Profiling

The CAISO may permit Generators and Participating Generators with Generating Units of less than 1 MW to use generator profiles, provided that such profiles are reconciled against revenue quality cumulative meters and the CAISO has given prior approval to the use of the proposed generator profile. The revenue quality meters used by such Generators and Participating Generators will not be required to have a current Certificate of Compliance at the CAISO Operations Date. However, such meters maybe required to have a Certificate of Compliance within a time period prescribed by the CAISO after consultation with the relevant Generator or Participating Generator.

v. Small Remote Generators

Remote Generators of less than 10 MW and capacity factors of less than 20% over the past three years, may be granted an exemption from the requirement to be directly polled by the CAISO provided that the CAISO is able to receive Meter Data for that Generator from a Compatible Meter Data Serve.

**10.3.18.5.2 Exemptions from Meter Standards.**

(a) General

The CAISO has the authority under 10.2.12 of the CAISO Tariff to exempt CAISO Metered Entities from the requirement to comply with the meter standards referred to in the CAISO Tariff.

(b) Specific Exemptions Available

i. Data Storage for Existing Meters

Revenue quality meters installed as at the CAISO Operations Date are required to have 30 days data storage capacity (new revenue quality meters are required to have 60 days data storage capacity). Existing revenue quality meters that otherwise comply with the meter standards referred to in the CAISO Tariff but which do not have 30 days data storage will be exempted from that requirement if there is alternative time stamped meter data storage of 30 days or more.

ii. Voltage Transformers

CAISO Metered Entities will be exempt from the requirement to install Voltage Transformers (VT) at 500 kV and higher voltage levels provided that those CAISO Metered Entities install Capacity Coupled Voltage Transformers (CCVT) that meet the metering standards referred to in the CAISO Tariff. The CAISO Metered Entity must establish a testing program to ensure that the CCVT remains within the CAISO's accuracy requirements. A copy of such test program must be supplied to the CAISO and the CAISO may require amendments and/or additions to that program that it reasonably believes are necessary to ensure the accuracy of the CCVT.

iii. Loss Correction Factors

The CAISO may grant a CAISO Metered Entity an exemption from compliance with the metering standards referred to and the CAISO Tariff if, in the CAISO's sole discretion, applicable loss correction factors can be applied to existing meters without any materially adverse effect on the accuracy or security of the Meter Data obtained from such meters.

iv. 5 Minute Interval Data

Generators that are CAISO Metered Entities and that provide Ancillary Services to the CAISO will not be required to provide the CAISO with 5 minute interval data until such time as specified by the CAISO. Until such time as the CAISO requires 5 minute interval data, these entities will be required to provide the CAISO with hourly interval data.

v. Request for Direct Polling

Scheduling Coordinators may request the CAISO to grant an exemption from the requirement to provide Settlement Quality Meter Data to the CAISO for Scheduling Coordinator Metered Entities they represent if those entities are Generators which have requested the CAISO, and the CAISO has agreed to directly poll them for Meter Data. Such Generators will be treated as CAISO Metered Entities and must comply with all of the requirements relating to CAISO Metered Entities in accordance with the CAISO Tariff. The Scheduling Coordinator representing such Generators will be required to apply the relevant distribution loss factors to that Generator's Meter Data (the Scheduling Coordinator may obtain that Meter Data from the CAISO).

vi. QF Exemptions

If a QF sells all of its Energy (excluding any Energy consumed by auxiliary load equipment electrically connected to that QF at the same point or any Energy sold through "over the fence" arrangements as authorized by Section 218(b) of the California Public Utilities Code) and Ancillary Services to the UDC in whose Service Area it is located pursuant to an existing power purchase agreement (which is authorized under Section 218(b) of the California Public Utilities Code) and there is any inconsistency between that

existing power purchase agreement, Section 10 of the CAISO Tariff or Appendix J to the CAISO Tariff, the existing power purchase agreement shall prevail to the extent of that inconsistency for the term of the agreement. In this context, an existing power purchase agreement shall mean an agreement which has been entered into and is effective as of December 20, 1995.

vii. Combining Generation

A metered entity may elect to meter a group of Generating Units which are electrically connected to the same point by combined total generation output or by individual Generating Unit provided that those Generating Units are Scheduled in the same fashion as they are metered and the Generating Units are not individually providing Ancillary Services.

**10.3.18.5.3 Exemptions from Audit, Testing or Certification.**

The CAISO has the authority under 10.2.12 of the CAISO Tariff to exempt CAISO Metered Entities from the metering standards referred to in the CAISO Tariff.

**11 CAISO SETTLEMENTS AND BILLING.**

**11.1 Settlement Principles.**

The CAISO shall calculate, account for and settle Payments and Charges with Business Associates in accordance with the following principles:

- a)** The CAISO shall be responsible for calculating Settlement balances for any penalty or dispute in accordance with the CAISO Tariff, and any transmission Access Charge to UDCs or MSSs and Participating TOs;
- b)** The CAISO shall create and maintain computer back-up systems, including off-site storage of all necessary computer hardware, software, records and data at an alternative location that, in the event of a Settlement system breakdown at the primary location of the day-to-day operations of the CAISO, could serve as an alternative location for day-to-day Settlement operations within a reasonable period of time;
- c)** The CAISO shall retain all Settlement data records for a period which, at least, allows for the re-run of data as required by this CAISO Tariff and any adjustment rules of the Local Regulatory Authority governing the Scheduling Coordinators and their End-Use Customers and FERC;
- d)** The CAISO shall calculate, account for and settle all charges and payments based on the Settlement Quality Meter Data it has received, or, if Settlement Quality Meter Data is not available, based on the best available information or estimate it has received in accordance with the provisions in this Section 10 of the CAISO Tariff and the applicable Business Practice Manuals; and
- e)** Day-Ahead Schedules, RUC Awards and AS Awards shall be settled at the relevant LMP, RUC LMP, ASMPs, respectively. HASP Intertie Schedules shall be settled at the relevant HASP Intertie LMP at the relevant Scheduling Point. All Dispatch Instructions shall be deemed delivered and settled at relevant Real-Time Market prices. Deviations from Dispatch Instructions shall be settled as uninstructed deviations.



**11.1.2** The CAISO shall settle the following charges in accordance with this CAISO Tariff: (1) Grid Management Charge; (2) Bid Cost Recovery; (3) IFM Charges and Payments, including Energy and Ancillary Services; (4) RUC Charges and Payments; (5) Real-Time Market Charges and Payments, including Energy and Ancillary Services; (6) HASP Charges and Payments, including Energy and Ancillary Services; (7) High Voltage Access Charges and Transition Charges; (8) Wheeling Access Charges; (9) Voltage Support and Black Start Charges; (10) Reliability Must-Run Charges; (11) Default Interest Charges; (12) CRR Charges and Payments, (13) Inter-SC Trades Charges and Payments; (14) Neutrality Adjustments; (15) FERC Annual Charges; (16) Distribution of Excess Marginal Losses; and (17) Miscellaneous Charges and Payments.

**11.1.3 Financial Transaction Conventions and Currency.**

The following conventions have been adopted in defining sums of money to be remitted to or received by the CAISO:

- (a) Where the CAISO is to receive a sum of money in accordance with this CAISO Tariff, this is defined as a "Charge.";
- (b) Where the CAISO is to required to pay a sum of money in accordance with this Tariff, this is defined as a "Payment."
- (c) All financial transactions are denominated in United States dollars and cents.
- (d) All payments by the CAISO to Business Associates shall be made by Fed-Wire. All payments to the CAISO by Business Associates shall be made by Fed-Wire.

**11.2A Calculations of Settlements.**

The CAISO shall calculate, account for and settle, based on the Settlement Quality Meter Data it has received, or, if Settlement Quality Meter Data is not available, based on the best available information or estimate it has received, the following charges in accordance with this CAISO Tariff.

## **11.2 Settlement of Day-Ahead Market Transactions.**

All transactions in the IFM and RUC as specified in the Day-Ahead Schedule, AS Awards and RUC Awards, respectively, are financially binding and will be settled based on the Day-Ahead LMP, ASMP or RUC LMP for the relevant Location for the specific resource identified in the Bid. The CAISO will settle the costs of Demand, capacity, Energy and Ancillary Services as separate settlement Charges and Payments for each Settlement Period of the Day-Ahead Schedule, Day-Ahead AS Award or RUC Award, as appropriate.

### **11.2.1 IFM Settlements.**

#### **11.2.1.1 IFM Payments For Supply of Energy.**

For each Settlement Period for which the CAISO clears Energy transactions in the IFM, the CAISO shall pay the relevant Scheduling Coordinator for the MWh quantity of Supply of Energy from all Generating Units, Participating Loads, and System Resources in an amount equal to the IFM LMP at the applicable PNode multiplied by the MWh quantity specified in the Day-Ahead Schedule for Supply.

#### **11.2.1.2 IFM Charges for Demand at LAPS.**

For each Settlement Period that the CAISO clears Energy transactions in the IFM, except as specified in Section 30.5.3.2 and except for Participating Loads, which shall be subject to the Charges specified in 11.2.1.3, the CAISO shall charge Scheduling Coordinators for the MWh quantity of Demand scheduled at an individual LAP in the Day-Ahead Schedule, in an amount equal to the IFM LMP for the applicable LAP multiplied by the MWh quantity scheduled in the Day-Ahead Schedule at the relevant LAP.

#### **11.2.1.3 IFM Charges for Demand by Participating Loads.**

For each Settlement Period that the CAISO clears Energy transactions in the IFM for Demand by Participating Loads, the CAISO shall charge the Scheduling Coordinators an amount equal to the MWh quantity of Demand scheduled in the Day-Ahead Schedule for the relevant Participating Load at the PNode, multiplied by the IFM LMP at that PNode.

**11.2.1.4 IFM Charges for Energy Exports at Scheduling Points.**

For each Settlement Period that the CAISO clears Energy transactions in the IFM, the CAISO shall charge Scheduling Coordinators for the Energy export MWh quantity at individual Scheduling Points scheduled in the Day-Ahead Schedule, an amount equal to the IFM LMP for the applicable Scheduling Point multiplied by the MWh quantity at the individual Scheduling Point scheduled in the Day-Ahead Schedule.

**11.2.1.5 IFM Congestion Credit for ETCs, TORs, and Converted Rights.**

For all source and sink pairs associated with a valid and balanced ETC Self-Schedule, TOR Self-Schedule or Converted Rights Self-Schedule, the CAISO shall not impose any Charge or make any Payment to the Scheduling Coordinator related to the MCC associated with such self-schedules. For each Scheduling Coordinator, the CAISO shall determine the applicable IFM Congestion Credit, which can be positive or negative, as sum of the products of the quantity scheduled in the Day-Ahead Schedule and the MCC at each source and sink associated with that Scheduling Coordinator's valid and balanced ETC, TOR, and Converted Rights Self-Schedules.

**11.2.1.6 Allocation of IFM Marginal Losses Surplus Credit.**

On each Settlement Statement, the CAISO shall apply the distribution of the IFM Marginal Losses Surplus Credit to each Scheduling Coordinator for the period of each settlement statement. For each Settlement Period, the IFM Marginal Losses Surplus Credit shall be the product of the IFM Marginal Losses Surplus rate (\$/MWh) and the MWh of Measured Demand for the relevant Scheduling Coordinator. The IFM Marginal Losses Surplus rate shall be equal to the total IFM Marginal Losses Surplus (\$) divided by the sum of the total MWh of Measured Demand in the CAISO Control Area for the relevant Settlement Period. For each Settlement Period of the IFM the CAISO shall calculate the total IFM Marginal Losses Surplus as the difference between: (1) the Net Hourly Energy Charge; and (2) the total IFM Congestion Charges which do not include Congestion Charges Credits collected by the CAISO as specified in Section 11.2.1.5. The Net Hourly Energy Charge is determined as the total Charges to all

Demand minus total Payments to all Supply as specified in Sections 11.2.1.1, 11.2.1.2, 11.2.1.3 and 11.2.4.

### **11.2.2 Calculation of Hourly RUC Compensation.**

For each Settlement Period and resource, Scheduling Coordinators shall receive RUC Compensation, which is the sum of the RUC Availability Payment as determined pursuant to Section 11.2.2.1 and the RUC Bid Cost Recovery Amount as determined in Section 11.8.3.

#### **11.2.2.1 Settlement of RUC Availability Payment.**

Scheduling Coordinators shall receive RUC Availability Payments for all eligible capacity awarded in the RUC process. Resource Adequacy Capacity and capacity from RMR Units Dispatched under its RMR Contract in the DAM are not eligible for RUC Availability Payments. The RUC Availability Payment shall be calculated for each resource based on the product of the RUC Price and the RUC Availability Quantity for the relevant Settlement Period.

#### **11.2.2.2 Rescission of RUC Availability Payment.**

Rescission of all or a portion of the RUC Availability Payment for a resource shall be settled in accordance with Section 8.10.8.

### **11.2.3 IFM Energy Charges and Payments for Metered Subsystems.**

#### **11.2.3.1 Gross Energy Settlement for Metered Subsystems.**

For Scheduling Coordinators that submit Bids for MSS Operators that have selected gross Energy Settlement, CAISO shall settle the MSS Demand and MSS Supply in the Day-Ahead Schedules pursuant to Section 11.2.3.1.1 and 11.2.3.1.2.

##### **11.2.3.1.1 IFM Charges for MSS Demand Under Gross Energy Settlement.**

The CAISO shall charge Scheduling Coordinators that submit Bids for MSS Operators that have selected or are subject to gross Energy Settlement an amount equal to the product of the MWh quantity of Demand in its Day-Ahead Schedule at the corresponding MSS LAP and the Default LAP Price. The Default LAP Price shall be for the LAP within which the relevant MSS LAP is located.

**11.2.3.1.2 IFM Payments for MSS Supply Under Gross Energy Settlement.**

The CAISO shall pay Scheduling Coordinators that submit Bids for MSS Operators that have selected or are subject to gross Energy Settlement an amount equal to the product of the MWh quantity of Supply in its Day-Ahead Schedule at the corresponding PNode and the applicable resource-specific LMP at that PNode.

**11.2.3.2 Net Energy Settlement for Metered Subsystems.**

For Scheduling Coordinators that submit Bids for MSS Operators that have selected net Energy Settlement, the CAISO shall settle the net MSS Demand and MSS Supply in the Day-Ahead Schedules pursuant to Section 11.2.3.2.1 and 11.2.3.2.2.

**11.2.3.2.1 IFM Charges for MSS Demand Under Net Energy Settlement.**

The CAISO shall charge Scheduling Coordinators that submit Bids for MSS Operators that have selected net Energy Settlement an amount equal to the product of the net MSS Demand in the Day-Ahead Schedule and the MSS LAP Price. The net MSS Demand is the quantity of MSS Demand that exceeds MSS Generation for the applicable MSS.

**11.2.3.2.2 IFM Payments for MSS Supply Under Net Energy Settlement.**

The CAISO shall pay Scheduling Coordinators that submit Bids for MSS Operators that have selected net Energy Settlement an amount equal to the product of the net MSS Supply in the Day-Ahead Schedule and the weighted average price of all IFM LMPs for all applicable PNodes within the relevant MSS. The net MSS Supply is the quantity of MSS Generation that exceeds the MSS Demand for the applicable MSS. The weights used to compute the weighted average LMPs shall be equal to MSS generation scheduled in the Day-Ahead Schedule.

**11.2.4 CRR Settlements.**

CRR Holders shall be paid or charged for Congestion costs depending on the type of CRRs held by the CRR Holder, the direction of Congestion as measured through the IFM, and the LMP as calculated in the IFM. CRRs shall be funded through the revenues associated with the IFM Congestion Charge, CRR

Obligation Charges, and the CRR Balancing Account. The CRR Payments and CRR Charges shall be settled first on a daily basis for each Settlement Period of the DAM. The CAISO shall pro-rate CRR Payments and CRR Charges for each Settlement Period, if there is an insufficiency of funds during that Settlement Period from the IFM Congestion Charge pursuant to Section 11.2.4.1. A monthly true up and, if necessary, an annual true up will then be conducted, on both CRR Payments and CRR Charges in the clearing of the CRR Balancing Account pursuant to Section 11.2.4.4.1 and 11.2.4.4.2.

#### **11.2.4.1 Calculation of the IFM Congestion Charge.**

For each Settlement Period of the IFM, the CAISO shall calculate the IFM Congestion Charge as the IFM MCC for Demand minus the IFM MCC for Supply. The IFM MCC for Demand is the sum of the products of the IFM MCC and the MWh of Demand scheduled in the Day-Ahead Schedule at all the applicable PNodes, Scheduling Points and Aggregated Pricing Nodes for the Settlement Period. The IFM MCC for Supply is the sum of the products of the IFM MCC and the MWh of Supply scheduled in the Day-Ahead Schedule at all the applicable PNodes and Scheduling Points for the Settlement Period.

#### **11.2.4.1.2 Calculation of IFM Congestion Fund.**

For each Settlement Period of the IFM, the CAISO shall determine the IFM Congestion Fund, which shall consist of the funds available to pay CRR Holders in any Settlement Period as follows:

- (a) The CAISO shall add to the IFM Congestion Fund the IFM Congestion Charge computed as described in Section 11.2.4.1, minus any IFM Congestion Credits as specified in Section 11.2.1.5;
- (b) The CAISO shall add to the IFM Congestion Fund any CRR Obligation Charges calculated pursuant to Sections 11.2.4.2.2 and 11.2.4.2.3.

#### **11.2.4.2 Settlement Calculation for the Different CRR Types.**

For the purposes of determining the CRR Payments and CRR Charges based on the various CRR Types, the CAISO shall calculate the Settlement of CRRs as described in this Section 11.2.4.2. When CRR Source or CRR Sink is a LAP, the Load Distribution Factors used in the IFM will be used to calculate the LAP Price at which CRR Payments or CRR Charges will be settled. When CRR Source or CRR Sink is a

Trading Hub the weighting factors used in the IFM and the CRR Allocation and Auction processes will also be used to settle CRR Payments and CRR Charges.

**11.2.4.2.1 Point-to-Point CRR Options.**

For each CRR Holder, the CAISO shall calculate a CRR Payment for each Point-to-Point CRR Option held by the CRR Holder equal to the product of: 1) the MCC at the CRR Sink minus the MCC at the CRR Source; and 2) the MW quantity of the CRR; if that amount is positive. If the resulting amount is negative, the CAISO shall not assess a Charge for the relevant CRR Holder for the negative amount. The full CRR Payment calculated pursuant to this process shall be subject to pro-ration as described in 11.2.4.4.

**11.2.4.2.2 Point-to-Point CRR Obligations.**

For each CRR Holder, the CAISO shall calculate a CRR Payment for each Point-to-Point CRR Obligation held by the CRR Holder, equal to the product of: 1) the MCC at the CRR Sink minus the MCC at the CRR Source; and 2) the MW quantity of the CRR; if that amount is positive. If the resulting amount is negative, the CAISO shall calculate a CRR Charge for the relevant CRR Holder equal to that negative amount. The full CRR Payment calculated pursuant to this process shall be subject to pro-ration as described in 11.2.4.4.

**11.2.4.2.3 Multi-Point CRR.**

For each CRR Holder, the CAISO shall calculate a CRR Payment for each Multi-Point CRR held by the CRR Holder, equal to the sum of the MCCs at each CRR Sink weighted by their associated MWh quantities as specified by the CRR, minus (2) the sum of the MCCs at each CRR Source weighted by their associated MWh quantities as specified by the CRR. If the calculated amount is positive, the CAISO shall calculate a payment for the Multi-Point CRR. If the result of this calculated amount is negative, the CAISO will calculate a CRR Charge for the Multi-Point CRR. The full CRR Payment calculated pursuant to this process shall be subject to pro-ration as described in 11.2.4.4.

**11.2.4.3 Payments and Charges for Monthly and Annual Auctions.**

The CAISO shall charge CRR Holders for the market clearing price for CRRs obtained through the clearing of the CRR Auction as described in Section 36.13.6. To the extent the CRR Holder purchases a CRR through a CRR Auction that has a negative value, the CAISO shall pay the CRR Holder for taking the applicable CRR. The CAISO shall net all revenue received and payments made through this process and shall allocate all positive revenue to the Participating TOs in proportion to the Participating TO's Transmission Revenue Requirement.

#### **11.2.4.4 Hourly CRR Settlement.**

For each Settlement Period, the IFM Congestion Funds calculated in Section 11.2.4.1.2 will be used to pay CRR Holders that are owed CRR Payments. If the IFM Congestion Fund is sufficient to make the required CRR Payments for the Settlement Period, all CRR Holders shall be paid and charged fully according to their entitlements. If the IFM Congestion Fund is insufficient to make the required CRR Payments, then CRR Payments and CRR Charges shall be pro-rated by a ratio equal to the total hourly amount of IFM Congestion Funds divided by the net of CRR Payments and CRR Charges for that Settlement Period. Any surplus revenue for the Settlement Period after making all hourly CRR Payments will go the CRR Balancing Account for use in the end-of-month clearing and end-of-year clearing of the CRR Balancing Account processes pursuant to Section 11.2.4.4.1 and 11.2.4.4.2. Any revenue shortfalls (or amounts not fully paid) and charge shortfalls (or amounts not fully charged) for the Settlement Period, will be tracked for further Settlement during the end-of-month clearing process as described in Section 11.2.4.4.1. The hourly Settlement of CRRs for each CRR Holder will be based on the type of CRR holdings as described in Section 11.2.4.2. The CRR Holder's hourly CRR Settlement amount, which may be subject to pro-ration if necessary as described in this Section, will be the net of the holder's CRR Payments for CRR Options or CRR Obligations, and the holder's CRR Charges for CRR Obligations out of these holdings.

##### **11.2.4.4.1 Monthly Clearing of the CRR Balancing Account.**

At the end of each month, if the CRR Balancing Account contains a balance sufficient to cover all hourly revenue shortfalls for that month, then these revenue shortfalls shall be fully satisfied and the CRR Holder



shall be paid using the balance in the CRR Balancing Account according to their Payment rights that accrue out of the hourly CRR Settlement process pursuant to Section 11.2.4.4. If the balance in the CRR Balancing Account is not sufficient to satisfy all revenue shortfalls for the month, then these shortfalls shall be partially satisfied through the monthly clearing process. Those with charge shortfall (or reduction) in the hours of the trading month shall contribute to the partial satisfaction of the revenue shortfalls, using an equal pro-ration. The equal ratio to be used will be the available funds in the CRR Balancing Account divided by the net total hourly shortfalls - the net of remaining revenue shortfalls and remaining charge shortfalls - for the month. Any remaining shortfalls will be carried forward for the end-of-the year clearing process pursuant to Section 11.2.4.4.2. Any revenue surplus after the end-of-month clearing will remain in the CRR Balancing Account for use in the end-of-the year clearing process pursuant to Section 11.2.4.4.2.

**11.2.4.4.2 Yearly Clearing of the CRR Balancing Account.**

At the end of each CRR Annual Cycle, if the yearly CRR Balancing Account a positive balance, it shall be used to satisfy any remaining revenue shortfalls up to the amount of shortfall. If the CRR Balancing Account, at the time of yearly clearing, does not contain sufficient revenue or no revenue at all, to satisfy all the remaining revenue shortfalls, then these revenue shortfalls shall be reduced pro rata. The equal ratio to be used will be the available funds in the CRR Balancing Account divided by the total of remaining hourly shortfalls – the net of remaining revenue shortfalls and remaining charge shortfalls - for the year. If after the yearly clearing there remains a revenue surplus in the yearly CRR Balancing Account, this remaining revenue shall be allocated pro rata to the Participating Transmission Owners based on their Transmission Revenue Requirement over the one-year CRR Term. Unpaid claims become ineligible for further recourse and are written off, and any remaining charge shortfalls are also written off after this yearly clearing process.

**11.2.4.5 CRR Balancing Account.**

The CRR Balancing Account shall accumulate: (1) any surplus revenue generated from Hourly CRR Settlements as described in Section 11.2.4.4, (2) any surplus revenue that remains from the monthly

clearing of the CRR Balancing Account as described in Section 11.2.4.4.1, and (3) any surplus revenue that remains from yearly clearing of the CRR Balancing Account as described in Section 11.2.4.4.2.

Interest accruing due to the CRR Balancing Account shall be at the CAISO's received interest rate and shall be credited to the CRR Balancing Account.

**11.2.5 Payment by Out-of Control Area Load to Obtain CRRs Through the CRR Allocation Process.**

Pursuant to Section 36.9, an entity that serves Load outside of the CAISO Control Area will be eligible to participate in the CRR Allocation process if such entity has made a pre-payment to the CAISO and has met the requirements in Section 36.9. The prepayment amount shall equal the MW of CRR requested times the Wheeling Access Charge associated with the Scheduling Point corresponding to the CRR Sink times the number of hours in the period for each requested CRR MW amount. Such prepayment will be made three (3) Business Days in advance of the submission of CRR nominations to the CRR Allocation. Within thirty (30) days following the completion of the relevant CRR Allocation process, the CAISO shall reimburse such entity representing the Out-of-Control-Area-Load the amount of money pre-paid for any CRRs that were not allocated to the entity. For the amount of CRRs that were allocated to the entity, the CAISO will exempt the Scheduling Coordinator for such entity from the WAC for any Real-Time Interchange export schedules at the Scheduling Point corresponding to the sink of each allocated CRR, on an hourly basis for the period for which the CRR is defined, until the pre-paid funds are exhausted. At the end of the period for which the CRR is defined any remaining balance will be allocated to the PTOs in accordance with Section 26.1.4.3.

To the extent the pre-paid balance amount is exhausted prior to the end of the duration of the awarded CRR, the Scheduling Coordinator designated by the CRR Holder that has been allocated CRRs pursuant to Section 36.9 will be charged for the WAC in accordance with Section 26.1.4.

**11.3 [Not Used]**

#### **11.4 HASP Settlement of Scheduling Points.**

The CAISO shall settle both incremental and decremental Energy at the relevant Scheduling Points for all Non-Dynamic System Resources based on the HASP Intertie LMP in accordance with Section 11.4.1 and 11.4.2. Energy dispatched using HASP Intertie Schedules is accounted as Instructed Imbalance Energy and its costs shall be included in the Real-Time Market Settlements in accordance with Section 11.5.

##### **11.4.1 HASP Settlement for Exports.**

For each Settlement Period that the CAISO clears Energy transactions at Scheduling Points in HASP, the settlement for such transactions will be the CAISO HASP Intertie Pre-Dispatch LMP multiplied by the MWh quantity of Export scheduled at the individual Scheduling Point in excess of or less than the Day-Ahead Schedule, respectively.

##### **11.4.2 HASP Settlement for Imports.**

For each Settlement Period that the CAISO clears Energy transactions at Scheduling Points for all Non-Dynamic System Resources in HASP, the CAISO shall pay or charge Scheduling Coordinators for each System Resource an amount equal to the HASP Intertie LMP multiplied by the MWh quantity of Import scheduled at the individual Scheduling Point in excess of or less than the Import at that Scheduling Point scheduled in the Day-Ahead Schedule, respectively.

#### **11.5 Real-Time Market Settlements.**

The CAISO shall calculate and account for Imbalance Energy for each Dispatch Interval and settle Imbalance Energy in the Real-Time Market for each Settlement Interval for each resource within the CAISO Control Area and all System Resources Dispatched in Real-Time. Imbalance Energy consists of IIE and UIE. IIE includes Energy associated with HASP Intertie Schedules. IIE is settled pursuant to Section 11.5.1. and UIE is settled pursuant to Section 11.5.2. In addition, the CAISO shall settle UFE as part of the Real-Time Market Settlements. To the extent that the sum of the Settlement Amounts for IIE, UIE, and UFE does not equal zero, the CAISO will assess Charges or make Payments for the resulting differences to all Scheduling Coordinators based on a pro rata share of their Measured Demand for the relevant Settlement Interval.

### **11.5.1 Instructed Imbalance Energy Settlements.**

For each Settlement Interval, IIE consists of the following types of Energy: (1) Energy dispatched through the Real-Time Market optimization process; (2) Energy from HASP Intertie Schedules as defined in Section 11.4; (3) Residual Imbalance Energy; (4) Minimum Load Energy from units Dispatched in Real-Time; (5) Energy related to Exceptional Dispatches; (6) Energy from Regulation; (7) Standard Ramping Energy; (8) Ramping Energy Deviation; (9) Rerate Energy; (10) Real-Time Self-Scheduled Energy; and (11) MSS Load Following Energy. Payments and Charges for IIE attributable to each resource in each Settlement Interval shall be settled by debiting or crediting, as appropriate, the specific Scheduling Coordinator's IIE Settlement Amount. The Settlement Amounts for the Standard Ramping Energy and the MSS Load Following Energy shall be zero. The Settlement Amounts for Energy dispatched through the Real-Time Market optimization, Minimum Load Energy from units Dispatched in the Real-Time, Energy from Regulation, Ramping Energy Deviation, Rerate Energy, and Real-Time Self-Scheduled Energy shall be calculated as the product of the sum of all of these types of Energy and the Resource-Specific Settlement Interval LMP. The remaining Settlement Amounts are determined as follows: (1) Settlement Amounts for the Energy from the HASP Intertie Schedules is settled per Section 11.4; (2) Settlement Amounts for Residual Imbalance Energy are determined pursuant to Section 11.5.5.; and (3) Settlement amounts for Exceptional Dispatches are settled pursuant to Section 11.5.6.

#### **11.5.1.1 Total IIE Settlement Amount.**

The total IIE Settlement Amount (\$) per Settlement Interval for each Scheduling Coordinator is the sum of the Settlement Amounts for the Standard Ramping Energy, MSS Load Following Energy, Energy Dispatched through the Real-Time Market optimization, the Minimum Load Energy from units Dispatched in the Real-Time, Energy from Regulation, Ramping Energy Deviation, Rerate Energy, Real-Time Self-Schedule Energy, Residual Imbalance Energy, and the portion of Settlement Amounts for Exceptional Dispatches pursuant to Sections 11.5.6.

**11.5.1.2 Total IIE Quantity.**

The total IIE quantity (MWh) per Settlement Interval for each Scheduling Coordinator is the sum of Standard Ramping Energy, MSS Load Following Energy, Energy dispatched through the Real-Time Market optimization, Minimum Load Energy from units Dispatched in the Real-Time, Energy from Regulation, Ramping Energy Deviation, Rerate Energy and Real-Time Self-Scheduled Energy, Residual Imbalance Energy and Exceptional Dispatches.

**11.5.2 Uninstructed Imbalance Energy.**

Scheduling Coordinators shall be paid or charged a UIE Settlement Amount for each LAP, PNode or Scheduling Point for which the CAISO calculates a UIE quantity. UIE quantities are calculated for each resource that has a Day-Ahead Schedule, HASP Intertie Schedule, Dispatch Instruction, Real-Time Interchange schedule or Metered Quantity. The CAISO shall account for UIE in two categories: (1) Tier 1 UIE is accounted as the quantity deviation from the resource's IIE; and (2) Tier 2 UIE is accounted as the quantity deviation from the resource's Day-Ahead Schedule. For Generating Units, System Units, Physical Scheduling Plants, System Resources and the Demand Response portion of a Participating Load, the Tier 1 UIE Settlement Amount is calculated for each Settlement Interval as the product of its Tier 1 UIE quantity and its Resource-Specific Tier 1 UIE Settlement Interval Price as calculated per Section 11.5.2.1, and the Tier 2 UIE Settlement Amount is calculated for each Settlement Interval as the product of its Tier 2 UIE quantity and the simple average of the relevant Dispatch Interval LMPs. The Tier 2 UIE Settlement Amount for Demand, the Base Load of a Participating Load and net MSS Demand is calculated for the Trade Hour as the sum of (1) the product of the hourly Tier 2 UIE quantity and the Hourly Real-Time LAP Price and (2) the Hourly UIE Adjustment Amount as described in Section 11.5.2.2.

**11.5.2.1 Resource Specific Tier 1 UIE Settlement Interval Price.**

The Resource-Specific Tier 1 UIE Settlement Interval Price is calculated as the resource's total IIE Settlement Amount calculated pursuant to Section 11.5.1.1 for that Settlement Interval divided by its total IIE quantity (MWh) calculated pursuant to Section 11.5.1.2.

### **11.5.2.2 Hourly UIE Adjustment Amount.**

The Hourly Real-Time LAP Price will apply to Demand, the Base Load portion of a Participating Load, and net MSS Demand for Settlement of Imbalance Energy, except as provided in Section 30.5.3.2. The Hourly Real-Time LAP Price is calculated as the load deviation weighted average of the hourly average of the Dispatch Interval LMPs for the LAP in the relevant Trading Hour.

For Demand, the Base Load of a Participating Load and net MSS Demand, the Hourly UIE Adjustment Amount is calculated as the product of the hourly Tier 2 UIE quantity and the Hourly LAP UIE Adjustment Price, in the case of a positive hourly Tier 2 UIE quantity, or the product of the hourly Tier 2 UIE quantity and the negative of the Hourly LAP UIE Adjustment Price, in the case of a negative hourly UIE quantity.

The Hourly LAP UIE Adjustment Price is calculated as the ratio of the following quantities:

- (1) the difference of (a) the load deviation weighted-average of the hourly average of the Dispatch Interval LMPs for the LAP and (b) the load-weighted average of the Hourly Real-Time LMP Price where the weights for (b) are each Scheduling Coordinator's Imbalance Energy quantity in the Trading Hour in the LAP; and
- (2) the sum of the absolute values of each Scheduling Coordinator's Imbalance Energy quantity for the Trading Hour in the relevant LAP.

The Hourly UIE Adjustment Amount is to account for Energy quantity cancellations in the denominator of the calculation of the Hourly Real-Time LAP Price.

### **11.5.3 Unaccounted For Energy (UFE).**

For each Settlement Interval, the CAISO will calculate UFE in the CAISO Control Area, and for each utility Service Area for which the IOU or Local Public Utility Owned Electric Utility has requested separate UFE calculation and has met the requirements applicable to a CAISO Metered Entity. The UFE will be settled as Imbalance Energy at the Settlement Interval Locational Marginal Price calculated for each utility Service Area for which UFE is calculated separately. UFE attributable to meter measurement errors, load profile errors, Energy theft, and distribution loss deviations will be allocated to each Scheduling

Coordinator based on the ratio of its metered CAISO Demand within the relevant utility Service Area for

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which UFE is calculated separately plus its Real-Time Interchange export schedules from the relevant Utility Service Area to total metered CAISO Demand within that utility Service Area plus its Real-Time Interchange export schedules from the relevant Utility Service Area.

#### **11.5.4 Real-Time Prices for Imbalance Energy.**

##### **11.5.4.1 Application and Calculation of Dispatch Interval LMPs.**

Payments to suppliers of Imbalance Energy will be based on Resource-Specific Settlement Interval LMPs. The Resource-Specific Settlement Interval LMPs are established using Dispatch Interval LMPs. Dispatch Interval LMPs will apply to Generating Units, System Units, Physical Scheduling Plants, dynamically scheduled System Resources, and the Demand Response portion of a Participating Load for settlement of Imbalance Energy. The Dispatch Interval LMP will be calculated at each PNode associated with such resource irrespective of whether the resource at that PNode has received Dispatch Instructions. The Dispatch Interval LMPs are then used to calculate a Resource-Specific Settlement Interval LMP and a Resource Specific Tier 1 UIE Settlement Interval Price for each Generating Unit, System Unit, Physical Scheduling Plant, dynamically scheduled System Resource, and Participating Load within the CAISO Controlled Grid.

##### **11.5.5 Settlement Amount for Residual Imbalance Energy.**

For each Settlement Interval, Residual Imbalance Energy Settlement Amounts shall be the product of the MWh of Residual Imbalance Energy for that Settlement Interval and the Bid that led to the Residual Imbalance Energy from the relevant Dispatch Interval in which the resource was Dispatched.

##### **11.5.6 Settlement Amounts for IIE from Exceptional Dispatch.**

For each Settlement Interval, IIE Settlement Amount from each type of Exceptional Dispatch described in Section 34.9 is calculated as the sum of the products of the relevant IIE quantity for the Dispatch Interval and the relevant settlement price for the Dispatch Interval for each type of Exceptional Dispatch as further described below.

**11.5.6.1 Settlement for IIE from Exceptional Dispatches used for System Emergency Conditions, to Avoid Market Intervention, Overgeneration Conditions or to Prevent or Relieve Imminent System Emergencies.**

The Exceptional Dispatch settlement price for incremental IIE that is delivered as a result of an Exceptional Dispatch for System Emergency conditions, to avoid an intervention in market operations, mitigate Overgeneration conditions, or to prevent or relieve an imminent System Emergency, including forced start-ups and shutdowns, is the higher of the Resource-Specific Settlement Interval LMP, Energy Bid Price or the Default Energy Bid price, if applicable and the Energy that does not have an Energy Bid Price, or the negotiated price as applicable to System Resources. Costs for incremental Energy for this type of Exceptional Dispatch are settled in two Payments: (1) incremental Energy is first settled at the Resource-Specific Settlement Interval LMP and included in the total IIE Settlement Amount described in Section 11.5.1.1; and (2) second, the incremental Energy Bid cost in excess of the applicable LMP at the relevant Location is settled per Section 11.5.6.1.1. The Exceptional Dispatch Settlement price for decremental IIE not associated with an Energy Bid that is delivered as a result of an Exceptional Dispatch Instruction to avoid an intervention in market operations, or to prevent or relive a System Emergency is the minimum of the Resource-Specific Settlement Interval LMP, Energy Bid Price, or the negotiated price, if applicable and the Energy that does not have an Energy Bid Price. All Energy costs for decremental IIE associated with this type of Exceptional Dispatch are included in the total IIE Settlement Amount described in Section 11.5.1.1.

**11.5.6.1.1 Settlement of Excess Costs for Exceptional Dispatches used for Emergency Conditions, to Avoid Market Intervention, and Avoid an Imminent System Emergencies.**

The Excess Cost Payment for incremental Exceptional Dispatches used for emergency conditions, to avoid Market intervention, or avoid an imminent System Emergencies is calculated for each resource for each Settlement Interval as the cost difference between the Settlement amount calculated pursuant to Section 11.5.6.1 for the applicable Exceptional Dispatch at the Resource-Specific Settlement Interval LMP and one of the following three costs: (1) the Resource's Energy Bid Cost, (2) the Default Energy Bid cost, or (3) the Energy cost at the negotiated price, if applicable, for the relevant Exceptional Dispatch.



**11.5.6.2 Settlement of IIE from Exceptional Dispatches caused by Modeling Limitations.**

**11.5.6.2.1 Exceptional Dispatches Not Associated with an Energy Bid for Transmission-Related Modeling Limitations.**

The Exceptional Dispatch Settlement price for IIE not associated with an Energy Bid that is consumed or delivered as a result of an Exceptional Dispatch to mitigate or resolve Congestion as a result of a transmission-related modeling limitation in the FNM is the maximum of the Resource-Specific Settlement Interval LMP, Energy Bid Price or the Default Energy Bid price, if applicable and the Energy that does not have an Energy Bid Price, or the negotiated price as applicable to System Resources. Costs for incremental Energy for this type of Exceptional Dispatch are settled in two Payments: (1) incremental Energy is first settled at the Resource-Specific Settlement Interval LMP and included in the total IIE Settlement Amount described in Section 11.5.1.1; and (2) second, the incremental Energy Bid costs in excess of the applicable LMP at the relevant Location are settled per Section 11.5.6.2.3. The Exceptional Dispatch Settlement price for decremental IIE for this type of Exceptional Dispatch is the minimum of the Resource-Specific Settlement Interval LMP Energy Bid Price or the Default Energy Bid price, if applicable and the Energy that does not have an Energy Bid Price, or the negotiated price as applicable to System Resources. Costs for decremental IIE associated with this type of Exceptional Dispatch are settled in two Payments: (1) decremental Energy is first settled at the Resource-Specific Settlement Interval LMP and included in the total IIE Settlement Amount described in Section 11.5.1.1; and (2) second, the decremental Energy Bid costs in excess of the applicable LMP at the relevant Location are settled per Section 11.5.6.2.3.

**11.5.6.2.2 Exceptional Dispatches Associated with an Energy Bid for Transmission-Related Modeling Limitations.**

The Exceptional Dispatch Settlement price for incremental IIE associated with an Energy Bid that is consumed or delivered as a result of an Exceptional Dispatch to mitigate or resolve Congestion as a result of a transmission-related modeling limitation in the CAISO FNM is the maximum of the Resource-Specific Settlement Interval LMP or the Energy Bid Price. Costs for incremental Energy for this type of Exceptional Dispatch are settled in two Payments: (1) incremental Energy is first settled at the Resource-

Specific Settlement Interval LMP and included in the total IIE Settlement Amount described in Section 11.5.1.1; and (2) second, the incremental Energy Bid costs in excess of the applicable LMP at the relevant Location are settled per Section 11.5.6.2.3. The Exceptional Dispatch Settlement price for decremental IIE for this type of Exceptional Dispatch is the minimum of the Resource-Specific Settlement Interval LMP or the Bid price. Costs for decremental IIE associated with this type of Exceptional Dispatch are settled in two Payments: (1) decremental Energy is first settled at the Resource-Specific Settlement Interval LMP and included in the total IIE Settlement Amount described in Section 11.5.1.1; and (2) second, the decremental Energy Bid costs in excess of the applicable LMP at the relevant Location is settled per Section 11.5.6.2.3.

**11.5.6.2.3 Settlement of Excess Costs for Exceptional Dispatches used for Transmission-Related Modeling Limitations.**

The Excess Cost Payment for Exceptional Dispatches used for Transmission modeling issues is calculated for each Resource for each Settlement Interval as the cost difference between the Settlement amount calculated pursuant to Section 11.5.6.2.1 or 11.5.6.2.2 for the applicable Exceptional Dispatch at the Resource-Specific Settlement Interval LMP and one of the following three costs: (1) the Resource's Energy Bid Cost, 2) the Default Energy Bid cost, or 3) the Energy cost at the negotiated price, if applicable, for the relevant Exceptional Dispatch.

**11.5.6.2.4 Exceptional Dispatches for Non-Transmission-Related Modeling Limitations.**

The Exceptional Dispatch Settlement price for incremental IIE that is consumed or delivered as a result of an Exceptional Dispatch to mitigate or resolve Congestion that is not a result of a transmission-related modeling limitation in the FNM is the maximum of the Resource-Specific Settlement Interval LMP, Energy Bid Price or the Default Energy Bid price, if applicable and the Energy that does not have an Energy Bid Price, or the negotiated price as applicable to System Resources. All costs for incremental Energy for this type of Exceptional Dispatch will be included in the total IIE Settlement Amount described in Section 11.5.1.1. The Exceptional Dispatch Settlement price for decremental IIE for this type of Exceptional Dispatch is the minimum of the Resource-Specific Settlement Interval LMP, Energy Bid Price or the Default Energy Bid price, if applicable and the Energy does not have an Energy Bid Price, or the

negotiated price as applicable to System Resources. All costs for decremental IIE associated with this type of Exceptional Dispatch are included in the total IIE Settlement Amount described in Section 11.5.1.1.

**11.5.6.2.5 [Not Used]**

**11.5.6.2.5 Allocation of Exceptional Dispatch Excess Cost Payments.**

**11.5.6.2.5.1 Allocation of Exceptional Dispatch Excess Cost Payments to PTOs.**

The total Excess Cost Payments calculated pursuant to Section 11.5.6.2.3 for the IIE from Exceptional Dispatches instructed as a result of a transmission-related modeling limitation in the FNM in that Settlement Interval shall be charged to the Participating Transmission Owner in whose Participating TO Service Territory the transmission-related modeling limitation is located. If the modeling limitation affects more than one Participating TO, the Excess Cost Payments shall be pro-rata allocated in proportion to the Participating TO's Transmission Revenue Requirement.

**11.5.6.2.5.2 Allocation of Exceptional Dispatch Costs to Scheduling Coordinators.**

Excess Cost Payments for the Exceptional Dispatches used for Emergency Conditions to avoid market intervention and System Emergencies as determined pursuant to Section 11.5.6.1.1 shall be charged to Scheduling Coordinators as follows in a two-step process. First, each Scheduling Coordinator's charge shall be the lesser of:

- i. the pro rata share of total Excess Cost Payment based upon the ratio of each Scheduling Coordinator's Net Negative Uninstructed Deviations to the total system Net Negative Uninstructed Deviations; or
- ii. the amount obtained by multiplying the Scheduling Coordinator's Net Negative Uninstructed Deviation for each Settlement Interval and a weighted average price. The weighted average price is equal to the total Excess Cost Payments to be allocated divided by the MWh of Exceptional Dispatch Energy associated with the Excess Cost Payment.

Second, any remaining unallocated costs shall be allocated to all Scheduling Coordinators pro-rata based on their Measured Demand. For a Scheduling Coordinator of an MSS Operator that has elected to follow Load, allocation of this second category of Excess Cost Payments will be based on net metered Demand.

A Scheduling Coordinator shall be exempt from the Step one of the Excess Cost Payment allocation for a Settlement Interval if the Scheduling Coordinator has sufficient incremental Energy bids from physically available resources in the Real-Time Energy Market to cover its Net Negative Uninstructed Deviation in the given Settlement Interval and the prices of such Energy bids do not exceed the applicable maximum Bid level as set forth in Section 39 of this Tariff.

**11.5.6.3 Settlement for IIE from Exceptional Dispatches for RMR Units.**

**11.5.6.3.1 Pricing for Exceptional Dispatch of RMR Units.**

If the CAISO Dispatches an RMR Unit that has selected Condition 2 of its RMR Contract to Start-Up or provide Energy other than a start-up or energy pursuant to the RMR Contract, the CAISO shall pay as follows:

(a) if the Owner has elected Option A of Schedule G, two times the Start-Up cost specified in Schedule D to the applicable RMR Contract for any Start-Up incurred, and 1.5 times the rate specified in Equation 1a or 1b below times the amount of Energy delivered in response to the Dispatch Instructions;

(b) if the Owner has elected Option B of Schedule G, three times the Start-Up cost specified in Schedule D to the applicable RMR Contract for any Start-Up incurred, and the rate specified in Equation 1a or 1b below times the amount of Energy delivered in response to the Dispatch Instruction.

Equation 1a

$$\text{Energy Price (\$/MWh)} = \frac{(AX^3 + BX^2 + CX + D) * P * E}{X} + \text{Variable O\&M Rate}$$

Equation 1b

$$\text{Energy Price (\$/MWh)} = \frac{A * (B + CX + De^{FX}) * P * E}{X} + \text{Variable O\&M Rate}$$

Where:

- for Equation 1a, A, B, C, D and E are the coefficients given in Table C1-7a of the applicable RMR Contract;
- for Equation 1b, A, B, C, D, E and F are the coefficients given in Table C1-7b of the applicable RMR Contract;
- X is the Unit output level during the applicable settlement period, MWh;
- P is the Hourly Fuel Price as calculated by Equation C1-8 in Schedule C using the Commodity Prices in accordance with the applicable RMR Contract;

Variable O&M Rate (\\$/MWh): as shown on Table C1-18 of the applicable RMR Contract.

### **11.5.6.3.2 Allocation of Costs from Exceptional Dispatch Calls to Condition 2 RMR**

#### **Units.**

a) All costs associated with Energy provided by a Condition 2 RMR Unit operating other than according to a dispatch notice issued under the RMR Contract shall be allocated in accordance with Section 11.5. Until either the RMR Contract Counted MWh, Counted Service Hours or Counted Start-Ups exceed the relevant RMR Contract Service Limit, any cost incurred for Energy provided under the RMR Contract above the rate specified in equation 1a or 1b as set forth in Section 11.5.6.3.1 shall be allocated in accordance with Section 11.5.1, not to the Responsible Utility.

b) Start-Up Costs for Condition 2 RMR Units providing service outside the RMR Contract, and any additional start-up Cost associated with a Condition 2 RMR Unit providing service under the RMR Contract when the unit's total service has exceeded an RMR Contract Service Limit but neither the RMR Contract Counted MWh, Counted Service Hours or Counted start-ups under the RMR Contract have exceeded the applicable RMR Contract Service Limit, shall be treated similar to costs under Section 11.8

**11.5.6.4 Settlement of IIE from Exceptional Dispatches used for Ancillary Services Testing and PreCommercial Operations Testing For Generating Units.**

The Exceptional Dispatch Settlement price for incremental IIE that is consumed or delivered as a result of an Exceptional Dispatch for purposes of Ancillary Services testing or pre-commercial operations testing for Generating Units is the maximum of the Resource-Specific Settlement Interval LMP or the Energy Bid Price, if Energy is associated with an Energy Bid. All Energy costs for these types of Exceptional Dispatch will be included in the IIE Settlement Amount described in Section 11.5.1.1.

**11.5.6.5 Settlement of IIE from Black Start and Voltage Support.**

All IIE Settlement Amounts associated with Black Start and Voltage Support are derived pursuant to Section 11.10.

**11.5.6.6 Settlement of IIE from Exceptional Dispatches for HASP and Real-Time ETC and TOR Schedules**

The Exceptional Dispatch Settlement price for IIE from HASP and Real-Time ETC and TOR Supply Schedules shall be the Resource-Specific Settlement Interval LMP. The Settlement Amount for this type of Exceptional Dispatch shall be calculated as the product of the sum of all of these types of Energy and the Resource-Specific Settlement Interval LMP.

**11.5.7 HASP and RTM Congestion Credit for ETCs, TORs.**

The CAISO shall not apply Charges or Payments to Scheduling Coordinators related to the MCC associated with all source and sink pairs associated with valid and balanced ETC Self-Schedules or TOR Self-Schedules. The balanced portion will be based on the difference between: (1) minimum of the metered

CAISO Demand, ETC or TOR Self-Schedule submitted in the HASP, or the Existing Contract maximum capacity as specified in the TRTC Instructions; and (2) the Day-Ahead Schedule. For each Scheduling Coordinator, the CAISO shall determine for each Settlement Interval the applicable HASP and Real-Time Market Congestion Credit for Imbalance Energy, which can be positive or negative, as sum of the product of the relevant MWh quantity and the MCC at each source and sink associated with the valid and balanced portions of that Scheduling Coordinator's ETC or TOR Self-Schedules. For all exports and imports settled in the HASP, the CAISO shall use the MWh quantity specified in the HASP Intertie Schedule. For all Demand settled in the Real-Time Market the CAISO shall use the metered CAISO Demand associated with the applicable ETC or TOR. For all Supply settled in the Real-Time Market the CAISO shall use the quantity specified in the Dispatch Instructions.

**11.5.7.1 Allocation of the HASP and RTM Congestion Credit for ETCs, TORs**

The HASP and Real-Time Market Congestion Credit calculated pursuant to 11.5.7 shall be allocated to all Scheduling Coordinators based on their Measured Demand excluding Metered Load and IIE quantities from Supply at all source and sink pairs associated with valid and Balanced ETC Self-Schedules or TOR Self-Schedules.

**11.6 [Not Used]**

**11.7 [Not Used]**

**11.8 Bid Cost Recovery.**

For purposes of determining the Unrecovered Bid Cost Uplift Payments for each Bid Cost Recovery Eligible Resource as determined in Section 11.8.5 and the allocation of Unrecovered Bid Cost Uplifts for each Settlement Interval, the CAISO shall sequentially calculate the Bid Costs, which can be positive (IFM, RUC or Real-Time Market Bid Cost Shortfall) or negative (IFM, RUC or Real-Time Market Bid Cost Surplus) in the IFM, RUC and the Real-Time Market, as the algebraic difference between the respective IFM, RUC or Real-Time Market Bid Cost and the IFM, RUC or Real-Time Market Market Revenues, which is netted across the CAISO Markets. All Bid Costs shall be based on mitigated Bids as specified in Section 39.7.

### **11.8.1 CAISO Determination of Self-Commitment Periods.**

For the purposes of identifying the periods during which a Bid Cost Recovery Eligible Resource is deemed self-committed and thus ineligible for Start-Up Costs, Minimum Load Costs, IFM Load Reduction Initiation Cost for Participating Loads, IFM Minimum Curtailable Demand for Participating Loads, and IFM Pump and Participating Load Shut-Down Cost, the CAISO derives the Self-Commitment Periods as described below. The IFM and RUC Self-Commitment Periods will be available as part of the Day-Ahead Market results provided to the applicable Scheduling Coordinator. The Interim Real-Time Market Self-Commitment Periods as reflected in the HASP will be available as part of the HASP results for the relevant Trading Hour as provided to the applicable Scheduling Coordinator. The Final Real-Time Market Self-Commitment Period is determined ex-post for Settlements purposes.

#### **11.8.1.1 IFM Self-Commitment Period.**

An IFM Self-Commitment Period for a Bid Cost Recovery Eligible Resource shall consist of one or more sets of consecutive Trading Hours during which the relevant Bid Cost Recovery Eligible Resource has either a Self-Schedule or, except for AS Self-Provision for Non-Spinning Reserve by a Fast Start Unit resources, has a non-zero amount of Self-Provided Ancillary Services. An IFM Self-Commitment Period for a Bid Cost Recovery Eligible Resource may not be less than the relevant Minimum Run Time (MAT), rounded up to the next hour. Consequently, if a Bid Cost Recovery Eligible Resource first self-commits in hour  $h$  of the Trading Day, the self-commitment will be extended to hour  $h + \text{MAT}$ . Two IFM Self-Commitment Periods for a Bid Cost Recovery Eligible Resource may not be apart by less than the relevant Minimum Down Time (MDT) (rounded up to the next hour). Consequently, if a Bid Cost Recovery Eligible Resource has submitted a Self-Schedule or Self-Provided Ancillary Services in hours  $h$  and  $h + n$ , and  $n$  is less than the MDT, the IFM Self-Commitment Period will be extended to the hours in between  $h$  and  $h + n$  inclusive. The number of IFM Self-Commitment Periods for a Bid Cost Recovery Eligible Resource within a Trading Day cannot exceed the relevant Maximum Daily Start-Ups (MDS), or  $\text{MDS} + 1$  if the first IFM Self-Commitment Period is the continuation of an IFM or RUC Commitment Period from the previous Trading Day. Consequently, if a Bid Cost Recovery Eligible Resource has submitted a Self-Schedule or Self-Provided Ancillary Services, such that after applying the preceding two rules, the



number of disjoint Self Commitment Periods for the Operating Day exceeds the Maximum Daily Start-Ups (MDS), or MDS + 1 if the first IFM Self-Commitment Period is the continuation of an IFM or RUC Commitment Period from the previous Trading Day, the disjoint Self Commitment Periods with smallest time gap in between will be joined together to bring down the number of disjoint Self Commitment Periods to MDS or MDS +1 as relevant.

#### **11.8.1.2 Real-Time Self-Commitment Period.**

A Real-Time Market Self-Commitment Period for a Bid Cost Recovery Eligible Resource shall consist of all consecutive Dispatch Intervals not in an IFM Commitment Period or a RUC Commitment Period where the Bid Cost Recovery Eligible Resource has a Self-Schedule or, except for Self-Provided Ancillary Services for Non-Spinning Reserve by a Fast Start Unit, has a non-zero amount of Self-Provided Ancillary Services. A Real-Time Market Self-Commitment Period for a Bid Cost Recovery Eligible Resource may not be less than the relevant MUT (rounded up to the next 15-minute Commitment Interval) when considered jointly with any adjacent IFM Self Commitment period. Consequently, if a Bid Cost Recovery Eligible Resource self-commits at time  $h$ , the self-commitment will be extended to Commitment Interval  $h + MUT$ , unless an IFM or RUC Commitment Period exits starting after hour  $h$ , in which case the self-commitment will be extended to Commitment Interval  $h + \min(MUT, t)$ . A Real-Time Market Self-Commitment Period for a Bid Cost Recovery Eligible Resource may not be apart from an IFM or RUC Commitment Period by less than the relevant MDT (rounded up to the next 15-min Commitment Interval). Consequently, if a Bid Cost Recovery Eligible Resource self-commits at time  $T1$  and has a RUC Schedule at time  $T2 < T1$ , the Real-Time Market Self-Commitment Period will be extended to the interim Commitment Intervals if  $T1 - T2 < MDT$ . The number of Real-Time Market Self-Commitment Periods for a Bid Cost Recovery Eligible Resource within a Trading Day, when considered jointly with any adjacent IFM Self Commitment period, may not exceed the relevant MDS (or MDS + 1 if the first Real-Time Market Self-Commitment Period is the continuation of a Real-Time Market Commitment Period from the previous Trading Day). Consequently, if a Bid Cost Recovery Eligible Resource self-commits at time  $T1$  and has a RUC Schedule at time  $T2 > T1$ , the Real-Time Market Self-Commitment Period will be extended to the

interim Commitment Intervals if an additional Real-Time Market Start-Up at T1 would violate the MDS constraint.

### **11.8.2 IFM Bid Cost Recovery Amount.**

For purposes of determining the IFM Unrecovered Bid Cost Uplift Payments as determined in Section 11.8.5, and the purposes of allocating Net IFM Bid Cost Uplift as described in Section 11.8.6.4 the CAISO shall calculate the IFM Bid Cost Shortfall or the IFM Bid Cost Surplus as the algebraic difference between the IFM Bid Cost and the IFM Market Revenues for each Settlement Interval. The IFM Bid Costs shall be calculated pursuant to Section 11.8.2.1 and the IFM Market Revenues shall be calculated pursuant to Section 11.8.2.2.

#### **11.8.2.1 IFM Bid Cost Calculation.**

For each Settlement Interval, the CAISO shall calculate IFM Bid Cost for each Bid Cost Recovery Eligible Resource as the algebraic sum of the IFM Start-Up Cost (or the IFM Load Reduction Initiation Cost for Participating Loads), IFM Minimum Load Cost (or the IFM Minimum Curtailable Demand for Participating Loads), IFM Pump and Participating Load Shut-Down Cost, IFM Pump and Participating Load Bid Cost, IFM Energy Bid Cost, and IFM AS Bid Cost. The IFM Bid Cost for Bid Cost Recovery Eligible Resources, except Participating Loads, for any Settlement Interval is set to zero if the Bid Cost Recovery Eligible Resource has an Uninstructed Imbalance Energy (UIE) magnitude in that Settlement Interval in excess of the greater: (1) of five (5) MWh divided by the number of Settlement Intervals in the Trading Hour; or (2) 3% of its maximum capacity divided by the number of Settlement Intervals in a Trading Hour. The IFM Bid Cost for a Participating Load for any Settlement Interval is set to zero if the Participating Load has an Uninstructed Imbalance Energy (UIE) magnitude in that Settlement Interval in excess of the greater: (1) of five (5) MWh divided by the number of Settlement Intervals in the Trading Hour; or (2) 3% of the difference between the Base Load and the Real-Time Market Self-Schedule.

**11.8.2.1.1 IFM Start-Up Cost.**

The IFM Start-Up Cost for any IFM Commitment Period shall equal to the Start-Up Costs submitted by the Scheduling Coordinator to the CAISO for the IFM divided by the number of Settlement Intervals in the applicable IFM Commitment Period. For each Settlement Interval, only the IFM Start Cost in a CAISO IFM Commitment Period is eligible for Bid Cost Recovery. The following rules shall apply sequentially to qualify the IFM Start-Up Cost in an IFM Commitment Period:

- a) The IFM Start-Up Cost for an IFM Commitment Period shall be zero if there is an IFM Self-Commitment Period within or overlapping with that IFM Commitment Period.
- b) The IFM Start-Up Cost for an IFM Commitment Period shall be zero if the Bid Cost Recovery Eligible Resource is manually pre-dispatched under an RMR Contract prior to the Day-Ahead Market or the resource is flagged as an RMR Dispatch in the Day-Ahead Schedule in the Day-Ahead Market anywhere within the applicable IFM Commitment Period.
- c) The IFM Start-Up Cost for an IFM Commitment Period shall be zero if there is no actual Start-Up at the start of the applicable IFM Commitment Period because the IFM Commitment Period is the continuation of an IFM or RUC Commitment Period from the previous Trading Day.
- d) The IFM Start-Up Cost for an IFM Commitment Period shall be zero if the Start-Up is delayed by the Real-Time Market past the IFM Commitment Period in question or cancelled by the Real-Time Market before the startup process has started.
- e) If an IFM Start-Up is terminated in the Real-Time within the applicable IFM Commitment Period through an Exceptional Dispatch Shut-Down Instruction issued while the Bid Cost Recovery Eligible Resource was Starting Up, the IFM Start-Up Cost for that IFM Commitment Period shall be prorated by the ratio of the Start-Up time before termination over the total IFM Start-Up time.
- f) The IFM Start-Up Cost is qualified if an actual Start-Up occurs within the applicable IFM Commitment Period. An actual Start-Up is detected between two consecutive Settlement

Intervals when the relevant metered Energy in the applicable Settlement Intervals increases from below the Minimum Load Energy and reaches or exceeds the relevant Minimum Load Energy. The Minimum Load Energy is the product of the relevant Minimum Load and the duration of the Settlement Interval.

- g) The IFM Start-Up Cost will be qualified if an actual Start-Up occurs earlier than the start of the IFM Commitment Period if the advance start-up is as a result of a Start-Up instruction issued in a RUC or Real-Time Market process subsequent to the IFM, or the advance Start-Up is uninstructed but is still within the same Trading Day and the Bid Cost Recovery Eligible Resource actually stays on until the targeted IFM Start-Up.

**11.8.2.1.2 IFM Minimum Load Cost.**

The Minimum Load Cost for the applicable Settlement Interval shall be the Minimum Load Cost submitted to the CAISO in the IFM divided by the number of Settlement Intervals in a Trading Hour. For each Settlement Interval, only the IFM Minimum Load Cost in a CAISO IFM Commitment Period is eligible for Bid Cost Recovery. The IFM Minimum Load Cost for any Settlement Interval is zero if: (1) the Settlement Interval is in an IFM Self Commitment Period for the Bid Cost Recovery Eligible Resource; (2) the Bid Cost Recovery Eligible Resource is manually pre-dispatched under an RMR Contract prior to the Day-Ahead Market or the resource is flagged as an RMR Dispatch in the Day-Ahead Schedule for the applicable Settlement Interval; or (3) the Bid Cost Recovery Eligible Resource is not actually on during the applicable Settlement Interval. A Bid Cost Recovery Eligible Resource is detected as not actually being On if the metered Energy in that Settlement Interval less than the relevant MLE within the Tolerance Band.

**11.8.2.1.3 IFM Pump and Participating Load Shut-Down Cost.**

For Pumped-Storage Hydro Units and Participating Load only, the IFM Pump and Participating Load Shut-Down Costs for each Settlement Interval shall be equal to the relevant Pump and Participating Load Shut-Down Cost submitted to CAISO in the IFM divided by the number of Settlement Intervals in a Trading

Hour in which shut down is to occur if the unit is committed by the IFM not to pump and actually does not operate in pumping mode in that Settlement Interval (as detected by Metered data).

**11.8.2.1.4 IFM Pump and Participating Load Bid Cost**

For Pumped Storage Hydro Units and Participating Load only, the IFM Pump and Participating Load Cost for the applicable Settlement Interval shall be the Pumping and Participating Load Bid Cost submitted to the CAISO in the IFM divided by the number of Settlement Intervals in a Trading Hour. The Pump and Participating Load Cost is negative. The Pump and Participating Load Cost is included in IFM Bid Cost computation for a Pumped-Storage Hydro Unit and Participating Load committed by the IFM to pump or serve Load, if it actually operates in pumping mode or serves Load in that Settlement Interval.

**11.8.2.1.5 IFM Energy Bid Cost.**

For any Settlement Interval, the IFM Energy Bid Cost shall be the integral of the relevant Energy Bid submitted to the IFM, if any, from the Bid Cost Recovery Eligible Resource's Minimum Load up to the relevant MWh scheduled in the Day-Ahead Schedule, divided by the number of Settlement Intervals in a Trading Hour.

**11.8.2.1.6 IFM AS Bid Cost.**

For any Settlement Interval, the IFM AS Bid Cost shall be the product of the IFM AS Award from each accepted IFM AS Bid and the relevant AS Bid Price, divided by the number of Settlement Intervals in a Trading Hour.

**11.8.2.2 IFM Market Revenue.**

For any Settlement Interval in a CAISO IFM Commitment Period the IFM Market Revenue for a Bid Cost Recovery Eligible Resource is the algebraic sum of: (1) the product of the MWh, in the relevant Day-Ahead Schedule in that Trading Hour where for Pumped Storage Hydro Units and Participating Load operating in the pumping mode or serving Load, the MWh is negative, and the relevant IFM LMP, divided by the number of Settlement Intervals in a Trading Hour; and (2) the product of the IFM AS Award from each accepted IFM AS Bid and the relevant Resource-Specific ASMP, divided by the number of

Settlement Intervals in a Trading Hour. For any Settlement Interval in a IFM Self-Commitment Period the

IFM Market Revenue for a Bid Cost Recovery Eligible Resource is the algebraic sum of: (1) the product of the MWh above the greater of Minimum Load and Self-Scheduled Energy, in the relevant Day-Ahead Schedule in that Trading Hour and the relevant IFM LMP, divided by the number of Settlement Intervals in a Trading Hour; and (2) the product of the IFM AS Award from each accepted IFM AS Bid and the relevant Resource-Specific ASMP, divided by the number of Settlement Intervals in a Trading Hour.

### **11.8.3 RUC Bid Cost Recovery Amount.**

For purposes of determining the RUC Unrecovered Bid Cost Uplift Payments as determined in Section 11.8.5 and for the purposes of allocating Net RUC Bid Cost Uplift as described in Section 11.8.6.5, the CAISO shall calculate the RUC Bid Cost Shortfall or the RUC Bid Cost Surplus as the algebraic difference between the RUC Bid Cost and the RUC Market Revenues for each Bid Cost Recovery Eligible Resource for each Settlement Interval. The RUC Bid Costs shall be calculated pursuant to Section 11.8.3.1 and the RUC Market Revenues shall be calculated pursuant to Section 11.8.3.2.

#### **11.8.3.1 RUC Bid Cost Calculation.**

For each Settlement Interval, the CAISO shall determine the RUC Bid Cost for a Bid Cost Recovery Eligible Resource as the algebraic sum of the RUC Start-Up Cost, RUC Minimum Load Cost and RUC Availability Bid Cost. The RUC Bid Cost for a Bid Cost Recovery Eligible Resource except Participating Loads for a Settlement Interval is zero if the Bid Cost Recovery Eligible Resource has an Uninstructed Imbalance Energy (UIE) magnitude in that Settlement Interval in excess of: (1) 5 MWh divided by the number of Settlement Intervals in the Trading Hour; or (2) 3% of its maximum capacity divided by the number of Settlement Intervals in a Trading Hour. The RUC Bid Cost for a Participating Loads for any Settlement Interval is set to zero if the Bid Cost Recovery Eligible Resource has an Uninstructed Imbalance Energy (UIE) magnitude in that Settlement Interval in excess of the greater: (1) of five (5) MWh divided by the number of Settlement Intervals in the Trading Hour; or (2) 3% of the difference between the Base Load and the Real-Time Market Self-Schedule.

**11.8.3.1.1 RUC Start-Up Cost.**

The RUC Start-Up Cost for any Settlement Interval in a RUC Commitment Period shall consist of Start-Up Cost of the Bid Cost Recovery Eligible Resource submitted to the CAISO for the applicable RUC Commitment Period divided by the number of Settlement Intervals in the applicable RUC Commitment Period. For each Settlement Interval, only the RUC Start Cost in a CAISO RUC Commitment Period is eligible for Bid Cost Recovery. The following rules shall be applied in sequence and shall qualify the RUC Start-Up Cost in a RUC Commitment Period:

- a) The RUC Start-Up Cost for a RUC Commitment Period is zero if there is an IFM Commitment Period within that RUC Commitment Period.
- b) The RUC Start-Up Cost for a RUC Commitment Period is zero if the Bid Cost Recovery Eligible Resource is manually pre-dispatched under an RMR Contract prior to the Day-Ahead Market or is flagged as an RMR Dispatch in the Day-Ahead Schedule anywhere within that RUC Commitment Period.
- c) The RUC Start-Up Cost for a RUC Commitment Period is zero if there is no RUC Start-Up at the start of that RUC Commitment Period because the RUC Commitment Period is the continuation of an IFM or RUC Commitment Period from the previous Trading Day.
- d) The RUC Start-Up Cost for a RUC Commitment Period is zero if the Start-Up is delayed beyond the RUC Commitment Period in question or cancelled by the Real-Time Market prior to the Bid Cost Recovery Eligible Resource starting its start-up process.
- e) If a RUC Start-Up is terminated in the Real-Time within the applicable RUC Commitment Period through an Exceptional Dispatch Shut-Down Instruction issued while the Bid Cost Recovery Eligible Resource is starting up the, RUC Start-Up Cost is prorated by the ratio of the Start-Up Time before termination over the RUC Start-Up Time.
- f) The RUC Start-Up Cost for a RUC Commitment Period is qualified if an actual Start-Up occurs within that RUC Commitment Period.

- g) The RUC Start-Up Cost shall be qualified if an actual Start-Up occurs earlier than the start of the RUC Start-Up, if the relevant Start-Up is still within the same Trading Day and the Bid Cost Recovery Eligible Resource actually stays on until the RUC Start-Up, otherwise the Start-Up Cost is zero for the RUC Commitment Period.

**11.8.3.1.2 RUC Minimum Load Cost.**

The Minimum Load Cost for the applicable Settlement Interval shall be the Minimum Load Cost of the Generating Bid Cost Recovery Eligible Resource divided by the number of Settlement Intervals in a Trading Hour. For each Settlement Interval, only the RUC Minimum Load Cost in a CAISO RUC Commitment Period is eligible for Bid Cost Recovery. The RUC Minimum Load Cost for any Settlement Interval is zero if: (1) the Bid Cost Recovery Eligible Resource is manually pre-dispatched under an RMR Contract or the resource is flagged as an RMR Dispatch in the Day-Ahead Schedule in that Settlement Interval; (2) the Bid Cost Recovery Eligible Resource is not actually on in the applicable Settlement Interval, indicated by metered Energy in that Settlement Interval less than the relevant MLE; or (3) the applicable Settlement Interval is included in an IFM Commitment Period.

**11.8.3.1.3 RUC Availability Bid Cost.**

The product of the RUC Award with the relevant RUC Availability Bid price, divided by the number of Settlement Intervals in a Trading Hour.

**11.8.3.2 RUC Market Revenues.**

For any Settlement Interval, the RUC Market Revenue for a Bid Cost Recovery Eligible Resource is the RUC Availability Payment as specified in Section 11.2.2.1 all divided by the number of Settlement Intervals in a Trading Hour.

**11.8.4 RTM Bid Cost Recovery Amount.**

For purposes of determining the Real-Time Market Unrecovered Bid Cost Uplift Payments as determined in Section 11.8.5, and for the purposes of allocation of Net Real-Time Market Bid Cost Uplift as described in Section 11.8.6.6 the CAISO shall calculate the Real-Time Market Bid Cost Shortfall or the Real-Time Market Bid Cost Surplus as the algebraic difference between the Real-Time Market Bid Cost and the



Real-Time Market Market Revenues for each Settlement Interval. The Real-Time Market Bid Costs shall be calculated pursuant to Section 11.8.4.1 and the Real-Time Market Market Revenues shall be calculated pursuant to Section 11.8.4.2.

**11.8.4.1 RTM Bid Cost Calculation.**

For each Settlement Interval, the CAISO shall calculate Real-Time Market Bid Cost for each Bid Cost Recovery Eligible Resource, as the algebraic sum of the Real-Time Market Start-Up Cost (or the Real-Time Market Load Reduction Initiation Cost for Participating Loads), Real-Time Market Minimum Load Cost (or the Real-Time Market Minimum Curtailable Demand for Participating Loads), Real-Time Market Pump Shut-Down Cost, Real-Time Market Energy Bid Cost, and Real-Time Market AS Bid Cost. The Real-Time Market Bid Cost for a Bid Cost Recovery Eligible Unit except Participating Loads for a Settlement Interval is zero if the Bid Cost Recovery Eligible Resource has an Uninstructed Imbalance Energy (UIE) magnitude in that Settlement Interval in excess of 5 MWh divided by the number of Settlement Intervals in a Trading Hour or 3% of its maximum capacity divided by the number of Settlement Intervals in a Trading Hour. The Real-Time Market Bid Cost for a Participating Loads for any Settlement Interval is set to zero if the Participating Load has an Uninstructed Imbalance Energy (UIE) magnitude in that Settlement Interval in excess of the greater: (1) of five (5) MWh divided by the number of Settlement Intervals in the Trading Hour; or (2) 3% of the difference between the Base Load and the Real-Time Market Self-Schedule.

**11.8.4.1.1 RTM Start-Up Cost.**

For each Settlement Interval of the applicable Real-Time Market Commitment Period, the Real-Time Market Start-Up Cost shall consist of the Start-Up Cost of the Generating Bid Cost Recovery Eligible Resource submitted to the CAISO for the Real-Time Market divided by the number of Settlement Intervals in the applicable Real-Time Market Commitment Period. For each Settlement Interval, only the Real-Time Market Start-Up Cost in a CAISO Real-Time Market Commitment Period is eligible for Bid Cost Recovery. The following rules shall be applied in sequence and shall qualify the Real-Time Market Start-Up Cost in a Real-Time Market Commitment Period:

- a) The Real-Time Market Start-Up Cost is zero if there is a Real-Time Market Self-Commitment Period within the Real-Time Market Commitment Period.
- b) The Real-Time Market Start-Up Cost is zero if the Bid Cost Recovery Eligible Resource has been manually pre-dispatched under an RMR Contract or the resource is flagged as an RMR Dispatch in the Day-Ahead Schedule or Real-Time Market anywhere within that Real-Time Market Commitment Period.
- c) The Real-Time Market Start-Up Cost is zero if there is no Real-Time Market Start-Up at the start of that Real-Time Market Commitment Period because the Real-Time Market Commitment Period is the continuation of an IFM or RUC Commitment Period from the previous Trading Day.
- d) If a Real-Time Market Start-Up is terminated in the Real-Time within the applicable Real-Time Market Commitment Period through an Exceptional Dispatch Shut-Down Instruction issued while the Bid Cost Recovery Eligible Resource is starting up the Real-Time Market Start-Up Cost is prorated by the ratio of the Start-Up Time before termination over the Real-Time Market Start-Up Time.
- e) The Real-Time Market Start-Up cost shall be qualified if an actual Start-Up occurs within that Real-Time Market Commitment Period.
- f) The Real-Time Market Start-Up Cost for a Real-Time Market Commitment Period shall be qualified if an actual Start-Up occurs earlier than the start of the Real-Time Market Start-Up, if the relevant Start-Up is still within the same Trading Day and the Bid Cost Recovery Eligible Resource actually stays on until the Real-Time Market Start-Up, otherwise the Start-Up Cost is zero for the RUC Commitment Period.

**11.8.4.1.2 RTM Minimum Load Cost.**

The Real-Time Market Minimum Load Cost is the Minimum Load Cost of the Bid Cost Recovery Eligible Resource submitted to the CAISO for the Real-Time Market divided by the number of Settlement Intervals in a Trading Hour. For each Settlement Interval, only the Real-Time Market Start-Up Cost in a CAISO Real-Time Market Commitment Period is eligible for Bid Cost Recovery. The Real-Time Market Minimum Load Cost for any Settlement Interval is zero if: (1) the Settlement Interval is included in a Real-Time Market Self Commitment period for Bid Cost Recovery Eligible Resource; (2) the Bid Cost Recovery Eligible Resource has been manually dispatched under an RMR contract or the resource has been flagged as an RMR Dispatch in the Day-Ahead Schedule or the Real-Time Market in that Settlement Interval; (3) the Bid Cost Recovery Eligible Resource is not actually on in that Settlement Interval; or (4) that Settlement Interval is included in an IFM or RUC Commitment Period.

**11.8.4.1.3 RTM Pump and Participating Load Shut-Down Cost.**

The Real-Time Market Pumping and Participating Load Cost is the relevant Pump and Participating Load Shut-Down Cost submitted by the Scheduling Coordinator for Pumped Storage Hydro Units and Participating Load committed by the Real-Time Market to stop pumping and serving Load and actually does not operate in pumping mode or serve Load in that Settlement Interval, divided by the number of Settlement Intervals in a Trading Hour.

**11.8.4.1.4 RTM Pumping and Participating Load Bid Cost.**

For Pumped Storage Hydro Units and Participating Load only, the Real-Time Market Pumping and Participating Load Cost for the applicable Settlement Interval shall be the Pumping and Participating Load Bid Cost submitted to the CAISO in the divided by the number of Settlement Intervals in a Trading Hour. The Pumping and Participating Load Cost is negative since it represents the amount the entity is willing to pay to pump or serve Load. The Pumping and Participating Load Cost is included in Real-Time Market Bid Cost computation for a Pumped-Storage Hydro Unit and Participating Load committed by the Real-Time Market to pump or serve Load, if it actually operates in pumping mode or serves Load in that Settlement Interval.

**11.8.4.1.5 RTM Energy Bid Cost.**

For any Settlement Interval, the Real-Time Market Energy Bid Cost for the Bid Cost Recovery Eligible Resource shall be computed as the sum of the products of each Instructed Imbalance Energy (IIE) portion, except Standard Ramping Energy, Residual Imbalance Energy, Exceptional Dispatch Energy, and Regulating Energy, with the relevant Energy bid prices, if any, for each Dispatch Interval in the Settlement Interval.

**11.8.4.1.6 RTM AS Bid Cost.**

For each Settlement Interval, the Real-Time Market AS Bid Cost shall be the product of the average Real-Time Market AS Award from each accepted AS Bid submitted in the Settlement Interval for the Real-Time Market, reduced by any relevant Tier-1 No Pay capacity in that Settlement Interval (but not below zero), with the relevant AS Bid price. The average Real-Time Market AS Award for a given AS in a Settlement Interval is the sum of the 15-min Real-Time Market AS Awards in that Settlement Interval, each divided by the number of 15-min Commitment Intervals in a Trading Hour and prorated to the duration of the Settlement Interval (10/15 if the Real-Time Market AS Award spans the entire Settlement Interval, or 5/15 if the Real-Time Market AS Award spans half the Settlement Interval).

**11.8.4.2 RTM Market Revenue Calculations.**

**11.8.4.2.1** For each Settlement Interval in a CAISO Real-Time Market Commitment period, the Real-Time Market Market Revenue for a Bid Cost Recovery Eligible Resource is the algebraic sum of the following:

- a) The sum of the products of the Instructed Imbalance Energy (including Energy from Minimum Load of Bid Cost Recovery Eligible Resources committed in RUC where for Pumped Storage Hydro Units and Participating Load operating in the pumping mode or serving Load, the MWh is negative), except Standard Ramping Energy, Residual Imbalance Energy, Exceptional Dispatch Energy, and Regulating Energy, with the relevant Real-Time Market LMP, for each Dispatch Interval in the Settlement Interval;

b) The product of the Real-Time Market AS Award from each accepted Real-Time Market AS Bid in the Settlement Interval with the relevant ASMP, divided by the number of 15-min Commitment Intervals in a Trading Hour (4), and prorated to the duration of the Settlement Interval.

c) The relevant Tier-1 No Pay charges for that Bid Cost Recovery Eligible Resource in that Settlement Interval.

**11.8.4.2.2** For each Settlement Interval in a non-CAISO Real-Time Market Commitment period, the Real-Time Market Market Revenue for a Bid Cost Recovery Eligible Resource is the algebraic sum of the following:

a) The sum of the products of the Instructed Imbalance Energy (excluding the Energy from Minimum Load of Bid Cost Recovery Eligible Resources committed in RUC), except, HASP Self-Scheduled Energy, Standard Ramping Energy, Residual Imbalance Energy, Exceptional Dispatch Energy, and Regulating Energy, with the relevant Real-Time Market LMP, for each Dispatch Interval in the Settlement Interval;

b) The product of the Real-Time Market AS Award from each accepted Real-Time Market AS Bid in the Settlement Interval with the relevant ASMP, divided by the number of 15-min Commitment Intervals in a Trading Hour (4), and prorated to the duration of the Settlement Interval.

c) The relevant Tier-1 No Pay charges for that Bid Cost Recovery Eligible Resource in that Settlement Interval.

**11.8.5 Unrecovered Bid Cost Uplift Payment.**

Scheduling Coordinators shall receive an Unrecovered Bid Cost Uplift Payment for a Bid Cost Recovery Eligible Resource if the net of all IFM, RUC, and Real-Time Market Bid Cost Shortfalls and Surpluses for that Bid Cost Recovery Eligible Resource over a Trading Day is positive.

**11.8.6 System-wide IFM, RUC and RTM Bid Cost Uplift Allocation.**

**11.8.6.1 Determination of IFM, RUC and RTM Bid Cost Uplift.**

For each Settlement Interval, the CAISO shall determine the IFM, RUC and Real-Time Market Uplift for purposes of allocating the IFM, RUC and Real-Time Market Bid Cost Uplift as follows:

- (i) The IFM Bid Cost Uplift shall be the net of the IFM Bid Cost Shortfalls and IFM Bid Cost Surpluses for a Settlement Interval of all Bid Cost Recovery Eligible Resources with Unrecovered Bid Cost Uplift Payments.
- (ii) The RUC Bid Cost Uplift shall be the net of the RUC Bid Cost Shortfalls and RUC Bid Cost Surpluses for a Settlement Interval of all Bid Cost Recovery Eligible Resources with Unrecovered Bid Cost Uplift Payments.
- (iii) The Real-Time Market Bid Cost Uplift shall be the net of the Real-Time Market Bid Cost Shortfalls and Real-Time Market Bid Cost Surpluses for a Settlement Interval of all Bid Cost Recovery Eligible Resources with Unrecovered Bid Cost Uplift Payments.

**11.8.6.2 Sequential Netting of IFM, RUC and RTM Bid Cost Uplift.**

For each Settlement Interval, the Net IFM, RUC or Real-Time Market Bid Cost Uplift is determined for the purposes of allocating Net IFM, RUC or Real-Time Market Bid Cost Uplift by the following netting rules applied sequentially:

- (i) The Net IFM Bid Cost Uplift, if positive, is reduced to the greater of zero or any positive IFM Bid Cost Uplift offset by Negative Real-Time Market Bid Cost Uplift first and offset by any Negative RUC Bid Cost Uplift.

(ii) The Net RUC Bid Cost Uplift is equal to the greater of zero or any positive RUC Bid Cost Uplift offset by any remaining Negative Real-Time Market Bid Cost Uplift after netting Negative Real-Time Market Bid Cost Uplift in (i) and offset by any Negative IFM Bid Cost Uplift.

(iii) The Net Real-Time Market Bid Cost Uplift is equal to the greater of zero or any positive Real-Time Market Bid Cost Uplift offset by any remaining Negative RUC Bid Cost Uplift after netting Negative RUC Bid Cost Uplift in (i) above and any remaining Negative IFM Bid Cost Uplift after netting Negative IFM Bid Cost Uplift in (ii).

#### **11.8.6.3 Determination of Total Positive CAISO Markets Uplifts.**

Any negative IFM, RUC or Real-Time Market Bid Cost Uplifts are set to \$0 and any positive Net IFM Bid Cost Uplifts, RUC Bid Cost Uplifts, or Real-Time Market Bid Cost Uplifts are further reduced by the uplift ratio in 11.8.6.3(iii) to determine the Total CAISO Markets Uplift as follows;

(i) The Total CAISO Markets Uplift is determined as the sum of the Net IFM Bid Cost Uplift, the Net RUC Bid Cost Uplift, and the Net Real-Time Market Bid Cost Uplift, for all Settlement Intervals in the IFM, RUC and Real-Time Market.

(ii) The Total Positive CAISO Market Uplift, is determined as the sum of the positive IFM Bid Cost Uplift, positive RUC Bid Cost Uplift and positive Real-Time Market Bid Cost Uplift, for all Settlement Intervals in the IFM, RUC and Real-Time Market.

(iii) The uplift ratio is equal to the Total CAISO Markets Uplift divided by the Total Positive CAISO Market Uplift.

#### **11.8.6.4 Allocation of Net IFM Bid Cost Uplift.**

For each Trading Hour of the IFM the, Hourly Net IFM Bid Cost Uplift is determined as the sum over the Settlement Intervals in that Trading Hour of the product of any positive Net IFM Bid Cost Uplift remaining in the Settlement Interval after the sequential netting in Section 11.8.6.2 and the application of the uplift ratio as determined in 11.8.6.3. The Hourly Net IFM Bid Cost Uplift is allocated in two tiers as follows:

(i) In the first tier, the Hourly Net IFM Bid Cost Uplift is allocated to Scheduling Coordinators in proportion to their IFM Load Uplift Obligation. The Scheduling Coordinator shall be charged an amount equal to the Hourly Net IFM Bid Cost Uplift divided by the IFM Load Uplift Obligation. The IFM Load Uplift Obligation for each Scheduling Coordinator is the difference between the total Demand scheduled in the Day-Ahead Schedule and the scheduled Generation from the Self-Schedules in the Day-Ahead Schedule, plus imports scheduled in the Day-Ahead Schedule, adjusted by any applicable Inter-SC Trades of IFM Load Uplift Obligations, but with an IFM Bid Cost Uplift rate not exceeding the ratio of the Hourly Net IFM Bid Cost Uplift divided by the sum of all hourly Generation scheduled in the Day-Ahead Schedule and IFM AS Awards for all Scheduling Coordinators from CAISO-Committed Bid Cost Recovery Eligible Resources in that Trading Hour.

(ii) In the second tier, Scheduling Coordinators will be charged for an amount equal to any remaining Hourly Net IFM Bid Cost Uplift for the Trading Hour in proportion to the Scheduling Coordinator's Measured Demand.

**11.8.6.5 Allocation of Net RUC Bid Cost Uplift.**

For each Trading Hour of the IFM the, Hourly Net RUC Bid Cost Uplift is determined as the sum over the Settlement Intervals in that Trading Hour of the product of any positive Net RUC Bid Cost Uplift remaining in the Settlement Interval after the sequential netting in Section 11.8.6.2 and the application of the uplift ratio as determined in 11.8.6.3. The Hourly Net RUC Bid Cost Uplift is allocated in two tiers as follows:

(i) In the first tier, the Hourly Net RUC Bid Cost Uplift is allocated to Scheduling Coordinators based on their Net Negative CAISO Demand Deviation in that Trading Hour. The Scheduling Coordinator shall be charged an amount equal to the Hourly Net RUC Bid Cost Uplift divided by the Net Negative CAISO Demand Deviation in that Trading Hour, but at a RUC Bid Cost Uplift rate not exceeding the ratio of the Hourly Net RUC Bid Cost Uplift divided by the RUC Capacity in that Trading Hour.



- (ii) In the second tier, the Scheduling Coordinator shall be charged an amount equal to any remaining Hourly Net RUC Bid Cost Uplift in proportion to the Scheduling Coordinator's Measured Demand in any Trading Hour.

#### **11.8.6.6 Allocation of Net RTM Bid Cost Uplift.**

The Hourly Net Real-Time Market Uplift is computed for the Trading Hour as the product of the uplift ratio in 11.8.6.3 and the sum over all Settlement Intervals of the Trade Hour of any positive Net Real-Time Market Uplift after the sequential netting in Section 11.8.6.2. The Hourly Real-Time Market Uplift is allocated to Scheduling Coordinators in proportion to their Measured Demand for the Trading Hour. Accordingly, each Scheduling Coordinator shall be charged an amount equal to their Measured Demand times the Real-Time Market Uplift rate, where the Real-Time Market Uplift Rate is computed as the Net Real-Time Market Uplift amount divided by the sum of Measured Demand across all Scheduling Coordinators for the Trading Hour.

### **11.9 Inter-SC Trades.**

#### **11.9.1 Inter-SC Trades of Energy.**

Inter-SC Trades of Energy in the Day-Ahead Market will be settled separately from Inter-SC Trades of Energy in the HASP. Both the Day-Ahead and HASP Inter-SC Trades of Energy will be settled on an hourly basis and the two respective Settlement amounts between the two parties for each market shall net to zero. All MWh quantities of Physical Trades submitted to the CAISO for Settlement in the Day-Ahead Market and validated pursuant to Section 28.1.5 shall be settled at the Day-Ahead LMP at the relevant PNode. All unvalidated MWh quantities of Physical Trades and all MWh quantities associated with other Inter-SC Trades of Energy submitted for Settlement in the Day-Ahead shall be settled at the Day Ahead LMP at the relevant Aggregated Price Node. All MWh quantities of Physical Trades submitted to the CAISO for Settlement in the HASP and validated shall be settled at the simple average of Dispatch Interval LMP at the relevant Pricing Node. All unvalidated MWh quantities of Physical Trades and all MWh quantities associated with Inter-SC Trades of Energy submitted to for Settlement in HASP shall be settled at the relevant Real-Time Price for the Trading Hub or the Aggregated Pricing Node.

**11.10 Settlements for Ancillary Services.**

**11.10.1 Settlements for Contracted Ancillary Services.**

The CAISO shall operate a daily Settlement function for Ancillary Services it contracts for with Scheduling Coordinators. The Scheduling Coordinators supplying Ancillary Services will be paid based on the prices and quantities determined in accordance with this Section 11.10.

**11.10.1.1 Ancillary Services in DAM.**

The IFM calculates hourly Day-Ahead Ancillary Service Awards and establishes Ancillary Service Marginal Prices ("ASMPs") for the accepted Regulation Up, Regulation Down, Spinning and Non-Spinning Reserve Bids. Payments to Scheduling Coordinators shall be equal to the ASMP for the each Ancillary Service multiplied by the quantity of the capacity awarded for the Ancillary Service. The ASMP is marginal cost of providing an Ancillary Service in the relevant resource location (\$/MW); it reflects the sum of the AS Bid and Energy opportunity cost of the marginal resources establishing the ASMP. The ASMPs provide (i) a price no lower than their capacity Bid and (ii) the foregone opportunity cost of using the awarded capacity to supply Energy in IFM. The foregone opportunity cost of Energy is measured only as the difference between the established IFM LMP and the resource's Energy Bid at the Pricing Node (e.g., if the resource's Energy Bid is higher than the established LMP, the opportunity cost is \$0). Suppliers with Self-Provided Ancillary Services are not eligible to receive ASMPs; Self-Provided Ancillary Services are priced at the User Rate for the service being self-provided.

**11.10.1.1.1 Congestion Charges for Day-Ahead Intertie Ancillary Service Awards**

Suppliers of Day-Ahead Ancillary Services Awards over the Interties also are charged for Congestion if the Award is at a congested Scheduling Point. The Charge shall be equal to the Shadow Price of the applicable congested Scheduling Point multiplied by the quantity of the Ancillary Service Award for the Settlement Period.

**11.10.1.2 Ancillary Services Provided in HASP.**

For Ancillary Services provided from System Resources in the HASP, hourly pre-dispatch schedules, awards, and prices are established in HASP optimization. Suppliers of Ancillary Services from System

Resources are paid an amount equal to the product of the simple average of the ASMPs computed the four 15-minute intervals of HASP for the each Ancillary Service times the quantity of the capacity awarded for the Ancillary Service for the Settlement Period. Scheduling Coordinators for resources Awarded Ancillary Services in the Day Ahead Market that are unable to satisfy their Ancillary Services Obligation obligation due to an outage or derate, may use the HASP to substitute another resource to provide the Awarded Ancillary Service. The Scheduling Coordinator for the substituting resource must: (a) submit an outage notification to the CAISO indicating that the awarded resource is not available, and (b) provide another resource to fulfill the awarded Ancillary Service. The substitution must clear the co-optimization in HASP (including Ancillary Service Regional Limits) and the substitution will be exposed to a price difference between the ASMPs, or if self provided, between the ASMP and the user rate, if any. Suppliers of Awarded Ancillary Services at the Scheduling Point in HASP are charged the simple average of the 15 minute MCC using the relevant Shadow Price of the applicable congested Scheduling Point.

#### **11.10.1.2.1 Congestion Charges for HASP Intertie Ancillary Service Awards**

Suppliers of HASP Ancillary Services Awards at Scheduling Points are also charged for Congestion if the Award is at a congested Scheduling Point. The Charge shall be equal to the simple average of the 15 minute shadow price of the applicable congested Scheduling Point multiplied by the quantity of the Ancillary Service Award for the Settlement Period.

#### **11.10.1.3 Ancillary Services Provided in Real-Time.**

For Ancillary Services provided from Resources internal to the CAISO Control Area in the Real-Time Market, the RTUC process that is performed every 15 minutes establishes fifteen (15) minute Ancillary Service Schedules, Awards, and prices for the upcoming quarter of the Operating Hour. Suppliers of Ancillary Services from Resources internal to the CAISO Control Area are paid a price equal to  $\frac{1}{4}$  of the 15 minute ASMP (in \$/MW/h) in each 15 minute interval for the each Ancillary Service times the amount of the capacity awarded (MW) for the Ancillary Service in the relevant Ancillary Services Region. Suppliers with Ancillary Service Awards receive the ASMP at the resource's location. Suppliers that self-provide Ancillary Services in the Real-Time Market are not eligible to receive ASMP; rather to the extent the self-provision is qualified it will be valued at the user rate for the relevant service (*i.e.*, will either

reduce the Ancillary Services Obligation or receive the user rate if it exceeds the Scheduling Coordinator's Ancillary Service obligation).

**11.10.1.4 Voltage Support.**

The total payments for each Scheduling Coordinator shall be the sum of the short-term procurement payments, based on opportunity cost, as described in Section 8.5.6.2, and the payments under long-term contracts.

**11.10.1.5 Black Start.**

**Quantities.** The following quantities shall be used in the Settlement process:

$EnQBS_{ijt}$  = Energy output from Black Start made by Generating Unit i from Scheduling Coordinator j (or Black Start Generator j, as the case may be) for Settlement Period t, pursuant to the CAISO's order to produce.

**Prices.** The prices used in the Settlement process are those described in the contracts referred to in Section **8.5.6.3**.

*Adjustment* = penalty described in Section 8.10.7.

**Payments.** Scheduling Coordinators for owners of Reliability Must-Run Units (or Black Start Generators, as the case may be) shall receive the following payments for Energy output from Black Start facilities:

$$BSEN_{ijt} = (EnQBS_{ijt} * EnBid_{ijt}) + BSSUP_{ijt-Adjustment}$$

where BSSUP<sub>ijt</sub> is the start-up payment for a Black Start successfully made by Generating Unit i of Scheduling Coordinator j (or Black Start Generator j) in Trading Interval t calculated in accordance with the applicable Reliability Must-Run Contract (or the Interim Black Start Agreement as the case may be).

**11.10.1.6 Inadvertent Interchange between Control Areas.**

The CAISO shall calculate imbalances between scheduled, instructed and actual quantities of Energy provided based upon Meter Data obtained pursuant to Section 10. Schedules between Control Areas shall be deemed as being delivered in accordance with Good Utility Practice. Dynamic Schedules shall be integrated over time through the Operating Hour and the MWh quantity obtained by such integration shall be deemed to be the associated scheduled Interchange for that Operating Hour. The difference between actual and scheduled Interchange shall then be addressed in accordance with the WECC and NERC inadvertent interchange practices and procedures. Following this practice, all Dynamic Schedules for Ancillary Services provided to the CAISO from Dynamic System Resources in other Control Areas shall be deemed delivered to the CAISO. The difference between the Energy requested by the CAISO and that actually delivered by the other Control Area shall then be accounted for and addressed through the WECC and NERC inadvertent Interchange practices and procedures.

**11.10.2 Settlement for User Charges for Ancillary Services.**

The CAISO shall determine a separate hourly user rate for Regulation Down Reserve, Regulation Up Reserve, Spinning Reserve, and Non-Spinning Reserve purchased for each Settlement Period. The hourly user rates for Regulation Down, Regulation Up, Spinning, and Non-Spinning Reserve include the cost incurred by the CAISO across all the DAM, HASP, and the Real-Time Market to procure this service. In computing the user rate for each service the quantity (MW) and costs of any substituting Ancillary Service will be treated as if they are costs and MW associated with the Ancillary Service need they are being used to fulfill. Each rate will be charged to Scheduling Coordinators on a volumetric basis applied to each Scheduling Coordinator's obligation for the specific Ancillary Service concerned which it has not self-provided, as adjusted by any Inter-Scheduling Coordinator Ancillary Service Trades. Each Scheduling Coordinator's obligation for Regulation Down Reserve, Regulation Up Reserve, Spinning Reserve, and Non-Spinning Reserve shall be calculated in accordance with this Section, notwithstanding any adjustment to the quantities of each Ancillary Service purchased by the CAISO in accordance with Section 8.2.3.5. The cost of Voltage Support and Black Start shall be allocated to Scheduling Coordinators as described in Sections 11.10.7 and 11.10.8.

Ancillary Services obligations for an individual Scheduling Coordinator (before taking into account Self-Provided Ancillary Services) or Inter-SC Trades of Ancillary Services) may be negative. Credits for such negative obligations will be in accordance with the rates calculated in this Section 11.10.2, except that a Scheduling Coordinator's credit shall be reduced pro rata to the extent the sum of the negative obligations of all Scheduling Coordinators with the negative Ancillary Services Obligation (before self-provision or Inter-SC Trade) exceeds the obligation of all Scheduling Coordinators with positive obligation net of Self-Provided Ancillary Services, as specified in Section 11.10.5

in any Settlement Period, the net procurement quantity of Regulation Up, Regulation Down, Spinning Reserve, or Non-Spinning Reserve purchased by the CAISO in the DAM, HASP, and the Real-Time Market due to the operation of Section 8.2.3.5 is zero, then the user rate for that Ancillary Service type will be zero.

With respect to each Settlement Period, in addition to the user rates determined in accordance with this Section 11.10.2, each Scheduling Coordinator shall be charged an additional amount equal to its proportionate share, based on total purchases by Scheduling Coordinators of Regulation Down, Regulation Up, Spinning Reserve, and Non-Spinning Reserve of the amount, if any, by which (i) the total payments to Scheduling Coordinators pursuant to this Section 11.10.2 for the DAM, HASP, and the Real-Time Market, exceed (ii) the total amounts charged to Scheduling Coordinators pursuant to this Section 11.10.2, for the DAM, HASP, and the Real-Time Market. If total amounts charged to Scheduling Coordinators exceed the total payments to Scheduling Coordinators, each Scheduling Coordinator will be refunded its proportionate share, based on total purchases by Scheduling Coordinators of Regulation Down, Regulation Up, Spinning Reserve, and Non-Spinning Reserve.

With respect to each Settlement Period, in addition to Ancillary Service charges at the applicable user rates determined in accordance with this Section 11.10.2, each Scheduling Coordinator shall be charged additional neutrality adjustment amounts for each Ancillary Service type pursuant to Sections 11.10.2.4, 11.10.2.2.3, 11.10.3.3, and 11.10.4.3 and a neutrality adjustment amount for upward Ancillary Service types pursuant to Section 11.14.

**11.10.2.1 Regulation Service.**

Regulation Up Reserve and Regulation Down Reserve charges shall be calculated separately.

**11.10.2.1.1 Regulation Down Reserve.**

The charges an Scheduling Coordinator must pay for Regulation Down Reserve for each Settlement Period of the Trade Day are based upon the product of Scheduling Coordinator's hourly obligation for Regulation Down Reserve (MW) and the hourly user rate for Regulation Down Reserve (\$/MW).

**11.10.2.1.2 Hourly User Rate for Regulation Down Reserve.**

The hourly User Rate for Regulation Down is the total Regulation Down Cost (\$) for each Settlement Period divided by the total Net Procurement of Regulation Down by the CASIO (MW) for each Settlement Period. The CAISO's Regulation Down Reserve Cost is equal to: (i) the revenues paid to the suppliers of the total awarded Regulation Down Reserve capacity in the DAM, HASP, and Real-Time Markets for the Settlement Period, minus, (ii) the payments rescinded in the Settlement Period due to the unavailability of the Regulation Down under any of the provisions of Section 8.10.8 of the Tariff. The Net Procurement of Regulation Down Reserves is equal to: (i) the amount (MW) of total awarded Regulation Down Reserve capacity in the Day-Ahead, HASP, and Real-Time Markets for the Settlement Period, minus, (ii) the Regulation Down Reserve capacity associated with payments rescinded for the Settlement Period pursuant to any of the provisions of Section 8.10.8 of the Tariff.

**11.10.2.1.3 Hourly Obligation for Regulation Down Reserve.**

Each Scheduling Coordinator's hourly obligation for Regulation Down is determined as follows: the Scheduling Coordinator's metered CAISO Demand multiplied by the Scheduling Coordinator's Ancillary Services Obligation percentage for Regulation Down, reduced by accepted Self-Provided Ancillary Services specified as Regulation Down, plus or minus any Regulation Down Reserve Obligations for the hour acquired or sold through Inter-SC Trades of Ancillary Services.

**11.10.2.1.4 Regulation Down Neutrality Adjustment.**

For each Settlement Period, the difference between the Regulation Down Cost determined in 11.10.2.1.2 and the total revenue collected from all Scheduling Coordinators in the Regulation Down Charge pursuant to Section 11.10.2.1.1 shall be allocated to all Scheduling Coordinators in proportion to their Regulation Down Obligation quantity.

**11.10.2.2 Regulation Up.**

The Charges an SC must pay for Regulation Up for each Settlement Period of the Trade Day are based upon the product of SC's hourly obligation for Regulation Up (MW) and the hourly user rate for Regulation Up (\$/MW).

**11.10.2.2.1 Hourly User Rate for Regulation Up.**

The hourly User Rate for Regulation Up is the total Regulation Up Cost (\$) for each Settlement Period divided by the total Net Procurement of Regulation Up by the CASIO (MW) for each Settlement Period. The CAISO's Regulation Up Cost is equal to: (i) the revenues paid to the suppliers of the total awarded Regulation Up capacity in the Day-Ahead, HASP, and Real-Time Markets for the Settlement Period, minus, (ii) the payments rescinded in the Settlement Period due to the unavailability of the Regulation Up under any of the provisions of Section 8.10.8 of the Tariff. The Net Procurement of Regulation Up is equal to: (i) the amount (MWs) of total awarded Regulation Up capacity in the Day-Ahead, HASP, and Real-Time Markets for the Settlement Period,, minus, (ii) the Regulation Up capacity associated with payments rescinded for the Settlement Period, pursuant to any of the provisions of Section 8.10.8 of the Tariff.

**11.10.2.2.2 Hourly Obligation for Regulation Up.**

Each Scheduling Coordinator's hourly obligation for Regulation Up is determined as follows: (a) the Scheduling Coordinator's metered CAISO Demand multiplied by the Scheduling Coordinator's Ancillary Services Obligation percentage for Regulation Up, reduced by accepted Self-Provided Ancillary Services specified as Regulation Up, plus or minus any Regulation Up Reserve Obligations for the hour acquired or sold through Inter-SC Trades of Ancillary Services.



**11.10.2.2.3 Regulation Up Neutrality Adjustment.**

For each Settlement Period, the difference between the Regulation Up Net Requirement at the hourly Regulation Up User Rate determined in Section 11.10.2.2.2 and the total revenue collected from all Scheduling Coordinators in the Regulation Up Charge pursuant to Section 11.10.2.2.1 shall be allocated to all Scheduling Coordinators in proportion to their Regulation Up Obligation quantity. The Regulation Up Net Requirement is the Real-Time Regulation Up Requirement net of the sum of Effective Qualified Regulation Up Self-Provision over all resources.

**11.10.3 Spinning Reserves.**

The charges an SC must pay for Spinning Reserves for each Settlement Period of the Trade Day are based upon the product of SC's hourly obligation for Spinning Reserves (MW) and the hourly user rate for Spinning Reserves (\$/MW).

If the Scheduling Coordinator's Operating Reserve Obligation (before self provision or Inter-SC Trade of Spinning or Non-Spinning Reserve) is negative, the SC may be entitled to a credit rather than a charge. In that case, the quantity of the SC's Negative Operating Reserve Obligation (before self provision and Inter-SC trade) shall be multiplied by the Negative Operating Reserve Obligation Credit Adjustment Factor (NOROCAP) computed for the Trading Hour as specified in section 11.10.5.

**11.10.3.1 Hourly User Rate for Spinning Reserves.**

The hourly User Rate for Spinning Reserves is the ratio of: 1) sum of the portion of Spinning Reserve Cost used to meet the spin requirement and the portion of Regulation Up cost that can substitute for Spinning Reserve and 2) the Net Procurement quantity of Spinning Reserves by the CAISO (\$/MW). The cost of Regulation Up substituting for Spinning Reserve is the user rate for Regulation Up multiplied by the quantity of Regulation Up used to satisfy the Spinning Reserve requirement.

The CAISO's Spinning Reserve Cost is equal to: (i) the revenues paid to the suppliers of the total awarded Spinning Reserve capacity in the Day-Ahead, HASP, and Real-Time Markets, minus, (ii) the payments rescinded due to either the failure to conform to Dispatch Instructions or the unavailability of the Spinning Reserves under Section 8.10.8 of the CAISO Tariff. The Net Procurement of Spinning Reserves is equal to: (i) the amount (MWs) of total awarded Spinning Reserve capacity in the Day-Ahead,

HASP, and Real-Time Markets, minus, (ii) the Spinning Reserve capacity associated with payments rescinded pursuant to any of the provisions of Section 8.10.8 of the CAISO Tariff. The amount (MW) of awarded Spinning Reserve capacity includes the amounts (MW) associated with any Regulation Up Reserve capacity used as Spinning Reserve under Section 8.2.3.5 of this Tariff.

**11.10.3.2 Hourly Obligation for Spinning Reserves.**

Each Scheduling Coordinator's hourly obligation for Spinning Reserves is determined as follows: the Scheduling Coordinator's total Ancillary Services Obligation for Operating Reserve for the hour multiplied by the ratio of the CAISO's total Ancillary Services Obligation for Spinning Reserves in the hour to the CAISO's total Operating Reserve obligations in the hour, (and if negative, multiplied by NOROCAF), reduced by the accepted Self-Provided Ancillary Services for Spinning Reserves, plus or minus any Spinning Reserve Obligations for the hour acquired or sold through Inter-SC Trades of Ancillary Services. The Scheduling Coordinator's total Operating Reserve Obligation for the hour is the sum of 5% of its Real-Time Demand (except the Demand covered by firm purchases from outside the CAISO Control Area) met by Generation from hydroelectric resources plus 7% of its Demand (except the Demand covered by firm purchases from outside the CAISO Control Area) met by Generation from non-hydroelectric resources, plus 100% of any Interruptible Imports and on-demand obligations which it schedules.

**11.10.3.3 Spinning Reserve Neutrality Adjustment**

For each Settlement Period, the difference between the Spinning Reserve Net Requirement at the hourly Spinning Reserve user rate determined in Section 11.10.3.1 and the total revenue collected from all Scheduling Coordinators in the Spinning Reserve Charge pursuant to Section 11.10.3 shall be allocated to all Scheduling Coordinators in proportion to their Spinning Reserve Obligation quantity. The Spinning Reserve Net Requirement is the Real-Time Spin Requirement net of the sum of Effective Qualified Spin Self-Provision over all Resources.

#### **11.10.4 Non-Spinning Reserves.**

The charges an SC must pay for Non-Spinning Reserves for each Settlement Period of the Trade Day are based upon the product of SC's hourly obligation for Non-Spinning Reserves (MWs) and the hourly user rate for Non-Spinning Reserves (\$/MW).

If the Scheduling Coordinator's Operating Reserve Obligation (before self provision or Inter-SC Trade of Spinning or Non-Spinning Reserves) is negative, the Scheduling Coordinator may be entitled to a credit rather than a charge. In that case the quantity of the Scheduling Coordinator's Negative Non-Spinning Reserve Obligation (before self provision and Inter-SC trade) shall be multiplied by the Negative Operating Reserve Obligation Credit Adjustment Factor (NOROCAF) computed for the Trading Hour as specified in Section 11.10.5.

##### **11.10.4.1 Hourly User Rate for Non-Spinning Reserves.**

The hourly User Rate for Non-Spinning Reserves is calculated as the ratio of: i) the sum of the portion of the Non-Spinning Reserve Cost used to met the Non-Spin Requirement and a portion of the Regulation Up and Spinning Reserve costs that can substitute for Non-Spinning Reserve and ii) the Net Procurement quantity of Non-Spinning Reserves by the CAISO (\$/MW). The CAISO's Non-Spinning Reserve Cost includes the costs associated with any Regulation Up Reserve or Spinning Reserve capacity used as Non-Spinning Reserve under Section 8.2.3.5 of this CAISO Tariff.

The CAISO's Non-Spinning Reserve Cost is equal to: (i) the revenues paid to the suppliers of the total awarded Non-Spinning Reserve capacity in the Day-Ahead, HASP, and Real-Time Markets, minus, (ii) the payments rescinded due to either the failure to conform to CAISO Dispatch Instructions or the unavailability of the Non-Spinning Reserves under Section 8.10.8 of the Tariff. The Net Procurement of Non-Spinning Reserves is equal to: (i) the amount (MWs) of total awarded Non-Spinning Reserve capacity in the Day-Ahead, HASP, and Real-Time Markets, minus, (ii) the Non-Spinning Reserve capacity associated with payments rescinded pursuant to any of the provisions of Section 8.10.8 of the Tariff. The amount (MW) of awarded Spinning Reserve capacity includes the amounts (MW) associated with any Regulation Up Reserve or Spinning Reserve capacity used as Non-Spinning Reserve under Section 8.2.3.5 of this Tariff.

**11.10.4.2 Hourly Obligation for Non-Spinning Reserves.**

Each Scheduling Coordinator's hourly obligation for Non-Spinning Reserves is (a) the product of the Scheduling Coordinator's total Operating Reserve Obligation for the hour (multiplied by NOROCAF if negative) and (b) the ratio of the CAISO's total Non-Spinning Reserve obligations in the hour to the CAISO's total Operating Reserve obligations in the hour (plus or minus any Non-Spinning Reserve Obligations for the hour acquired through Inter-SC Trades of AS).

The Scheduling Coordinator's total Operating Reserve Obligation for the hour is the sum of 5% of its Real-Time Demand (except the Demand covered by firm purchases from outside the CAISO Control Area) met by Generation from hydroelectric resources plus 7% of its Demand (except the Demand covered by firm purchases from outside the CAISO Control Area) met by Generation from non-hydroelectric resources, plus 100% of any Interruptible Imports, plus 5% (if hydro) or 7% (if thermal) of any unit-contingent or dynamic imports which it schedules.

**11.10.4.3 Non-Spinning Reserve Neutrality Adjustment.**

For each Settlement Period, the difference between the Non-Spinning Reserve Net Requirement at the hourly Non-Spinning Reserve user rate determined in Section 11.10.4.1 and the total revenue collected from all Scheduling Coordinators in the Non-Spinning Reserve Charge pursuant to Section 11.10.2.3 shall be allocated to all Scheduling Coordinators in proportion to their Non-Spinning Reserve Obligation quantity. The Non-Spinning Reserve Net Requirement is the Real-Time Non-Spin Requirement net of the sum of Effective Qualified Non-Spin Self-Provision over all Resources.

**11.10.5 Negative Operating Reserve Obligation Credit Adjustment Factor (NOROCAF).**

In exceptional cases, it may happen that the net total quantity of Operating Reserve Obligations of all Scheduling Coordinators in a Trading Hour after accounting for qualified self provision is negative. In this case the net negative Operating Reserve Obligation is not usable by the CAISO, since Self-Provided Ancillary Service is qualified before IFM based on CAISO's estimate of firm imports. In such a case, the Negative Operating Reserve Obligations of all Scheduling Coordinators with Negative Operating Reserve Obligation is reduced pro rata. This is done by computing the Negative Operating Reserve Credit

Adjustment Factor (NOROCAF) as the lower of 1 or the ratio of (a) net total quantity of Operating Reserve Obligations of all Scheduling Coordinators with positive Operating Reserve Obligation net of qualified self provision of Operating Reserves, but before any Inter-SC trades of Ancillary Services, and (b) the sum of Negative Operating Reserve Obligations of all Scheduling Coordinators with Negative Operating Reserve Obligation before considering any Self-Provided Ancillary Services or inter-SC trade of AS.

**11.10.6 Upward Ancillary Services Neutrality Adjustment.**

For each Settlement Period the difference between the Upwards Ancillary Service cost and the product of the total Ancillary Service Net Requirements at the relevant Ancillary Service user rate will be allocated to all Scheduling Coordinators in proportion to their Upward Ancillary Service obligation. The Upwards Ancillary Service cost is the sum of the Regulation Up, Spinning and Non-Spinning cost describe in 11.10.2.2, 11.10.3 and 11.10.4. The Ancillary Service Net Requirement is the sum of the Real-Time Regulation Up Net Requirement in Section 11.10.2.2.3, Spinning Net Requirement in Section 11.10.3.2 and Non-Spinning Net Requirement in Section 11.10.4.1.

**11.10.7 Voltage Support.**

The short-term market Voltage Support user rate for Settlement Period t for Zone x shall be calculated as follows:

$$VSSRate_{xt} = \frac{\sum_{i,j} VSST_{xijt}}{\sum_j QChargeVS_{xjt}}$$

$VSST_{xijt}$  = Voltage Support payment to Scheduling Coordinator j in respect of Generating Unit i in Zone x in the short-term market applicable to Settlement Period t.

$QChargeVS_{xjt}$  = charging quantity for Voltage Support for Scheduling Coordinator j for Settlement Period t in Zone x equal to the total metered Demand in Zone x (including exports to neighboring Control Areas and excluding metered Demand inside an MSS) by Scheduling Coordinator j for Settlement Period t.

The monthly long-term Voltage Support contract user rate for Settlement Period t for Zone x shall be calculated as follows:

$$VSLTRate_{xm} = \frac{\sum_{i,j} VSLT_{xijm}}{\sum_{jm} QChargeVS_{j,t}}$$

where:

$VSLT_{xijm}$  = long-term Voltage Support contract payment to Scheduling Coordinator j for owner of Reliability Must-Run Unit i in Zone x for month m.

The short-term market Voltage Support charges for Settlement Period t payable by Scheduling Coordinator j will be calculated as follows:

$$VSSTCharge_{jt} = VSSTRate_t * QChargeVS_{jt}$$

where  $VSSTCharge_{jt}$  is the amount payable by Scheduling Coordinator j for short-term market Voltage Support for Settlement Period t.

$VSSTRate_t$  is the short-term market Voltage Support user rate for Settlement Period t. The monthly long-term Voltage Support contract charge for month m payable by Scheduling Coordinator j will be calculated as follows:

$$VSLTCharge_m = VSLTRate_m * \sum_m QChargeVS_{jt}$$

where  $VSLTCharge_m$  is the amount payable by Scheduling Coordinator j for long-term Voltage Support for month m.

$VSLTRate_m$  is the monthly long-term Voltage Support contract user rate charged by the CAISO to Scheduling Coordinators for month m.

**11.10.8 Black Start.**

$QChargeBlackstart_{jt}$  = charging quantity for Black Start for Scheduling Coordinator j for Settlement Period t equal to the total metered Demand (excluding exports to neighboring Control Areas and metered Demand of a MSS) by Scheduling Coordinator j for Settlement Period t.

The Black Start Energy payment user rate for Settlement Period t will be calculated as follows:

$$BSRate_t = \frac{\sum_{i,j} BSEn_{ijt}}{\sum_j QChargeBlackstart_{jt}}$$

where  $BSEn_{ijt}$  is the CAISO payment to Scheduling Coordinator j for owner of Reliability Must-Run Unit (or to Black Start Generator j, as the case may be) for Generating Unit i providing Black Start Energy in Settlement Period t.

The Black Start Energy user charge for Settlement Period t for Scheduling Coordinator j will be calculated as follows:

$$BSCharge_{jt} = BSRate_t * QChargeBlackStart_{jt}$$

#### **11.11 High Voltage Access Charges and Transition Charges.**

High Voltage Access Charges and Transition Charges will be levied in accordance with Section 26.1 of this CAISO Tariff and Appendix F, Schedule 3 of this CAISO Tariff.

**11.12 Participating Intermittent Resources.**

**11.12.1 Uninstructed Energy by Participating Intermittent Resources.**

Uninstructed Imbalance Energy associated with deviations by a Participating Intermittent Resource shall be settled as provided in this Section 11.12.1 for every Settlement Period in which such Participating Intermittent Resource meets the scheduling requirements established in the Eligible Intermittent Resources Protocol. The net Uninstructed Imbalance Energy in each Settlement Interval shall be assigned to a deviation account specific to each Participating Intermittent Resource. The net balance in each deviation account at the end of each calendar month shall be paid (or charged) to the Scheduling Coordinator for the associated Participating Intermittent Resource at the average price specified in Section 34.19.2.5 of the CAISO Tariff. If the above-referenced scheduling requirements for Participating Intermittent Resources are not met, then charges (payments) for Uninstructed Imbalance Energy during such Settlement Periods shall be determined in accordance with Section 11.5.2.



**11.12.2 Allocation of Costs From Participating Intermittent Resources.**

The charges (payments) for Uninstructed Imbalance Energy that would have been calculated if the Settlement Interval deviations by each Participating Intermittent Resource were priced at the appropriate Resource Specific Settlement Interval LMP shall be assigned to a monthly balancing account for all Participating Intermittent Resources in the CAISO Control Area. The balance in such account at the end of each month shall be netted against the aggregate payments (charges) by Scheduling Coordinators on behalf of Participating Intermittent Resources. The resulting balance shall be assigned to each Scheduling Coordinator in the same proportion that such Scheduling Coordinator's aggregate Net Negative Uninstructed Deviations in that month bears to the aggregate Net Negative Uninstructed Deviations for all Scheduling Coordinators in the Control Area in that month.

**11.12.3 Payment of Forecasting Fee.**

A fee to defray the costs of the implementation of the forecasting service for Participating Intermittent Resources shall be assessed to Scheduling Coordinators for Participating Intermittent Resources as specified in Schedule 4 of Appendix F.

**11.12.4 Price for Uninstructed Deviations for Participating Intermittent Resources.**

Deviations associated with each Participating Intermittent Resource in a Scheduling Coordinator's portfolio shall be settled as provided in Section 34.19.2.5 at the monthly weighted average Dispatch Interval LMP, where the weights are the quantities of IIE associated with each Dispatch Interval LMP.

**11.13 Reliability Must-Run Charges.**

The CAISO shall calculate and levy the charges for Reliability Must-Run Contract costs in accordance with Section 41.5 of this CAISO Tariff.

**11.14 Neutrality Adjustments.**

The CAISO shall be authorized to levy additional charges or payments as special adjustments in regard to:

(a) amounts required to round up any invoice amount expressed in dollars and cents to the nearest whole dollar amount in order to clear the CAISO Clearing Account. These charges will be allocated amongst Scheduling Coordinators over an interval determined by the CAISO and pro rata based on metered Demand (including exports) during that interval;

(b) amounts in regard to penalties or sanctions that may be levied by the CAISO in accordance with the CAISO Tariff. These charges will be levied on the Market Participants liable for payment of the penalty or sanction;

(c) amounts required to reach an accounting trial balance of zero in the course of the Settlement process in the event that the charges calculated as due from CAISO Debtors are lower than payments calculated as due to the CAISO Creditors for the same Trading Day. These charges will be allocated amongst the Scheduling Coordinators who traded on that Trading Day pro rata to their metered Demand (including exports) in MWh of Energy for that Trade Day. In the event that the charges due from CAISO Debtors are higher than the payments due to CAISO Creditors, the CAISO shall allocate a payment to the Scheduling Coordinators who traded on that Trading Day pro rata to their metered Demand (including exports) in MWh of Energy for that Trading Day; and

(d) awards payable by or to the CAISO pursuant to good faith negotiations or CAISO ADR Procedures that the CAISO is not able to allocate to or to collect from a Market Participant or Market Participants in accordance with Section 13.5.3. These charges will be allocated amongst Scheduling Coordinators over an interval determined by the CAISO and pro rata based on metered Demand (including exports) during that interval.

**11.15 Payments Under Section 42 Contracts.**

The CAISO shall calculate and levy charges for the recovery of costs incurred under contracts entered into by the CAISO under the authority granted in accordance with Section 42 of this CAISO Tariff or any other contract approved by FERC.

**11.16 [NOT USED]**

**11.17 Operating and Capital Reserves Account.**

Revenues collected to fund the CAISO financial operating reserves shall be deposited in an Operating and Capital Reserves Account until such account reaches a level specified by the CAISO Governing Board. The Operating and Capital Reserves Account shall be calculated separately for each GMC service category (Core Reliability Services – Demand, Core Reliability Services – Energy Export, Energy Transmission Services – Net Energy, Energy Transmission Services – Uninstructed Deviations, Forward Scheduling, Congestion Management, Market Usage, and Settlements, Metering and Client Relations). The allocation factors, reassignments and reallocations specified in Schedule 1, Parts E and F, will be accounted for in the development of the Operating and Capital Reserves Account for each component. If the Operating and Capital Reserves Account as calculated for such service category is fully funded, surplus funds will be considered an offset to the revenue requirement of the next fiscal year.

**11.18 Emissions Costs.**

**11.18.1 Obligation to Pay Emissions Cost Charges.**

Each Scheduling Coordinator shall be obligated to pay a Charge in accordance with this Section 11.18, which will be used to pay the verified Emissions Costs incurred by a Must-Offer Generator during a CAISO Commitment Period. The CAISO shall levy this administrative charge (the “Emissions Cost Charge”) each month, against all Scheduling Coordinators based upon each Scheduling Coordinator’s Control Area Gross Load and Demand within California outside of the CAISO Control Area that is served by exports from the CAISO Control Area. Scheduling Coordinators shall make payment for all Emissions Cost Charges in accordance with the CAISO Payments Calendar.

**11.18.2 Emissions Cost Trust Account.**

All Emissions Cost Charges received by the CAISO shall be deposited in the Emissions Cost Trust Account. The Emissions Cost Trust Account shall be an interest-bearing account separate from all other accounts maintained by the CAISO, and no other funds shall be commingled in it at any time.

**11.18.3 Rate For the Emissions Cost Charge.**

The rate at which the CAISO will assess the Emissions Cost Charge shall be at the projected annual total of all Emissions Costs incurred by Must-Offer Generators during CAISO Commitment Period, adjusted for interest projected to be earned on the monies in the Emissions Cost Trust Account, divided by the sum of the Control Area Gross Load and the projected Demand within California outside of the CAISO Control Area that is served by Exports from the CAISO Control Area of all Scheduling Coordinators for the applicable year ("Emissions Cost Demand"). The initial rate for the Emissions Cost Charge, and all subsequent rates for the Emissions Cost Charge, shall be posted on the CAISO Website.

**11.18.4 Adjustment of the Rate For the Emissions Cost Charge.**

The CAISO may adjust the rate at which the CAISO will assess the Emissions Cost Charge on a monthly basis, as necessary, to reflect the net effect of the following:

- (a) the difference, if any, between actual Emissions Cost Demand and projected Emissions Cost Demand;
- (b) the difference, if any, between the projections of the Emissions Costs incurred by Must-Offer Generators during a CAISO Commitment Period and the actual Emissions Costs incurred by Must-Offer Generators during a CAISO Commitment Period as invoiced to the CAISO and verified in accordance with this Section 11.18; and
- (c) the difference, if any, between actual and projected interest earned on funds in the Emissions Cost Trust Account.

The adjusted rate at which the CAISO will assess the Emissions Cost Charge shall take effect on a prospective basis on the first day of the next calendar month. The CAISO shall publish all data and calculations used by the CAISO as a basis for such an adjustment on the CAISO Website at least five (5)

days in advance of the date on which the new rate shall go into effect.

**11.18.5 Credits and Debits of Emissions Cost Charges Collected from Scheduling**

**Coordinators.**

In addition to the surcharges or credits permitted under Section 11.29.7.3 of this CAISO Tariff, the CAISO may credit or debit, as appropriate, the account of a Scheduling Coordinator for any over- or under-assessment of Emissions Cost Charges that the CAISO determines occurred due to the error, omission, or miscalculation by the CAISO or the Scheduling Coordinator.

**11.18.6 Submission of Emissions Cost Invoices.**

Scheduling Coordinators for Generators eligible for Bid Cost Recovery that incur Emissions Costs during a CAISO Commitment Period may submit to the CAISO an invoice in the form specified on the CAISO Website (the "Emissions Cost Invoice") for the recovery of such Emissions Costs. Emissions Cost Invoices shall not include any Emissions Costs specified in an RMR Contract for a unit. All Emissions Cost Invoices must include a copy of all final invoice statements from air quality districts demonstrating the Emissions Costs incurred by the applicable Generating Unit, and such other information as the CAISO may reasonably require to verify the Emissions Costs incurred during a CAISO Commitment Period.

**11.18.7 Payment of Emissions Cost Invoices.**

The CAISO shall pay Scheduling Coordinators for all Emissions Costs submitted in an Emissions Cost Invoice and demonstrated to be during a CAISO Commitment Period. If the Emissions Costs indicated in the applicable air quality districts' final invoice statements include emissions produced by operation not during a CAISO Commitment Period, the CAISO shall pay an amount equal to Emissions Costs multiplied by the ratio of the MWh associated with the CAISO Commitment Period to the total MWh associated with such Emissions Costs. The CAISO shall pay Emissions Cost Invoices each month in accordance with the CAISO Payments Calendar from the funds available in the Emissions Cost Trust Account. To the extent there are insufficient funds available in Emissions Cost Trust Account in any month to pay all Emissions Costs submitted in an Emissions Cost Invoice and demonstrated to be during a CAISO Commitment

Period , the CAISO shall make pro rata payment of such Emissions Costs and shall adjust the rate at which the CAISO will assess the Emissions Cost Charge in accordance with Section 11.18.4. Any outstanding Emissions Costs owed from previous months will be paid in the order of the month in which such costs were invoiced to the CAISO. The CAISO's obligation to pay Emissions Costs is limited to the obligation to pay Emissions Cost Charges received. All disputes concerning payment of Emissions Cost Invoices shall be subject to ISO ADR Procedures, in accordance with Section 13 of this CAISO Tariff.

**11.19 FERC Annual Charges.**

**11.19.1 FERC Annual Charge Recovery Rate.**

The CAISO shall calculate the amount due from each UDC or MSS, or from a Scheduling Coordinator delivering Energy for the supply of Gross Load not directly connected to the facilities of a UDC or MSS, for the High Voltage Access Charge and Transition Charge in accordance with operating procedures posted on the CAISO Website. These charges shall accrue on a monthly basis. The CAISO shall calculate, charge and disburse all collected default Interest in accordance with the CAISO Tariff.

**11.19.1.1 Obligation for FERC Annual Charges.**

Each Scheduling Coordinator shall be obligated to pay for the FERC Annual Charges for its use of the CAISO Controlled Grid to transmit electricity, including any use of the CAISO Controlled Grid through Existing Contracts scheduled by the Scheduling Coordinator. Any FERC Annual Charges to be assessed by FERC against the CAISO for such use of the CAISO Controlled Grid shall be assessed against Scheduling Coordinators at the FERC Annual Charge Recovery Rate, as determined in accordance with Section 11.19.1. Such assessment shall be levied monthly against all Scheduling Coordinators based upon each Scheduling Coordinator's metered Demand and exports.

**11.19.1.2 Annual Charges Assessment.**

Scheduling Coordinators may elect, each year, to pay the FERC Annual Charges assessed against them by the CAISO either on a monthly basis or an annual basis. Scheduling Coordinators that elect to pay FERC Annual Charges on a monthly basis shall make payment for such charges within five (5) Business

Days after issuance of the monthly invoice. The FERC Annual Charges will be issued to Scheduling Coordinators once a month, on the first business day after the final market and Grid Management Charge invoices are issued for the trade month. Once the final FERC Annual Charge Recovery Rate is received from FERC in the Spring/Summer of the following year, a supplemental invoice will be issued.

Scheduling Coordinators that elect to pay FERC Annual Charges on an annual basis shall make payment for such charges within five (5) Business Days after the CAISO issues such supplemental invoice.

Scheduling Coordinators that elect to pay FERC Annual Charges on an annual basis shall maintain either an Approved Credit Rating, as defined with respect to either payment of the Grid Management Charge, or payment of other charges, or shall maintain security in accordance with this CAISO Tariff.

**11.19.2 FERC Annual Charge Trust Account.**

All funds collected by the CAISO for FERC Annual Charges shall be deposited in the FERC Annual Charge Trust Account. The FERC Annual Charge Trust Account shall be an interest-bearing account separate from all other accounts maintained by the CAISO, and no other funds shall be commingled in it at any time. The CAISO shall disburse funds from the FERC Annual Charge Trust Account in order to pay the FERC any and all FERC Annual Charges assessed against the CAISO.

**11.19.3 Determination of the FERC Annual Charge Recovery Rate.**

**11.19.3.1 Annual Charge Obligation.**

The FERC Annual Charge Recovery Rate shall be set at the projected total FERC Annual Charge obligation with regard to transactions on the CAISO Controlled Grid during the year in which the FERC Annual Charge Recovery Rate is collected, adjusted for interest projected to be earned on the monies in the FERC Annual Charge Trust Account ("Annual Charge Obligation"), divided by the projected Demand and exports during that year for all entities subject to assessment of FERC Annual Charges by the CAISO ("Annual Charge Demand"). The FERC Annual Charge Recovery Rate for the period from January 1, 2001 until the first adjustment of the FERC Annual Charge Recovery Rate goes into effect shall be posted on the CAISO Website at least fifteen (15) days in advance of the date on which the initial rate will go into effect.

**11.19.3.2 Adjustments to FERC Annual Charge Recovery Rate.**

The CAISO may adjust the FERC Annual Charge Recovery Rate on a quarterly basis, as necessary, to reflect the net effect of the following:

- (a) the difference, if any, between actual Annual Charge Demand and projected Annual Charge Demand during the year-to-date;
- (b) the difference, if any, between the projections of the Annual Charge Obligation and the Annual Charge Demand upon which the charge for the year is based and the CAISO's most current projections of those values, provided that the projection of the Annual Charge Obligation may



only be adjusted on an annual basis for changes in the Federal Energy Regulatory Commission's budget for its electric regulatory program or changes in the projected total transmission volumes subject to assessment of FERC Annual Charges;

- (c) the difference, if any, between actual and projected interest earned on funds in the FERC Annual Charge Trust Account; and
- (d) any positive or negative balances of funds collected for FERC Annual Charges in a previous year after all invoices for FERC Annual Charges for that year have been paid by the CAISO, other than those that are addressed through the mechanism described in Section 11.19.3.4.

**11.19.3.3 Effectiveness of FERC Annual Charge Recovery Rate.**

The adjusted FERC Annual Charge Recovery Rate shall take effect on the first day of the calendar quarter. The CAISO shall publish all data and calculations used by the CAISO as a basis for such an adjustment on the CAISO Website at least fifteen (15) days in advance of the date on which the new rate shall go into effect.

**11.19.3.4 Under- or Over-Recovery of FERC Annual Charge Recovery Rate.**

If the FERC Annual Charges assessed by FERC against the CAISO for transactions on the CAISO Controlled Grid during any year exceed or fall short of funds collected by the CAISO for FERC Annual Charges with respect to that year by a range of 10% or less, the CAISO shall take such under- or over-recovery into account through an adjustment to the FERC Annual Charge Recovery Rate in accordance with this Section. Any deficiency of available funds necessary to pay for any assessment of FERC Annual Charges payable by the CAISO may be covered by an advance of funds from the CAISO's Grid Management Charge, provided any such advanced funds will be repaid. If the CAISO's collection of funds for FERC Annual Charges with respect to any year results in an under- or over-recovery of greater than 10%, the CAISO shall either assess a surcharge against all active Scheduling Coordinators for the amount under-recovered or shall issue a credit to all active Scheduling Coordinators for the amount over-recovered. Such surcharge or credit shall be allocated among all active Scheduling Coordinators based on the percentage of each active Scheduling Coordinators metered Demand and exports during the

relevant year. For purposes of this section, an “active Scheduling Coordinator” shall be a Scheduling Coordinator certified by the CAISO in accordance with this CAISO Tariff at the time the CAISO issues a surcharge or credit under this section. The CAISO will issue any surcharges or credits under this section within 60 days of receiving a FERC Annual Charge assessment from the FERC.

**11.19.4 Credits and Debits of FERC Annual Charges Collected from Scheduling Coordinators.**

In addition to the surcharges or credits permitted under this CAISO Tariff, the CAISO shall credit or debit, as appropriate, the account of a Scheduling Coordinator for any over- or under-assessment of FERC Annual Charges that the CAISO determines occurred due to the error, omission, or miscalculation by the CAISO or the Scheduling Coordinator.

**11.19.5 Auditing.**

All of the data, information, and estimates the CAISO uses to calculate these amounts shall be subject to the auditing requirements of Section 10.2.11 of the CAISO Tariff. The CAISO shall calculate these amounts using the software referred to in Section 11.29.5.4 except in cases of system breakdown when it shall apply the procedures set out in 11.29.10.1 (Emergency Procedures).

**11.20 [Not Used]**

**11.21 [Not Used]**

**11.22 Grid Management Charge.**

**11.22.1 CAISO’s Obligations.**

**11.22.1.1 FERC’s Uniform System of Accounts.**

The CAISO shall maintain a set of financial statements and records in accordance with the FERC’s Uniform System of Accounts.

**11.22.1.2 [Not Used]**

**11.22.2 Costs Included in the Grid Management Charge.**

**11.22.2.1 [Not Used]**

**11.22.2.2 Operating Costs.**

Budgeted annual operating costs, which shall include all staffing costs including remuneration of contractors and consultants, salaries, benefits and any incentive programs for employees, costs of operating, replacing and maintaining CAISO systems, lease payments on facilities and equipment necessary for the CAISO to carry out its business, and annual costs of financing the CAISO's working capital and other operating costs ("Operating Costs").

**11.22.2.3 Financing Costs.**

The financing costs that are approved by the CAISO Governing Board, including capital expenditures that may be financed over such period as the CAISO Governing Board shall decide. Financing Costs shall also include the CAISO start up and development costs standing to the credit of the CAISO Memorandum Account plus any additional start up or development costs incurred after the date of Resolution E-3459 (July 17, 1996), plus any additional capital expenditure incurred by the CAISO in 1998 ("Start Up and Development Costs"). The amortized amount to be included in the Grid Management Charge shall be equal to the amount necessary to amortize fully all Start Up and Development Costs over a period of five (5) years, or such longer period as the CAISO Governing Board shall decide ("Financing Costs").

**11.22.2.4 Operating and Capital Reserves Cost.**

The budgeted annual cost of pay-as-you-go capital expenditures and reasonable coverage of debt service obligations. Such reserves shall be utilized to minimize the impact of any variance between forecast and actual costs throughout the year ("Operating and Capital Reserves Costs").

**11.22.2.5 Allocation of the Grid Management Charge Among Scheduling Coordinators.**

The costs recovered through the Grid Management Charge shall be allocated to the eight service charges that comprise the Grid Management Charge. If the CAISO's revenue requirement for any service charge changes from the most recent FERC-approved revenue requirement for that service charge, the costs recovered through that service charge shall be delineated in a filing to be made at FERC as set forth in Section 11.22.2.6. The eight service charges are as follows:

- (1) Core Reliability Services - Demand Charge,
- (2) Core Reliability Services – Energy Exports Charge
- (3) Energy Transmission Services Net Energy Charge,
- (4) Energy Transmission Services Uninstructed Deviations Charge,
- (5) Forward Scheduling Charge,
- (6) Congestion Management Charge,
- (7) Market Usage Charge, and
- (8) Settlements, Metering, and Client Relations Charge.

The eight charges shall be levied separately monthly in arrears on all Scheduling Coordinators based on the billing determinants specified below for each charge in accordance with formulae set out in Appendix F, Schedule 1, Part A of this Tariff, subject to the requirements set out in Appendix F, Schedule 1, Part F of this Tariff.

**11.22.2.5.1 Core Reliability Services – Demand Charge.**

The Core Reliability Services - Demand Charge for a Scheduling Coordinator's Load that is not associated with Energy Exports is calculated using the Scheduling Coordinator's metered non-coincident peak hourly Demand during the month (in megawatts) less the volume of Energy Exports included in the Scheduling Coordinator's non-coincident peak hourly Demand for the month, if any; provided that if the Scheduling Coordinator's metered non-coincident peak hour during the month occurs during the hours

ending 0100 through 0600, or during the hours ending 2300 through 2400 the rate shall be sixty-six (66) percent of the standard CRS rate. The standard rate for the Core Reliability Services – Demand Charge is determined by dividing the GMC costs allocated to this service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, by the total of the forecasted metered non-coincident peak hourly Demand for all months during the year (excluding the portion of such Demand associated with Energy Exports, if any), reduced by thirty-four (34) percent of the sum of all Scheduling Coordinators' metered non-coincident peak hour during the month occurs between the hour ending 2300 and the hour ending 0600, according to the formula in Appendix F, Schedule 1, Part A of this Tariff.

**11.22.2.5.2 Core Reliability Services – Energy Exports Charge.**

The Core Reliability Services – Energy Exports Charge for the load associated with a Scheduling Coordinator's Energy Exports is calculated using the Scheduling Coordinator's metered volume of Energy Exports (in megawatt-hours); The rate for the Core Reliability Services – Energy Exports Charge is determined by dividing the GMC costs allocated to the Core Reliability Services service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, according to the formula in Appendix F, Schedule 1, Part A of this Tariff.

**11.22.2.5.3 Energy Transmission Services Net Energy Charge.**

The Energy Transmission Services Net Energy Charge for each Scheduling Coordinator is calculated using that Scheduling Coordinator's Metered Control Area Load (in megawatt-hours). The rate for the Energy Transmission Services Net Energy Charge is determined by dividing the GMC costs allocated to this service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, by the total forecasted Metered Control Area Load, according to the formula in Appendix F, Schedule 1, Part A of this Tariff.

**11.22.2.5.4 Energy Transmission Services Uninstructed Deviations Charge.**

The Energy Transmission Services Uninstructed Deviations Charge for each Scheduling Coordinator is calculated using that Scheduling Coordinator's net uninstructed deviations by Settlement Interval. The rate for the Energy Transmission Services Uninstructed Deviations Charge is determined by dividing the GMC costs allocated to this service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, by the total forecasted net uninstructed deviations by Settlement Interval according to the formula in Appendix F, Schedule 1, Part A of this Tariff.

**11.22.2.5.5 Forward Scheduling Charge.**

The Forward Scheduling Charge for each Scheduling Coordinator is calculated using the sum of that Scheduling Coordinator's Final Hour-Ahead Schedules, including all awarded Ancillary Services bids, with a value other than 0.03 MW. The Forward Scheduling Charge attributable to Final Hour-Ahead Schedules for Inter-Scheduling Coordinating Energy and Ancillary Service Trades for each Scheduling Coordinator is fifty (50) percent of the standard Forward Scheduling Charge. The rate for the Forward Scheduling Charge is determined by dividing the GMC costs allocated to this service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, by the total forecasted Final Hour-Ahead Schedules and awarded Ancillary Service bids submitted to the CAISO, according to the formula in Appendix F, Schedule 1, Part A of this Tariff.

**11.22.2.5.6 Market Usage Charge.**

The Market Usage Charge for each Scheduling Coordinator is calculated using the absolute value of the Scheduling Coordinator's market purchases and sales of Ancillary Services, Supplemental Energy, Instructed Imbalance Energy, and net Uninstructed Imbalance Energy (with uninstructed deviations being netted by Settlement Interval). The rate for the Market Usage Charge is determined by dividing the GMC costs allocated to this service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, by

the total forecasted number of market purchases and sales, according to the formula in Appendix F, Schedule 1, Part A of this Tariff.

**11.22.2.5.7 Settlements, Metering, and Client Relations Charge.**

The Settlements, Metering, and Client Relations Charge for each Scheduling Coordinator is fixed at \$500.00 per month, per Scheduling Coordinator ID with an invoice value other than \$0.00 in the current trade month, as indicated in Appendix F, Schedule 1, Part A of this Tariff. Excess GMC costs related to the provision of these services that are not recovered through this charge are allocated to the other GMC service categories as specified above and in Appendix F, Schedule 1, Part E of this Tariff.

**11.22.2.6 Calculation and Adjustment of the Grid Management Charge.**

The eight charges set forth in Section 11.22.2.5 that comprise the Grid Management Charge shall be calculated through the formula set forth in Appendix F, Schedule 1, Part A of this Tariff. The formula set forth in Appendix F, Schedule 1, Part C of this Tariff sums the Operating Costs (less any available expense recoveries), Financing Costs, and Operating and Capital Reserves Costs associated with each of the eight CAISO service charges to obtain a total revenue requirement. This revenue requirement is allocated among the eight charges of the GMC through the application of the factors specified in Appendix F, Schedule 1, Part E of this Tariff.

The revenue requirement for each service then shall be divided by the forecast annual or periodic billing determinant volume to obtain a rate for each service, which will be payable by Scheduling Coordinators as set forth in Section 11.22.2.5. The rates so established will be adjusted annually, through the operation of the formula set forth in Appendix F, Schedule 1, Part A of this Tariff. The CAISO shall post on its website each year, before the adjusted rates go into effect, as described in Appendix F, Schedule 1, Part D of this Tariff, data showing the rates adjusted to reflect any change in the annual revenue requirement, variance between forecast and actual costs for the previous year or period, or any surplus revenues from the previous year or period (as defined in Section 11.17 ), or the inability to recover from a Scheduling Coordinator its share of the Grid Management Charge, or any under-achievement of a forecast of the billing determinant volumes used to establish the rates. The circumstances under which

the CAISO is permitted to put the adjusted rates into effect without submitting a filing to the FERC are described in Appendix F, Schedule 1, Part D of this Tariff. Appendix F, Schedule 1, Part B of this Tariff sets forth the conditions under which a quarterly adjustment to the Grid Management Charge will be made.

**11.22.2.6.1 Credits and Debits of the Grid Management Charge.**

In addition to the adjustments permitted under Section 11.29.7.3.3, the CAISO shall credit or debit, as appropriate, the account of a Scheduling Coordinator for any overpayment or underpayment of the Grid Management Charge that the CAISO determines occurred due to error, omission, or miscalculation by the CAISO or the Scheduling Coordinator.



**11.23 Penalties for Uninstructed Imbalance Energy.**

Effective December 1, 2004, the CAISO shall not charge any Uninstructed Deviation Penalties pursuant to this Section 11.23 until FERC issues an order authorizing the CAISO to charge Uninstructed Deviation Penalties pursuant to this section. Beginning with Settlement Statements for the first Trading Day for which FERC authorizes the CAISO to charge Uninstructed Deviation Penalties pursuant to this section, the CAISO shall charge Scheduling Coordinators Uninstructed Deviation Penalties for Uninstructed Imbalance Energy resulting from resource deviations outside a Tolerance Band from their Dispatch Operating Point, for dispatched resources, or their Day-Ahead Schedule otherwise. The Uninstructed Deviation Penalty will be applied as follows:

- a) The Uninstructed Deviation Penalty for negative Uninstructed Imbalance Energy will be calculated and assessed in each Settlement Interval. The Uninstructed Deviation Penalty for positive Uninstructed Imbalance Energy will be calculated and assessed in each Settlement Interval in which the CAISO has not declared a staged System Emergency;
- b) The Uninstructed Deviation Penalty will apply to pre-Dispatched Bids from non-dynamically scheduled System Resources identified, when such a pre-Dispatch Instruction is issued more than 40 minutes prior to the relevant Operating Hour, subject to the following conditions: i) The Uninstructed Deviation Penalty will only apply to the pre-Dispatched amount of the bid that is declined or not delivered, ii) the Uninstructed Deviation Penalty will not apply to a portion of a pre-Dispatched bid that is subsequently not delivered at the direction of a Control Area, including the CAISO, due to a curtailment of transmission capability or to prevent curtailment of native firm load occurring subsequent to issuing the pre-Dispatch Instruction, iii) the Uninstructed Deviation Penalty will not apply to uninstructed energy resulting from declining subsequent intra-hour Dispatch Instructions. Dynamically scheduled System Resources, to the extent they deviate from their Day-Ahead Schedule plus any Dispatch Instructions, will be subject to the Uninstructed Deviation Penalty;
- c) The Uninstructed Deviation Penalty will not apply to Load or Curtailable Demand;

- d) **[Not Used]**
- e) The Uninstructed Deviation Penalty will not apply to Regulatory Must-Run Generation or Participating Intermittent Resources that meet the scheduling obligations established in the Eligible Intermittent Resources Protocol. No other applicable charges will be affected by this exemption. The Uninstructed Deviation Penalty also will not apply to Qualifying Facilities (QFs), including those that are dynamically scheduled, that have not executed a Participating Generator Agreement (PGA), pending resolution of QF-PGA issues at FERC;
- f) All MSS resources designated as Load-following resources (regardless of gross or net settlement election) are exempt from Uninstructed Deviation Penalties in this Section. All MSS resources not designated as Load-following resources (regardless of gross or net settlement election) are subject to Uninstructed Deviation Penalties in this Section. With regard to the Load-following Deviation penalty in Section 4.9.9.1 and Section 4.9.9.2 of the CAISO Tariff, all MSS resources that have elected Load-following (regardless of gross or net settlement selection) are subject to those provisions; all MSS resources not designated as Load-following (regardless of gross or net settlement) are not subject to those provisions. For the Scheduling Coordinator of an MSS that has not elected to follow the MSS Load, the Uninstructed Deviation Penalties in accordance with Section 11.23. For the Scheduling Coordinator of an MSS that has elected to follow the MSS Load pursuant to Section 4.9.9, the deviation penalties in Sections 4.9.9.2.1 and 4.9.9.2.2 will apply as follows. For the Scheduling Coordinator of an MSS that has not elected to follow the MSS Load, the Uninstructed Deviation Penalties in this Section 11.23 will apply;
- g) The Uninstructed Deviation Penalty will apply to Generating Units providing Regulation and dynamically scheduled System Resources providing Regulation to the extent that uninstructed deviations from such resources exceed each resource's actual Regulation range plus the applicable Tolerance Band. Resources providing Regulation and generating within their relevant Regulating range (or outside their relevant Regulating range as a direct result of CAISO control or instruction) will be deemed to have zero deviations for purposes of the Uninstructed Deviation Penalty.

- h) The Uninstructed Deviation Penalty will be calculated and assessed for each resource individually, except that as specified in Appendix R, which specifies when uninstructed deviations from individual resources may be aggregated.
- i) **[Not Used]**
- j) Based on the number of Uninstructed Deviations infractions counted in the Trading Hour, the CAISO shall apply the following UDP multiplier to the MWh deviations that are determined to be subject to the UDP pursuant to this Section 11.23:

<b>Number of Uninstructed Deviations Infractions</b>	<b>Multiplier</b>
0	0
1	1
2	3
3	5
4	7
5	9
6	11

- k) The Uninstructed Deviation Penalty will not apply when the applicable LMP is negative or zero;
- l) The Uninstructed Deviation Penalty for positive Uninstructed Imbalance Energy will be the amount of the Uninstructed Imbalance Energy in excess of the Tolerance Band multiplied by a price equal to 100% of the corresponding LMP. The net effect of the Uninstructed Deviation Penalty and the Settlement for positive Uninstructed Imbalance Energy beyond the Tolerance Band will be that the CAISO will not pay for such Energy;

- m) The Uninstructed Deviation Penalty for negative Uninstructed Imbalance Energy will be the amount of the Uninstructed Imbalance Energy in excess of the Tolerance Band multiplied by a price equal to 50% of the corresponding LMP;
- n) The Uninstructed Deviation Penalty will not apply to deviations from Energy delivered as part of a scheduled test so long as the test has been scheduled by the Scheduling Coordinator with the CAISO or the CAISO has initiated the test for the purposes of validating unit performance;
- o) The Uninstructed Deviation Penalty shall not apply to any excess Energy delivered from or any shortfall of Energy not delivered from an Exceptional Dispatch, involving a Generating Unit or a System Unit unless the CAISO and the supplier have agreed upon the time of, duration of, and the amount of Energy to be delivered in the out-of-market transaction and the CAISO reflects the out-of-market transaction in its Real-Time Expected Energy calculations. The Uninstructed Deviation Penalty shall apply to Energy outside the Tolerance Band from out-of-market transactions with dynamically scheduled System Resources to the extent the agreed-to Energy is not delivered or over-delivered, and to any Energy from non-dynamically scheduled System Resources to the extent the agreed-to Energy is not delivered if that over- or under-delivery was due to action taken by or not taken by the System Resource and not the result of action taken by a Control Area operator due to a curtailment of firm transmission capability or to prevent curtailment of native firm load occurring subsequent to the out-of-market transaction;
- p) Generating Units and dynamically scheduled System Resources with Uninstructed Imbalance Energy will be exempted from the Uninstructed Deviation Penalty if the Generating Unit or dynamically scheduled System Resource was physically incapable of delivering the expected Energy, provided that the Generating Unit or dynamically scheduled System Resource had notified the CAISO within 30 minutes of the onset of an event that prevents the resource from performing its obligations. A Generating Unit or dynamically scheduled System Resource must notify CAISO operations staff of its reasons for failing to deliver the expected Energy in accordance with Section 9.3.10.5 and must provide information to the CAISO that verifies the

reason the resource failed to comply with the Dispatch Instruction within 48 hours of the operating hour in which the instruction is issued;

- q) Adjustments to any Generating Unit, Curtailable Demand and System Resource Day-Ahead Schedules or HASP Intertie Schedules made in accordance with the terms of Existing Contracts shall not be subject to Uninstructed Deviation Penalties.
- r) Any changes made to Schedules prior to the CAISO issuing HASP Intertie Schedules shall not be subject to Uninstructed Deviation Penalties.
- s) Uninstructed Deviation Penalties shall not be charged to any deviation from a Dispatch Instruction that does not comply with the requirements set forth in this CAISO Tariff.
- t) Amounts collected as Uninstructed Deviation Penalties shall first be assigned to reduce the portion of above-LMP costs that would otherwise be assigned pro rata to all Scheduling Coordinators in that Settlement Interval. Any remaining portion of amounts collected as Uninstructed Deviation Penalties after satisfying these sequential commitments shall be treated in accordance with Section 11.29.9.6.3.
- u) Condition 2 RMR Units shall be exempt from Uninstructed Deviation Penalties.
- v) The Uninstructed Deviation Penalty shall not apply to positive Uninstructed Imbalance Energy attributable to operation below the Generating Unit's minimum operating level from the time the Generating Unit synchronizes to the grid to the earlier of (1) the Settlement Interval in which the Generating Unit produces a quantity of Energy that represents an average rate of delivery over such Settlement Interval in excess of the Generating Unit's minimum operating level plus the applicable Tolerance Band, or (2) the first Settlement Interval after the expiration of a period of time that begins at the end of the Settlement Interval in which the Generating Unit synchronizes to the grid and ends after the Generating Unit's maximum Start-Up time as specified in the Master File. The Uninstructed Deviation Penalty shall not apply to any positive Uninstructed Imbalance Energy attributable to operation below the Generating Unit's minimum operating level for a duration equal to the time specified in the Generating Unit's Resource Data Template for the

Generating Unit to disconnect from the grid after reaching its minimum operating level following either (1) the last Settlement Interval of an hour in which the Generating Unit had a non-zero Day-Ahead Schedule or (2) the Settlement Interval in which the Generating Unit is expected to reach its minimum operating level based on the applicable ramp rate when the CAISO instructed the Generating Unit to Shut Down. The amount of Uninstructed Imbalance Energy exempted from the Uninstructed Deviation Penalty shall not exceed the amount of the Generating Unit's minimum operating level plus the applicable Tolerance Band.

- (w) UDP shall not apply to deviations by a Generating Unit that are attributable to any automatic response to a system disturbance in accordance with Applicable Reliability Criteria.

**11.24 [NOT USED]**

**11.25 [NOT USED]**

**11.26 Wheeling Through and Wheeling Out Transactions.**

The CAISO shall calculate, account for and settle charges and payments for Wheeling Through and Wheeling Out transactions in accordance with Section 26.1.4 and Appendix N, Part C of this Tariff.

**11.27 Voltage Support and Black Start Charges.**

The CAISO shall calculate, account for and settle charges and payments for Voltage Support and Black Start as set out in Sections 11.10.1.4, 11.10.1.5, 11.10.5, 11.10.6, and the SABP Charge Computation Manual –Appendix N, Part G of this CAISO Tariff.

**11.28** The CAISO shall calculate, charge and disburse all collected default Interest in accordance with the CAISO Tariff.

**11.29 Billing and Payment Process.**

The CAISO will calculate for each charge the amounts payable by the relevant Scheduling Coordinator, Black Start Generator or Participating TO for each Settlement Period of the Trading Day, and the amounts payable to that Scheduling Coordinator, Black Start Generator or Participating TO for each charge for each Settlement Period of that Trading Day and shall arrive at a net amount payable for each charge by or to that Scheduling Coordinator, Black Start Generator or Participating TO for each charge for that Trading Day. Each of these amounts will appear in the Preliminary and Final Settlement Statements that the CAISO will provide to the relevant Scheduling Coordinator, Black Start Generator or Participating TO.

The eight components of the Grid Management Charge will be included in the Preliminary Settlement Statement and Final Settlement Statement with the other types of charges referred to in Section 11, but a separate invoice for the Grid Management Charge, stating the rate, billing determinant volume, and total charge for each of its eight components, will be issued by the CAISO to the Scheduling Coordinator.

**11.29.1** The billing and payment process shall be based on the issuance of Preliminary and Final Settlement Statements for each Settlement Period in each Trading Day.

**11.29.2** Payment for the charges referred to in Section 11.1.2 of the CAISO Tariff (except for the charges payable under long-term contracts) for each Trading Day in each calendar month shall be made five (5) Business Days after issuance of the Preliminary Settlement Statement for the last day of the relevant calendar month. Payment for adjustments will be made five (5) Business Days after issuance of the Final Settlement Statement for the last day of the relevant month. Payments for FERC Annual Charges will be made in accordance with Section 11.19 of this CAISO Tariff.

**11.29.3 Prepayments.**

(a) A Scheduling Coordinator may choose to pay at an earlier date than the Payment Date specified in the CAISO Payments Calendar by way of prepayment provided it notifies the CAISO by electronic means before submitting its prepayment.

(b) Prepayment notifications must specify the dollar amount prepaid.

(c) Prepayments must be made by Scheduling Coordinators via Fed-Wire into their CAISO prepayment account designated by the CAISO. The relevant Scheduling Coordinator shall grant the CAISO a security interest on all funds in its CAISO prepayment account.

(d) On any Payment Date the CAISO shall be entitled to cause funds from the relevant Scheduling Coordinator's CAISO prepayment account to be transferred to the CAISO Clearing Account in such amounts as may be necessary to discharge in full that Scheduling Coordinator's payment obligation arising in relation to that Payment Date.

(e) Any funds held in the relevant Scheduling Coordinator's CAISO prepayment account shall be treated as part of that Scheduling Coordinator's Security.

(f) Interest (or other income) accruing on the relevant Scheduling Coordinator's CAISO prepayment account shall inure to the benefit of that Scheduling Coordinator and shall be added to the balance of its CAISO prepayment account on a monthly basis.



(g) Funds held in a CAISO prepayment account by a Scheduling Coordinator may be recouped, offset or applied by the CAISO to any outstanding financial obligations of that Scheduling Coordinator to the CAISO or to other Scheduling Coordinators under this CAISO Tariff,

**11.29.4 System Failure.**

**11.29.4.1 At CAISO Debtor's Bank.**

If any CAISO Debtor becomes aware that a payment will not, or is unlikely to be, remitted to the CAISO Bank by 10:00 am on the relevant Payment Date for any reason (including failure of the Fed-Wire or any computer system), it shall immediately notify the CAISO, giving full details of the payment delay (including the reasons for the payment delay). The CAISO Debtor shall make all reasonable efforts to remit payment as soon as possible, by an alternative method if necessary, to ensure that funds are received for value no later than 10:00 am on the Payment Date, or as soon as possible thereafter.

**11.29.4.2 At the CAISO's Bank.**

In the event of failure of any electronic transfer system affecting the CAISO Bank, the CAISO shall use reasonable efforts to establish alternative methods of remitting funds to the CAISO Creditors' Settlement Accounts by close of banking business on that Payment Date, or as soon as possible thereafter. The CAISO shall notify the CAISO Debtors and the CAISO Creditors of occurrence of the system failure and the alternative methods and anticipated time of payment.

**11.29.5 General Principles for Production of Settlement Statements.**

**11.29.5.1 Basis of Settlement.**

The basis of each Settlement Statement shall be the debiting or crediting of an account in the name of the relevant Scheduling Coordinator in the general ledger set up by the CAISO to reflect all transactions, charges or payments settled by the CAISO.

**11.29.5.2 Right to Dispute.**

All Scheduling Coordinators shall have the right to dispute any item or calculation set forth in any Preliminary Settlement Statement in accordance with this CAISO Tariff.

**11.29.5.3 Data Files.**

Settlement Statements relating to each Scheduling Coordinator shall be accompanied by a data file of supporting information that includes the following for each Settlement Period of the Trading Day on a Zone-by-Zone basis:

- (a) the aggregate quantity (in MWh) of Energy supplied or withdrawn by the Metered Entities represented by the Scheduling Coordinator;
- (b) the aggregate quantity (in MW) and type of Ancillary Services capacity provided or purchased;
- (c) the relevant prices that the CAISO has applied in its calculations;
- (d) details of the Scheduled quantities of Energy and Ancillary Services accepted by the CAISO in the Day-Ahead Market and the Hour-Ahead Market;
- (e) details of Imbalance Energy and penalty payments; and
- (f) detailed calculations of all fees, charges and payments allocated amongst Scheduling Coordinators and each Scheduling Coordinator's share.

**11.29.5.4 Settlement Software.**

The CAISO Settlement software shall be audited by an independent firm of auditors competent to carry out audits of such software to determine its consistency with the CAISO Tariff. In any dispute regarding Settlement calculations, a certificate of such firm of auditors that the CAISO software is consistent with the CAISO Tariff shall be prima facie proof that the charges shown in a Settlement Statement have been calculated in a method consistent with the CAISO Tariff. Nothing in this section will be deemed to establish the burden of proof with respect to Settlement calculations in any proceeding.

**11.29.6 Calculation in the Event of Lack of Meter Data for the Balancing of Market**

**Accounts.**

Settlements shall not be cleared for final processing until the accounting trial balance is zero. In order to publish a Settlement Statement, the CAISO may use estimated, disputed or calculated Meter Data.

When actual verified Meter Data is available and all of the disputes raised by Scheduling Coordinators during the validation process described in Section 11.29.8 of this CAISO Tariff have been determined, the CAISO shall recalculate the amounts payable and receivable by the affected Scheduling Coordinators or by all Scheduling Coordinators, if applicable, as soon as reasonably practical and shall show any required adjustments as a debit or credit in the next Settlement Statement.

**11.29.7 Settlements Cycle.**

**11.29.7.1 Timing of the Settlements Process.**

**11.29.7.1.1 Preliminary Statements.**

The CAISO shall provide to each Scheduling Coordinator, Black Start Generator or Participating TO for validation a Preliminary Settlement Statement for each Trading Day within thirty-eight (38) Business Days of the relevant Trading Day, covering all Settlement Periods in that Trading Day. Each Preliminary Settlement Statement will include a statement of:

- (a) the amount payable or receivable by the Scheduling Coordinator, Black Start Generator or Participating TO for each charge referred to in Section 11 for each Settlement Period in the relevant Trading Day;
- (b) the total amount payable or receivable by that Scheduling Coordinator, Black Start Generator or Participating TO for each charge for all Settlement Periods in that Trading Day after the amounts payable and the amounts receivable under (a) have been netted off pursuant to Section 11.29; and

- (c) the components of each charge in each Settlement Period except for information contained in the Imbalance Energy Report referred to in this Section 11.29.7.1.1.

Each Preliminary Settlement Statement shall also be accompanied by a breakdown of the components of the Imbalance Energy Charge (the "Imbalance Energy Report").

**11.29.7.1.2** Each Scheduling Coordinator, Black Start Generator or Participating TO shall have a period of eight (8) Business Days from the issuance of a Preliminary Settlement Statement during which it may review the Preliminary Settlement Statement and notify the CAISO of any errors. No later than fifty-one (51) Business Days after the Trading Day to which it relates, the CAISO shall issue a Final Settlement Statement to each Scheduling Coordinator for that Trading Day.

**11.29.7.1.3 Final Statements.**

The CAISO shall provide to each Scheduling Coordinator, Black Start Generator or Participating TO a Final Settlement Statement in accordance with the CAISO Tariff and the CAISO Payments Calendar. The Final Settlement Statement shall be in a format similar to that of the Preliminary Settlement Statement and shall include all the information provided in the Preliminary Settlement Statement as amended following the validation procedure.

**11.29.7.1.4** Each Scheduling Coordinator, Black Start Generator or Participating TO shall have a period of ten (10) Business Days from the issuance of the Final Settlement Statement during which it may review the Incremental Changes on the Final Settlement Statement and notify the CAISO of any errors. No later than twenty-five (25) Business Days from the date of issuance of the Final Settlement Statement, the CAISO shall incorporate any required corrections in a subsequent Preliminary Settlement Statement.

**11.29.7.2 Basis for Billing and Payment.**

The Preliminary and the Final Settlement Statements shall constitute the basis for billing and associated automatic funds transfers in accordance with this CAISO Tariff. The Preliminary Settlement Statement shall constitute the basis for billing and associated automatic funds transfers for all charges in the first

instance. The Final Settlement Statement shall constitute the basis for billing and associated automatic funds transfers for adjustments to charges set forth in the Preliminary Settlement Statement. Each Scheduling Coordinator shall pay any net debit and shall be entitled to receive any net credit shown in an invoice on the Payment Date, whether or not there is any dispute regarding the amount of the debit or credit.

**11.29.7.2.1 Elimination of Invoices under \$10.00.**

Preliminary and final invoices either due to or from any Market Participant for amounts less than \$10.00 will be adjusted to \$0.00 and no amount will be due to or from that Market Participant for that invoice.

**11.29.7.3 Settlement Statement Re-runs and Post Final Adjustments.**

The CAISO is authorized to perform Settlement Statement Re-runs following approval of the CAISO Governing Board. A request to perform a Settlement Statement Re-run may be made at any time by a Scheduling Coordinator by notice in writing to the CAISO Governing Board. The CAISO Governing Board shall, in considering whether to approve a request for a Settlement Statement Re-run, determine in its reasonable discretion, whether there is good cause to justify the performance of a Settlement Statement Re-run.

**11.29.7.3.1** If a Settlement Statement Re-run is ordered by the CAISO Governing Board, the CAISO shall arrange to have the Settlement Statement Re-run carried out as soon as is reasonably practicable following the CAISO Governing Board's order, subject to the availability of staff and computer time, compatible software, appropriate data and other resources.

**11.29.7.3.2** The cost of a Settlement Statement Re-run shall be borne by the Scheduling Coordinator requesting it, unless the Settlement Statement Re-run was needed due to a clerical oversight or error on the part of the CAISO staff.

**11.29.7.3.3** Where a Settlement Statement Re-run indicates that the accounts of Scheduling Coordinators should be debited or credited to reflect alterations to Settlements previously made under this CAISO Tariff, for those Scheduling Coordinators affected by the statement re-run, the CAISO shall

reflect the amounts to be debited or credited in the next Preliminary Settlement Statements that it issues following the Settlement Statement Re-run to which the provisions of this Section 11 apply.

**11.29.7.3.4** Reruns, post closing adjustments and the financial outcomes of Dispute Resolution may be invoiced separately from monthly market activities. The CAISO shall provide a market notice at least 30 days prior to such invoicing identifying the components of such invoice.

**11.29.8 Confirmation and Validation.**

**11.29.8.1 Confirmation.**

It is the responsibility of each Scheduling Coordinator to notify the CAISO if it fails to receive a Preliminary Settlement Statement or a Final Settlement Statement on the date specified for the publication of such Settlement Statement in the CAISO Payments Calendar. Each Scheduling Coordinator shall be deemed to have received its Settlement Statement on the dates specified, unless it notifies the CAISO to the contrary.

**11.29.8.2 Validation.**

Each Scheduling Coordinator, Black Start Generator, or Participating TO shall have the opportunity to review the terms of the Preliminary Settlement Statements that it receives. The Scheduling Coordinator, Black Start Generator, or Participating TO shall be deemed to have validated each Preliminary Settlement Statement unless it has raised a dispute or reported an exception within eight (8) Business Days from the date of issuance. Once validated, a Preliminary Settlement Statement shall be binding on the Scheduling Coordinator, Black Start Generator or Participating TO to which it relates, unless the CAISO performs a Settlement re-run pursuant to Section 11.29.7.3 of this CAISO Tariff.

The notice of dispute, if any, shall state clearly the Trading Day, the issue date of the Preliminary Statement, the item disputed, the reasons for the dispute, the amount claimed (if appropriate) and shall be accompanied with all available evidence reasonably required to support the claim.

**11.29.8.3 Validation of Final Settlement Statements.**

Each Scheduling Coordinator, Black Start Generator or Participating TO shall have the opportunity to review the Incremental Changes that appear on the Final Settlement Statement that it receives. The Scheduling Coordinator, Black Start Generator or Participating TO shall be deemed to have validated the Incremental Changes on each Final Settlement Statement unless it has raised a dispute or reported an exception regarding those Incremental Changes within ten (10) Business Days from the date of issuance. Once validated, the Incremental Changes on the Final Settlement Statement shall be binding on the Scheduling Coordinator, Black Start Generator or Participating TO to which it relates, unless the CAISO performs a Settlement re-run pursuant to Section 11.29.7.3 of this CAISO Tariff.

The notice of dispute shall state clearly the Trading Day, the issue date of the Final Settlement Statement, the item disputed, the reasons for the dispute, the amount claimed (if appropriate) and shall be accompanied with all available evidence reasonably required to support the claim.

**11.29.8.4 Recurring Disputes or Exceptions.**

A Scheduling Coordinator, Black Start Generator or Participating TO may request the CAISO to treat as recurring a dispute or exception raised in accordance with Sections 11.29.8.1 and 11.29.8.2 above, if a dispute or exception would apply to subsequent Preliminary and Final Settlement Statements. A request for recurring treatment may be made for any valid reason provided that subsequent Preliminary and Final Settlement Statements would be affected, including but not limited to, that the disputed calculation will recur, or that a disagreement as to policy will affect calculations in subsequent Preliminary and Final Settlement Statements. If a Scheduling Coordinator, Black Start Generator or Participating TO wishes to request that the CAISO treat a dispute as recurring, it shall, in the notice, clearly indicate that it requests such treatment and set forth in detail the reasons that support such treatment. To the extent possible, the Scheduling Coordinator, Black Start Generator or Participating TO shall state the types of charges and dates to which the dispute will apply, and provide estimates of the amounts that will likely be claimed on each date.



The CAISO shall make a determination on such a request within five (5) Business Days of receipt. To preserve its right to dispute an item, a Scheduling Coordinator, Black Start Generator or Participating TO must continue to raise a dispute or report an exception until it is notified by the CAISO that the CAISO agrees to treat the dispute or exception as recurring. If the CAISO grants a request to treat a dispute or exception as recurring, the dispute raised or exception reported by the Scheduling Coordinator, Black Start Generator or Participating TO shall be deemed to apply to every subsequent Preliminary and Final Settlement Statement provided to the Scheduling Coordinator, Black Start Generator or Participating TO from the date that the CAISO grants the request for recurrent treatment until: a) ninety (90) days have elapsed, unless the CAISO indicates a different expiration date on its response to the request, in which case the expiration date stated by the CAISO, in its response or b) the dispute or exception is resolved, whichever is shorter. The CAISO may deny a request that the CAISO treat a dispute as recurring for any valid reason, including because the request is not adequately specific as to the basis for recurring treatment or the subsequent calculations that will be affected.

**11.29.8.5 Amendment.**

Regarding a dispute related to a Preliminary Settlement Statement, if the CAISO agrees with the amount claimed, it shall incorporate the relevant data into the Final Settlement Statement. Regarding a dispute related to an Incremental Change in a Final Settlement Statement, the CAISO shall make a determination on the dispute no later than twenty-five (25) Business Days from the issuance of the Final Settlement Statement, and, if the CAISO agrees with the amount claimed, shall incorporate the relevant data into the next available Preliminary Settlement Statement.

**11.29.8.6 CAISO Contact.**

If the CAISO does not agree with the amount claimed or if it requires additional information, it shall make reasonable efforts (taking into account the time it received the notice of dispute and the complexity of the issue involved) to contact the relevant Scheduling Coordinator, Black Start Generator or Participating TO to resolve the issue before issuing the Final Settlement Statement. If it is not possible to contact the

relevant party, the CAISO shall issue the Final Settlement Statement without taking into account the dispute notice.

**11.29.8.7 Payment Pending Dispute.**

Each Scheduling Coordinator, Black Start Generator or Participating TO which receives an invoice shall pay any net debit and shall be entitled to receive any net credit shown in the invoice on the Payment Date, whether or not there is any dispute regarding the amount of the debit or credit. The provisions of Section 13 (Dispute Resolution) of the CAISO Tariff shall apply to the disputed amount.

**11.29.9 Payment Procedures.**

**11.29.9.1 All Payments to Be Made Through the CAISO.**

All Scheduling Coordinators shall discharge their obligations to pay the amounts owed by them and shall receive payments of all amounts owed to them under this CAISO Tariff only through the CAISO.

**11.29.9.2 Accounts to be Established.**

The CAISO is authorized to establish and maintain bank accounts held in trust for Market Participants and obtain lines of credit and other banking facilities (not exceeding an aggregate amount set by the CAISO Governing Board) necessary for the operation of its Settlement and billing procedures. Unless otherwise specified in this Tariff the CAISO will recover all costs incurred in connection with these CAISO banking facilities through the appropriate component of the Grid Management Charge. The CAISO shall establish and operate the following accounts:

**11.29.9.2.1** A CAISO Clearing Account to and from which all payments are made;

**11.29.9.2.2** A CAISO Reserve Account from which any debit balances on the CAISO Clearing Account at the close of banking business on each Business Day shall be settled or reduced in accordance with this CAISO Tariff. The CAISO shall use the security provided by a Scheduling Coordinator pursuant to Section 12.1 of this CAISO Tariff, if necessary, to clear any debit balances on the CAISO Reserve Account that may arise as a result of that Scheduling Coordinator's failure to pay an amount due under this CAISO Tariff.

**11.29.9.3 A CAISO Surplus Account.**

**11.29.9.3.1** Such other accounts as the CAISO deems necessary or convenient for the purpose of efficiently implementing the funds transfer system under this CAISO Tariff. The CAISO shall notify Market Participants of the establishment of such accounts through the CAISO Website.

**11.29.9.3.2 Accounts of the Scheduling Coordinators and Participating TOs.**

Each Scheduling Coordinator and each Participating TO shall establish and maintain a Settlement Account at a commercial bank located in the United States and reasonably acceptable to the CAISO which can effect money transfers via Fed-Wire where payments to and from the CAISO Clearing Account shall be made in accordance with this CAISO Tariff. Scheduling Coordinators may, but will not be required to, maintain separate accounts for receipts and payments. Each Scheduling Coordinator shall notify the CAISO of its account details and of any changes to those details in accordance with the provisions of its Scheduling Coordinator Agreement. Participating TOs will notify the CAISO of their Settlement Account details in accordance with Section 2.2.1 of their Transmission Control Agreement and may notify the CAISO from time to time of any changes by giving at least 7 days written notice before the new account becomes operational.

**11.29.9.4 Declaration of Trust.**

All CAISO Accounts established pursuant to Section 11.29.9.2 of this CAISO Tariff shall be opened and operated by the CAISO on trust for Market Participants, in accordance with this CAISO Tariff. Each such account shall be maintained at a bank or other financial institution in California and shall bear a name indicating that it is a trust account.

**11.29.9.5 No Co-Mingling.**

The CAISO shall not co-mingle any funds standing to the credit of a CAISO Account with its other funds and shall promptly withdraw any amounts paid into a CAISO Account representing amounts paid for the account of the CAISO.

**11.29.9.6 Use of Accounts.**

**11.29.9.6.1 Clearing Account.**

- (a) Subject to Section 11.29.3 each CAISO Debtor shall remit to the CAISO Clearing Account the amount shown on the invoice as payable by that CAISO Debtor for value not later than 10:00 am on the Payment Date.
- (b) On the Payment Date the CAISO shall be entitled to cause the transfer of such amounts held in a Scheduling Coordinator's CAISO prepayment account to the CAISO Clearing Account as provided in Section 11.29.3.

The CAISO shall calculate the amounts available for distribution to CAISO Creditors on the Payment Date and shall give irrevocable instructions to the CAISO Bank to remit from the CAISO Clearing Account to the relevant Settlement Accounts maintained by the CAISO Creditors, the aggregate amounts determined by the CAISO to be available for payment to CAISO Creditors for value by close of business on the Payment Date if no CAISO Debtors are in default. If a CAISO Debtor is in default and until all defaulting amounts have been collected, the CAISO shall make payments as soon as practical within five (5) business days of the collection date posted in the CAISO Payments Calendar. If required, the CAISO shall instruct the CAISO Bank to transfer amounts from the CAISO Reserve Account to enable the CAISO Clearing Account to clear.

The CAISO is authorized to instruct the CAISO Bank to debit the CAISO Clearing Account and transfer to the relevant CAISO account sufficient funds to pay in full the Grid Management Charge falling due on any Payment Day with priority over any other payments to be made on that or on subsequent days out of the CAISO Clearing Account.

**11.29.9.6.2 Reserve Account.**

The CAISO Reserve Account shall be available to the CAISO for the purpose of providing funds to clear the CAISO Clearing Account in the event that there are insufficient funds in the CAISO Clearing Account to pay CAISO Creditors. If there are insufficient funds in the CAISO Clearing Account to pay CAISO

Creditors and clear the account on any Payment Date, due to payment default by one or more CAISO Debtors, the CAISO shall transfer funds from the CAISO Reserve Account to the CAISO Clearing Account to clear it by close of banking business on that Payment Date pursuant to Section 11.29.13.4.

If the CAISO Reserve Account is drawn upon, the CAISO shall as soon as possible thereafter take any necessary steps against the defaulting Scheduling Coordinator, including making any calculations or taking any other appropriate action, to replenish the CAISO Reserve Account including drawing on any credit support provided by the defaulting Scheduling Coordinator pursuant to Section 12.1 of this CAISO Tariff or serving demands on any defaulting Scheduling Coordinators with an Approved Credit Rating.

The proceeds of drawings under any line of credit or other credit facility of the CAISO Reserve Account shall be held on trust for CAISO Creditors. If the Reserve Account is replenished as provided for in this Section 11.29.9.6.2, any credits shall be held on trust for all CAISO Creditors.

**11.29.9.6.2.1 Replenishing the CAISO Reserve Account Following Payment Default.**

If the CAISO has debited the CAISO Reserve Account then:

- (a) If, after the CAISO has debited the CAISO Reserve Account on a Payment Date, the CAISO Bank receives a remittance from a CAISO Debtor which has not been (but should have been, if it had been received on a timely basis) credited to the CAISO Clearing Account by 10:00 am on the Payment Date and which required the debiting of the CAISO Reserve Account, such remittance shall be credited to the CAISO Reserve Account.
- (b) The proceeds of any enforcement of Security and/or amounts recovered under proceedings shall be credited to the CAISO Reserve Account.
- (c) If after taking reasonable action the CAISO determines that the Default Amount (or any part) and/or Interest cannot be recovered, such amounts shall be deemed to be owing by those Market Participants who were CAISO Creditors on the relevant Payment Date pro rata to the net payments they

received on that Payment Date and shall be accounted for by way of a charge in the next Settlement Statements of those CAISO Creditors. Such charge shall be credited to the Reserve Account.

**11.29.9.6.3 Surplus Account.**

The CAISO shall establish and maintain a bank account in accordance with this Protocol denominated the "CAISO Surplus Account". The CAISO Surplus Account shall include:

- (a) Any amounts paid to the CAISO in respect of penalties or sanctions referred to in Section 11.14 shall be credited to the Surplus Account, subject, however, to Section 11.29.9.6.1(b).
- (b) The funds referred to in Section 11.29.9.6.1(a) pertaining to penalties or sanctions as provided in Section 11.14 shall first be applied towards any expenses, loss or costs incurred by the CAISO except for that portion of those amounts collected pursuant to 37.9.4. Any excess after such application will be credited to the Surplus Account pursuant to 11.29.9.6.1(a).
- (c) The funds referred to in Section 11.29.9.6.1(a) pertaining to default interest referred to in Section 11.29.13.1 shall first be applied towards any unpaid creditor balances for the trade month in which the default interest was assessed and second to any other unpaid creditor balances. Only after all unpaid creditor balances are satisfied in full will any excess funds pertaining to default interest be credited to the Surplus Account pursuant to Section 11.29.9.6.1(a).

In the event that there are funds in the CAISO Surplus Account in excess of an amount to be determined by the CAISO Governing Board and noticed by the CAISO to Market Participants, the amount of such excess will be distributed to Scheduling Coordinators using the same method of apportioning the refund as the method employed in apportioning the liability for the Grid Management Charge.

**11.29.10 Invoices.**

The CAISO shall prepare and send to each Scheduling Coordinator, Black Start Generator or Participating TO two invoices for each calendar month. The first invoice will be based on the Preliminary Settlement Statements and the second invoice will be based on the Final Settlement Statement(s). Each invoice will show amounts which are to be paid by or to each Scheduling Coordinator, Black Start Generator or Participating TO, the Payment Date, being the date on which such amounts are to be paid or received and details of the CAISO Clearing Account to which any amounts owed by Scheduling Coordinators, Black Start Generator or Participating TO are to be paid.

A separate invoice for the Grid Management Charge, stating the rate, billing determinant volume and total charge for each of its eight components, will be issued by the CAISO to the Scheduling Coordinator. A separate invoice for Interest, issued on the preliminary invoice date, stating the total charges for each Trade Month in which interest is charged, will be issued by the CAISO.

Reruns, post closing adjustments and the financial outcomes of Dispute Resolution may be invoiced separately from monthly market activities. The CAISO shall provide a market notice at least 30 days prior to such invoicing identifying the components of such invoice.

**11.29.10.1 Emergency Procedures.**

**10.29.10.2 Use of Estimated Data.**

In the event of an emergency or a failure of any of the CAISO software or business systems, the CAISO may use estimated Settlement Statements and invoices and may implement any temporary variation of the timing requirements relating to the Settlement and billing process contained in the CAISO Tariff.

Details of the variation and the method chosen to produce estimated data, Settlement Statements and invoices will be published on the CAISO Website.

**11.29.10.3 Payment of Estimated Statements and Invoices.**

When estimated Settlement Statements and invoices are issued by the CAISO, payments between the CAISO and Market Participants shall be made on an estimated basis and the necessary corrections shall be made by the CAISO as soon as practicable. The corrections will be reflected as soon as practicable in later Settlement Statements and invoices issued by the CAISO. Failure to make such estimated payments shall result in the same consequences as a failure to make actual payments.

**11.29.10.4 Validation and Correction of Estimated Statements and Invoices.**

The CAISO shall use its best efforts to verify the estimated data and to make the necessary corrections as soon as practicable. The corrections will be reflected as soon as practicable in later Settlement Statements and invoices issued by the CAISO.

**11.29.10.5 Estimated Statements to be Final.**

In the event that the CAISO is of the opinion that, despite its best efforts, it is not possible for it to verify the estimated data because actual data is not reasonably expected to become available to the CAISO in the foreseeable future, the CAISO shall consult with the Market Participants in order to develop the most appropriate substitute data including using data provided by Market Participants. Following such determination of substitute data, the CAISO shall send to the relevant Market Participants revised Settlement Statements and Invoices. The provisions of Section 11.29.8.6 shall apply to payment of revised invoices issued in accordance with these emergency procedures. Failure to make payments of such revised invoices shall result in the same consequences as a failure to make actual payments.

**11.29.11 Instructions for Payment.**

Each Scheduling Coordinator shall remit to the CAISO Clearing Account the amount shown on the invoice as payable by that Scheduling Coordinator for value not later than 10:00 a.m. on the Payment Date.



**11.29.12 CAISO's Responsibilities.**

On the due date for payment of amounts shown in an invoice, the CAISO shall ascertain whether all amounts required to be remitted to the CAISO Clearing Account have been credited to it. If any such amount has not been so credited, it shall ascertain which Scheduling Coordinators have failed to pay the amount owed by them and it may take steps to recover any overdue amount.

**11.29.13 Non-payment by a Scheduling Coordinator.**

**11.29.13.1 Notification and Interest.**

If a Scheduling Coordinator becomes aware that a payment for which it is responsible will not be remitted to the CAISO Clearing Account on time, it shall immediately notify the CAISO of the fact and the reason for the non-payment. If the Scheduling Coordinator fails to pay any sum to the CAISO when due and the CAISO is unable to enforce the Security (if any) provided by the defaulting Scheduling Coordinator, the Scheduling Coordinator shall pay interest on the overdue amount for the period from the Payment Date to the date on which the payment is remitted to the CAISO Clearing Account, together with any related transaction costs incurred by the CAISO. The CAISO shall apply all such Interest payments on the Default Amount on a pro rata basis to CAISO Creditors in relation to amounts past due in the order of the creation of such debts.

**11.29.13.2 Payment Default.**

Subject to Section 11.29.13.6, if by 10:00 am on a Payment Date the CAISO, in its reasonable opinion, believes that all or any part of any amount due to be remitted to the CAISO Clearing Account by any Scheduling Coordinator will not or has not been remitted and there are insufficient funds in the relevant Scheduling Coordinator's CAISO prepayment account (the amount of insufficiency being referred to as the "Default Amount"), the CAISO shall take the following actions to enable the CAISO Clearing Account to clear not later than the close of banking business on the relevant Payment Date.

**11.29.13.3 Enforcing the Security of a Defaulting Scheduling Coordinator.**

Subject to Section 11.29.13.6, the CAISO shall make reasonable endeavors to enforce the defaulting Scheduling Coordinator's Security (if any) to the extent necessary to pay the Default Amount. If it is not practicable to obtain clear funds in time to effect payment to CAISO Creditors on the same day the CAISO shall proceed in accordance with 11.29.13.4 or 11.29.17.1 as applicable.

**11.29.13.4 Use of CAISO Reserve Account.**

If there are funds standing to the credit of the CAISO Reserve Account (including the proceeds of drawings under banking facilities described in Section 11.29.9.6.2) the CAISO shall debit the CAISO Reserve Account with the Default Amount in order to clear the CAISO Clearing Account and effect payment to the CAISO Creditors.

**11.29.13.5 Action against a Defaulting Scheduling Coordinator.**

The CAISO shall as soon as possible after taking action under 11.29.13.4 take any steps it deems appropriate against the defaulting Scheduling Coordinator to recover the Default Amount (and any Interest as set out in Section 11.29.13.3 including enforcing any Security, exercising its rights of recoupment or set-off and/or bringing proceedings against the defaulting Scheduling Coordinator pursuant to Section 11.29.21.1 of the CAISO Tariff.

**11.29.13.6 Default to be Remedied Promptly.** In the event that the CAISO reasonably believes that an outstanding amount which has not been paid by 10:00 am on the relevant Payment Date, is likely to be paid no later than close of banking business on the next Business Day then the CAISO may, but shall not be obliged to, delay enforcing that CAISO Debtor's Security or taking other measures to recover payment until after the close of banking business on the next Banking Day but Interest shall nonetheless accrue pursuant to Section 11.29.13.1.

**11.29.13.7 Set-Off.**

The CAISO is authorized to recoup, set off and apply any amount to which any defaulting CAISO Debtor is or will be entitled, in or towards the satisfaction of any of that CAISO Debtor's debts arising under the CAISO Settlement and billing process. Each CAISO Creditor and each CAISO Debtor expressly acknowledges the following application of funds: first to the current month's Grid Management Charge, and then as described in 11.29.13.8 unless otherwise specified in accordance with Section 11.29.17.

**11.29.13.8 Order of Payments.**

Unless otherwise specified in accordance with Section 11.29.17, the CAISO shall apply payments received in respect of amounts owing to CAISO Creditors to repay the relevant debts in the order of the creation of such debts.

**11.29.13.9 Interest Accruing while Enforcing the Security.**

If the CAISO has debited the Reserve Account and it subsequently succeeds in enforcing the Security provided by the defaulting Scheduling Coordinator, the CAISO shall be entitled to withdraw from such Security in addition to the Default Amount, all costs incurred and interest accrued to the CAISO as a result of debiting the Reserve Account from the date of such debit to the date of enforcement of the said Security.

**11.29.13.10 Application of Funds Received.**

Amounts credited to the CAISO Clearing Account in payment of a Default Amount (as set out in Section 11.29.9.6.2.1) or as a result of enforcing the defaulting CAISO Debtor's Security shall be applied to the CAISO Reserve Account pursuant to Section 11.29.9.6.2.1 to reduce amounts outstanding under any CAISO banking facilities used to fund the CAISO Reserve Account on the relevant Payment Date and the balance (if any) shall be applied to reimburse pro rata any CAISO Creditors whose payments were reduced pursuant to Section 11.29.17.1.

**11.29.14 [NOT USED]**

**11.29.15 [NOT USED]**

**11.29.16 Prohibition on Transfers.**

The CAISO shall at no time instruct the CAISO Bank to transfer any sum from a CAISO Account to another account (not being a CAISO Account) unless that account is a Settlement Account or the amount is owed to the CAISO under this CAISO Tariff.

**11.29.17 Alternative Payment Procedures.**

**11.29.17.1 Pro Rata Reduction to Payments.**

If it is not possible to clear the CAISO Clearing Account on a Payment Date because of an insufficiency of funds available in the CAISO Reserve Account or by enforcing any guarantee, letter of credit or other credit support provided by a defaulting Scheduling Coordinator, the CAISO shall reduce payments to all CAISO Creditors proportionately to the net amounts payable to them on the relevant Payment Date to the extent necessary to clear the CAISO Clearing Account. The CAISO shall account for such reduction in the CAISO ledger accounts as amounts due and owing by the non-paying CAISO Debtor to each CAISO Creditor whose payment was so reduced. The provisions of this section shall not apply to non-payment of any penalty amount that a Scheduling Coordinator has disputed and FERC has specifically authorized the Scheduling Coordinator to net its payment to the CAISO by the amount of the penalty in question in accordance with Section 37.9.3, in which case the non-payment amount will be allocated exclusively to the CAISO penalty trust account and not allocated to CAISO Creditors.

**11.29.17.2 Payment of Defaulted Receivables.**

Collections of defaulted receivables (other than Interest) will be distributed pro rata to CAISO Creditors for the month of default.

(1) If the total collected in that closing related to the past due trade month is less than \$5,000, then the funds shall accumulate in an Interest-bearing account until either: (a) the account exceeds \$5,000, (b) there have been no distributions from the account for six months, or (c) all defaults for that month have been collected exclusive of any bankruptcy defaults.

(2) If all CAISO Creditors for that trade month have been paid, then the proceeds will be paid pro rata to the CAISO Creditors in the oldest unpaid trade month.

(3) This provision is also applicable to the amounts netted against CAISO Creditor balances related to prior defaulted receivables.

(4) All defaulted receivables disbursed under this Section shall be disbursed in accordance with the timeframes set forth in Section 11.29.9.6.1.

**11.29.18 [NOT USED]**

**11.29.19 Payment Errors.**

**11.29.19.1 Overpayments.**

If for any reason, including the negligence of the CAISO Bank or the CAISO, a CAISO Creditor receives an overpayment on any Payment Date, the CAISO Creditor shall within two (2) Business Days from the date of receipt of the funds into its Scheduling Coordinator Settlement Account, notify the CAISO of the amount of the overpayment and shall forthwith pay the overpayment into a CAISO Account specified by the CAISO.

**11.29.19.2 Repayment of Overpayment.**

If prior to a CAISO Creditor notifying the CAISO of the overpayment, the CAISO receives notice (from the CAISO Bank or otherwise) of the overpayment, the CAISO shall within two (2) Business Days notify the recipient of the overpayment. The CAISO shall be responsible for payment to those entitled to the sum which has been overpaid.

**11.29.19.3 Overpayment Held In Trust.**

Until a CAISO Creditor refunds the overpayment to the CAISO, the CAISO Creditor shall be deemed to hold the amount of such overpayment on trust for any CAISO Creditor which may have been underpaid in consequence of such overpayment, pro rata to the amount of the underpayment.

**11.29.19.4 Interest on Overpayment.**

- (a) If an overpayment is repaid by a CAISO Creditor in accordance with Section 11.29.19.1 of the CAISO Tariff, the CAISO shall be entitled to Interest on the amount of the overpayment at the prime rate of the bank where the Settlement Account of the overpaid CAISO Creditor is located from the date the overpayment was received to the time that the repayment is credited to the relevant CAISO Account.
- (b) If the overpayment (or any part of it) is not repaid by a CAISO Creditor in accordance with Section 11.29.19.1 of the CAISO Tariff, the CAISO shall be entitled to Interest on the amount of the overpayment from the expiry of the two day period referred to in that Section until the repayment is credited to the relevant CAISO Account and the CAISO will be entitled to treat the overpayment (and any Interest accruing thereon) as a Default Amount to which Section 11.29.13.2 will apply.

**11.29.19.5 Treatment of Amounts Outstanding as a Result of an Overpayment.**

The CAISO shall apply the amount of any overpayment repaid (including interest received) to credit any underpaid CAISO Creditors pro rata to the amounts of their underpayments on the same day of receipt, or if not practicable, on the following Business Day.

**11.29.19.6 Underpayments.**

If for any reason, including the negligence of the CAISO Bank or the CAISO, a CAISO Creditor receives on the relevant Payment Date an underpayment, the CAISO Creditor shall within two (2) Business Days from receipt into its Settlement Account, notify the CAISO of the amount of the underpayment, and the CAISO after consultation with the CAISO Bank, shall use all reasonable endeavors to identify such entity as shall have received any corresponding overpayment and promptly correct the underpayment. If, by reason of negligence, the CAISO holds or has under its control after five (5) Business Days from receipt in the CAISO Clearing Account amounts which it ought properly to have paid to CAISO Creditors, such

CAISO Creditors shall be entitled to interest on such amounts, for such period as the CAISO improperly holds or has such amounts under its control.

**11.29.20 Defaults.**

Each CAISO Creditor shall give notice to the CAISO before instituting any action or proceedings in any court against a CAISO Debtor to enforce payments due to it.

**11.29.21 Proceedings to Recover Overdue Amounts.**

**11.29.21.1 Proceedings Brought by the CAISO.**

Without prejudice to the right of any Scheduling Coordinator to bring such proceedings as it sees fit in connection with matters related to the recovery of amounts owed to it, the CAISO may bring proceedings against any Scheduling Coordinator on behalf of those Scheduling Coordinators who have indicated to the CAISO their willingness for the CAISO first so to act, for the recovery of any amounts due by that Scheduling Coordinator, if the CAISO has first reached agreement with the Scheduling Coordinators as to the appropriate remuneration, is indemnified to its reasonable satisfaction and receives such security as it may reasonably request against all costs, claims, expenses (including legal fees) and liabilities which it will or may sustain or incur in complying with such instructions.

**11.29.21.2 Evidence of Unpaid Amount.**

The CAISO shall, on request, certify in writing the amounts owed by a CAISO Debtor that remain unpaid and the CAISO Creditors to whom such amounts are owed and shall provide certified copies of the relevant Preliminary and Final Settlement Statements, invoices and other documentation on which the CAISO's certificate was based to the CAISO Debtor and the relevant CAISO Creditors. A CAISO certificate given under this Section 11.29.21.2 may be used as prima facie evidence of the amount due by a CAISO Debtor to CAISO Creditors in any legal proceedings.

**11.29.22 Data Gathering and Storage.**

**11.29.22.1 Required Capabilities.**

The CAISO shall ensure that the Settlement process shall contain, at a minimum, the following data gathering and storage capabilities:

- (a) the accurate, time-sequenced, end-to-end traceability of the Settlements process so that Scheduling Coordinators and Participating TOs can fully verify their Settlement Statements;
- (b) the ability to specify and accept data that is specifically needed for audit trail requirements; and
- (c) the archiving of Meter Data, Settlement runs and other information used to prepare Settlement Statements to be consistent with the time frame required to re-run the Settlement process by state laws and the rules of the Local Regulatory Authority.

**11.29.22.2 Data Dissemination.**

Data shall not be disseminated by the CAISO except as permitted in this CAISO Tariff.

**11.29.23 Communications.**

Preliminary Settlement Statements, Final Settlement Statements and invoices will be considered issued to CAISO Creditors or CAISO Debtors when released by the CAISO's secure communication system. Communications on a Payment Date relating to payment shall be made by the fastest practical means including by telephone. If there is a failure of a communication system and it is not possible to communicate by electronic means, then the CAISO or CAISO Creditor or CAISO Debtor, as the case may be, shall communicate by facsimile but only if the recipient is first advised by telephone to expect the facsimile. Methods of communication between the CAISO and Market Participants may be varied by the CAISO giving not less than 10 days notice to Market Participants on the CAISO's secure communication system.



**11.29.24 CAISO Payments Calendar.**

**11.29.24.1 Preparation.**

In September of each year, the CAISO will prepare a draft CAISO Payments Calendar for the following calendar year showing for each Trading Day:

- (a) The date by which Scheduling Coordinators are required to provide Settlement Quality Meter Data for all their Scheduling Coordinator Metered Entities for each Settlement Period in the Trading Day;
- (b) The date on which the CAISO will issue Preliminary Settlement Statements and invoices to Scheduling Coordinators, Black Start Generators and Participating TOs for that Trading Day;
- (c) The date by which Scheduling Coordinators, Black Start Generators and Participating TOs are required to notify the CAISO of any disputes in relation to their Preliminary Settlement Statements pursuant to Section 11.29.8.2;
- (d) The date on which the CAISO will issue Final Settlement Statements and invoices to Scheduling Coordinators, Black Start Generators and Participating TOs for that Trading Day;
- (e) The date and time by which CAISO Debtors are required to have made payments into the CAISO Clearing Account in payment of invoices for that Trading Day; and
- (f) The dates and times on which CAISO Creditors will receive payments from the CAISO Clearing Account of amounts owing to them for that Trading Day.
- (g) In relation to Reliability Must-Run Charges and Payments, the details set out in paragraph 3 of Appendix N, Part J.

The CAISO will make a draft of the CAISO Payments Calendar available on the CAISO Website to

Scheduling Coordinators, Black Start Generators, Participating TOs and Owners any of which may submit

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comments and objections to the CAISO within two weeks of the date of posting of the draft on the CAISO Website. No later than October 31<sup>st</sup> in each year, the CAISO will publish the final CAISO Payments Calendar for the following calendar year, after considering the comments and objections received from Scheduling Coordinators, Black Start Generators, Participating TOs and Owners. The final CAISO Payments Calendar will be posted on the CAISO Website, and will show for the period from 1 January to 31 December in the next succeeding year (both dates inclusive), the dates on which Settlement Statements shall be published by the CAISO and the Payment Dates on which the CAISO will pay the Participating TO the Wheeling revenues allocated to them pursuant to Section 26.1.4.3 of this CAISO Tariff.

**11.29.24.2 Distribution.**

Any CAISO Payments Calendar prepared pursuant to this Section 11.29.24 shall be distributed promptly to each Scheduling Coordinator, each Participating TO, the CAISO Bank, the CAISO Audit Committee and the CAISO Governing Board and shall be published on the CAISO Website.

**11.29.24.3 Final Calendar Binding.**

The final CAISO Payments Calendar shall be binding on the CAISO and on Scheduling Coordinators, Black Start Generators, Participating TOs and Owners.

**11.29.24.4 Calendar Content and Format.**

The CAISO may change the content or format of the CAISO Payments Calendar. The CAISO may also produce a summary outline of the Settlement and billing cycles.

**11.29.24.5 Update the Final Payments Calendar.**

If as a result of a tariff amendment approved by FERC, the final CAISO Payments Calendar developed in accordance with Section 11.29.24 is rendered inconsistent with the timing set forth in the tariff, the CAISO shall update the final CAISO Payments Calendar to make it consistent with the tariff as approved by FERC on the date on which the tariff amendment goes into effect. The CAISO shall simultaneously send out a notice to Market Participants that the final CAISO Payments Calendar has been revised.