

ATTACHMENT C

subject of mutual agreement between the CAISO and the Participating TOs. The CAISO shall notify Market Participants when an application has been received from a potential Participating TO and shall notify Market Participants that a New Participating TO has executed the Transmission Control Agreement and the date on which the CAISO will have Operational Control of the transmission facilities.

4.3.1.1 In any year, a Participating TO applicant must declare its intent in writing to the CAISO to become a New Participating TO by January 1 or July 1, and provide the CAISO with an application within 15 days of such notice of intent. Applicable agreements will be negotiated and filed with the Federal Energy Regulatory Commission as soon as possible for the New Participating TO, such that the agreements can be effective the following July 1 or January 1.

4.3.1.2 With respect to its submission of Schedules to the CAISO, a New Participating TO shall become a Scheduling Coordinator or obtain the services of a Scheduling Coordinator that has been certified in accordance with Section 4.5.1, which Scheduling Coordinator shall not be the entity's Responsible Participating TO in accordance with the Responsible Participating Transmission Owner Agreement, unless mutually agreed, and shall operate in accordance with the CAISO Tariff and applicable agreements.

The New Participating TO shall assume responsibility for paying all Scheduling Coordinators' charges regardless of whether the New Participating TO elects to become a Scheduling Coordinator or obtains the services of a Scheduling Coordinator.

For the period between the effective date of this provision and ending December 31, 2010, the Transition Date pursuant to Section 4.2 of Appendix F, Schedule 3, New Participating TOs that have joined the CAISO and turned over Operational Control of their facilities and Entitlements shall receive the IFM Congestion Credit in accordance with Section 11.2.1.5, which IFM Congestion Credit shall only be applicable to those facilities and Entitlements in existence on the effective date of the CAISO's initial assumption of Operational Control over the facilities and Entitlements of a New Participating TO.

4.3.1.3 Western Path 15 shall be required to turn over to CAISO Operational Control only its rights and interests in the Path 15 Upgrade and shall not be required to turn over to CAISO Operational Control Central Valley Project transmission facilities, Pacific AC Intertie transmission facilities, California-Oregon Transmission Project facilities, or any other new transmission facilities or Entitlements not related

4.9.12.2.4 shall provide the CAISO with control over the AGC of the System Unit, if the System Unit is supplying Regulation to the CAISO or is designated to self-provide Regulation; and

4.9.12.2.5 shall install CAISO certified meters on each individual resource or facility that is aggregated to a System Unit.

4.9.12.3 Subject to Section 4.9.12.4, the CAISO shall have the authority to exercise control over the System Unit to the same extent that it may exercise control pursuant to the CAISO Tariff over any other Participating Generator, Generating Unit or, if applicable, Participating Load, but the CAISO shall not have the authority to direct the MSS Operator to adjust the operation of the individual resources that make up the System Unit to comply with directives issued with respect to the System Unit.

4.9.12.4 When and to the extent that Energy from a System Unit is scheduled to provide for the needs of Loads within the MSS and is not being Bid to the CAISO Markets, the CAISO shall have the authority to Dispatch the System Unit only to avert or respond to a circumstance described in the third sentence of Section 7.6.1 or, pursuant to Section 7.7.2.3, to a System Emergency.

4.9.13 MSS Elections and Participation in CAISO Markets.

MSS entities must make an election or choice on three issues that govern the manner in which the MSS participates in the CAISO Markets. The MSS entity must choose either: (i) net settlements or gross settlements, (ii) to Load-follow or not Load-follow with its generation resources, and (iii) to have its Load participate in the RUC procurement process or not have its Load participate in the RUC procurement process. The MSS Operator shall make annual elections regarding these three sets of options pursuant to the timeline specified for such elections in the Business Practice Manuals.

The default for the first twelve months after this Section 4.9.13 and Section 36 becomes effective shall be: 1) non Load-following; 2) gross settlement as specified in Section 11.2.3.1; and 3) to opt in to RUC procurement process. In subsequent years, the prior year election will be the default if the MSS Operator does not make a timely election, unless the MSS Operator has been found to have violated Load-following or RUC opt out requirements and is no longer eligible for making such elections. If the MSS Operator fails to elect for net Settlement as specified in Section 11.2.3.2, the default mechanism for all MSS settlements shall be gross settlement as specified in Section 11.2.3.1.

The Load-following, net or gross settlement, and RUC procurement elections of an MSS Operator change certain aspects of, but do not preclude, the participation of the MSS in the CAISO markets. An MSS Operator may: (i) Bid to supply energy to, or purchase energy from, the CAISO markets, (ii) Bid to provide available capacity in RUC, and (iii) Bid or make a Submission to Self-Provide Ancillary Services from a "System Unit" or from individual Generating Units or Participating Loads within the MSS. An MSS Operator also may purchase Ancillary Services from CAISO or third parties to meet its Ancillary Service obligations under CAISO Tariff.

4.9.13.1 Gross or Net Settlement.

An MSS Operator has the option to settle with the CAISO on either a gross basis or a net basis for its Load and generating resources. This election shall be made annually for a period consistent with annual CRR Allocation. If the MSS Operator elects net settlement, then CRRs would be allocated on MSS net Load and the MSS may choose the MSS LAP as its CRR sink in the first tiers of CRR Allocation. If the MSS Operator elects gross settlement, then CRRs would be allocated on a gross load basis and the MSS may not choose the MSS LAPs as its CRR sink in the first tiers of CRR Allocation.

4.9.13.2 Load-Following or Non Load-Following Election.

The MSS Operator has the option to operate its generating resources to follow its Load. If an MSS Operator elects Load-following and net settlements, all generating resources within the MSS must be

designated as Load-following resources. If an MSS Operator elects Load-following and gross settlements, generating resources within the MSS can be designated as either load-following or non load-following resources. Consistent with these requirements, the MSS Operator may also modify the designation of generating resources within the MSS within the timing requirements specified for such Master File changes as described in the Business Practice Manuals.

If the MSS Operator has elected gross settlement and is a Load-following MSS: (i) it must designate in its generation master file which of its generating resources are Load-following resources, (ii) it must complying with the additional bidding requirements in Section 30.5.2.5, and (iii) the generation resources designated as Load-following resources cannot set Real-Time prices. However, Load-following resources will be eligible to receive bid cost recovery to ensure that the price paid for energy dispatched by CAISO is not less than the MSS Operator's accepted bid price. Bid Cost Recovery for a Load-following MSS resource is only applicable to generation capacity provided to the CAISO Markets by that MSS resource and is not applicable for the generation capacity that is designated or used by an MSS Operator to follow its own Load.

4.9.14 MSS Settlements.

4.9.14.1 The CAISO will assess the Scheduling Coordinator for the MSS the neutrality adjustments and Existing Contracts cash neutrality charges pursuant to Section 11.14 (or collect refunds therefore) based on the net Metered Demand and exports of the MSS.

4.9.14.2 If the CAISO is charging Scheduling Coordinators for summer reliability or demand programs, the MSS Operator may petition the CAISO for an exemption of these charges. If the MSS Operator provides documentation to the CAISO by November 1 of any year demonstrating that the MSS Operator has secured capacity reserves for the following calendar year at least equal to one hundred and fifteen percent (115%), on an annual basis, of the peak Demand responsibility of the MSS Operator, the CAISO shall grant the exemption. Eligible capacity reserves for such a demonstration may include on-demand rights to Energy, peaking resources, and Demand reduction programs. The peak Demand

responsibility of the MSS Operator shall be equal to the annual peak Demand Forecast of the MSS Load plus any firm power sales by the MSS Operator, less interruptible Loads, and less any firm power purchases. Firm power for the purposes of this Section 4.9.14.2 shall be Energy that is intended to be available to the purchaser without being subject to interruption or curtailment by the supplier except for Uncontrollable Forces or emergency. To the extent that the MSS Operator demonstrates that it has secured capacity reserves in accordance with this Section 4.9.14.2., the Scheduling Coordinator for the MSS Operator shall not be obligated to bear any share of the CAISO's costs for any summer Demand reduction program or for any summer reliability Generation procurement program pursuant to CAISO Tariff Section 42.1.8 for the calendar year for which the demonstration is made.

4.9.14.3 Unless specified otherwise in the MSS agreement(s), if the CAISO is compensating Generating Units for Emissions Costs, Start-Up Fuel Costs and Minimum Load Costs, and if MSS Operator charges the CAISO for the Emissions Costs, Start-Up Fuel Costs and Minimum Load Costs, of the Generating Units serving the Load of the MSS, then the Scheduling Coordinator for the MSS shall bear its proportionate share of the total amount of those costs incurred by the CAISO based on the MSS gross Metered Demand and exports and the Generating Units shall be made available to the CAISO through the submittal of Energy Bids. If the MSS Operator chooses not to charge the CAISO for the Emissions Costs, Start-Up Fuel Costs and Minimum Load Costs of the Generating Units serving the Load of the MSS, then the Scheduling Coordinator for the MSS shall bear its proportionate share of the total amount of those costs incurred by the CAISO based on the MSS's net Metered Demand and exports. The MSS Operator shall make the election whether to charge the CAISO for these costs on an annual basis on November 1 for the following calendar year.

The CAISO shall maintain records of all electronic, fax and verbal communications related to a Dispatch Instruction. The CAISO shall maintain a paper or electronic copy of all Dispatch Instructions delivered by fax and all Dispatch Instructions delivered electronically. The CAISO shall record all voice conversations that occur related to Dispatch Instructions on the Dispatch Instruction communication equipment. These records, copies and recordings may be used by the CAISO to audit the Dispatch Instruction, and to verify the response of the Market Participant concerned to the Dispatch Instruction.

6.3.3 Contents of Dispatch Instructions.

Dispatch Instructions shall include, but are not limited to, the following information:

- (a) exchange of operator names;
- (b) specific resource being Dispatched;
- (c) specific MW value of the resource being Dispatched;
- (d) specific type of instruction (action required);
- (e) time the resource is required to begin initiating the Dispatch Instruction;
- (f) time the resource is required to achieve the Dispatch Instruction;
- (g) time of notification of the Dispatch Instruction; and
- (h) any other information which the CAISO considers relevant.

6.4 Communication of Operating Orders.

The CAISO shall use normal verbal and electronic communication to issue operating orders to the Connected Entity.

6.5 CAISO Communications.

The CAISO will provide a secure communication system to publish confidential information and communicate with Scheduling Coordinators, and OASIS to publish public information.

6.5.1 Communication With Market Participants, Congestion Revenue Rights Participants, and the Public.

6.5.1.1 Market Participants With Non-Disclosure Agreements.

6.5.1.1.1 Yearly, the CAISO shall provide information that will include, but is not limited to, the following:

- (a) CRR Full Network Model;
- (b) Constraints and interface definition; and
- (c) Load Distribution Factors for each allocation and auction that is published prior to the auction.

6.5.1.1.2 Monthly, the CAISO shall provide information that will include, but is not limited to, the following:

- (a) CRR Full Network Model;
- (b) Constraints and interface definition; and
- (c) Load Distribution Factors for each allocation and auction that is published prior to the auction.

6.5.1.2 CRR Participants Without Non-Disclosure Agreements.

6.5.1.2.1 Yearly, the CAISO shall provide CRR information specific to that CRR Holder or Candidate CRR Holder as it relates to participation in the annual allocation or auction.

6.5.1.2.2 Monthly, the CAISO shall provide CRR information specific to that CRR Holder or Candidate CRR Holder as it relates to participation in the monthly allocation or auction.

6.5.1.3 Public Market Information.

6.5.1.3.1 Yearly, the CAISO shall publish the following information including, but not limited to:

- (a) clearing prices for all Aggregated PNodes used in the auction clearing for on-peak and off-peak;
- (b) CRR Holder;

6.5.5.2.4 Every 5 minutes the CAISO shall post via OASIS information regarding the status of the RTM. This information shall include but is not limited to the following:

- (a) Load forecast;
- (b) Total Real-Time Dispatched Energy and Demand on a 24-hour delayed basis;
- (c) Real-Time Dispatch Interval LMP;
- (d) Real-Time marginal loss costs and average system losses; and
- (e) Actual operating reserve.

6.5.6 Market Bid Information.

6.5.6.1 Public Market Information.

6.5.6.1.1 The following information shall be published on OASIS 180 days following the applicable Trading Day, with the exclusion of the information that is specific to Scheduling Coordinators:

- (a) AS Market Bids;
- (b) Energy Market Bids; and
- (c) RUC Market Bids.

6.5.6.1.2 30 days after the operating day, the CAISO will publish via OASIS all Minimum Load Costs.

reasonably practicable. The CAISO shall keep system operators in adjacent Control Areas informed as to the nature and extent of the System Emergency in accordance with WECC procedures and, where practicable, shall additionally keep the Market Participants within the Control Area informed.

7.7.2.1 Declarations of System Emergencies.

The CAISO shall, when it considers that conditions giving rise to a System Emergency exist, declare the existence of such System Emergency. A declaration by the CAISO of a System Emergency shall be binding on all Market Participants until the CAISO announces that the System Emergency no longer exists.

7.7.2.2 Responsibilities of UDCs and MSSs During a System Emergency.

In the event of a System Emergency, UDCs shall comply with all directions from the CAISO concerning the management and alleviation of the System Emergency and shall comply with all procedures concerning System Emergencies set out in this CAISO Tariff, the Business Practice Manuals, and the Operating Procedures, and each MSS Operator shall comply with all directions from the CAISO concerning the avoidance, management and alleviation of the System Emergency and shall comply with all procedures concerning System Emergencies set forth in the CAISO Tariff, Business Practice Manuals and Operating Procedures. During a System Emergency, the CAISO and UDCs shall communicate through their respective control centers and in accordance with procedures established in individual UDC operating agreements, and the CAISO and the MSS Operator shall communicate through their respective control centers and in accordance with procedures established in the MSS agreement.

7.7.2.3 Responsibilities of Generating Units, System Units and System Resources during System Emergencies.

All Generating Units, System Units and System Resources that are owned or controlled by a Participating Generator are (without limitation to the CAISO's other rights under this CAISO Tariff) subject to control by the CAISO during a System Emergency and in circumstances in which the CAISO considers that a System Emergency is imminent or threatened. The CAISO shall, subject to Section 7, have the authority

Energy, the CAISO will schedule such Energy and also simultaneously Dispatch the identified resource supporting the on-demand obligation for the same quantity of Energy. Operating Reserves includes both Spinning and Non-Spinning Reserves.

8.2.3.3 Voltage Support.

The CAISO shall determine on an hourly basis for each day the quantity and location of Voltage Support required to maintain voltage levels and reactive margins within WECC and NERC criteria using a power flow study based on the quantity and location of scheduled Demand. The CAISO shall issue daily voltage schedules (Dispatch Instructions) to Participating Generators, Participating TOs and UDCs, which are required to be maintained for CAISO Controlled Grid reliability. All other Generating Units shall comply with the power factor requirements set forth in contractual arrangements in effect on the CAISO Operations Date, or, if no such contractual arrangements exist and the Generating Unit exists within the system of a Participating TO, the power factor requirements applicable under the Participating TO's TO Tariff or other tariff on file with the FERC.

All Participating Generators shall maintain the CAISO specified voltage schedule at the transmission interconnection points to the extent possible while operating within the power factor range specified in their interconnection agreements or, for Regulatory Must-Take Generation, Regulatory Must-Run Generation and Reliability Must-Run Generation consistent with existing obligations. For Generating Units, that do not operate under one of these agreements, the minimum power factor range will be within a band of 0.90 lag (producing VARs) and 0.95 lead (absorbing VARs) power factors. Participating Generators with Generating Units existing at the CAISO Operations Date that are unable to meet this operating power factor requirement may apply to the CAISO for an exemption. Prior to granting such an exemption, the CAISO shall require the Participating TO or UDC to whose system the relevant Generating Units are interconnected to notify it of the existing contractual requirements for Voltage Support established prior to the CAISO Operations Date for such Generating Units. Such requirements may be contained in CPUC Electric Rule 21 or the Interconnection Agreement with the Participating TO or UDC. The CAISO shall not grant any exemption under this Section from such existing contractual requirements. The CAISO shall be entitled to instruct Participating Generators to operate their

or System Resources in the HASP, and (b) generation internal to the CAISO Control Area in the Real-Time Market. The amount of Ancillary Services procured in the HASP and in the Real-Time Market is based upon the CAISO Forecast of CAISO Demand for the Operating Hour net of Self Provided Ancillary Services.

The CAISO procurement of Ancillary Services from imports or System Resources in the HASP is for the entire Operating Hour. The procurement of Ancillary Services from generation internal to the CAISO Control Area for the Real-Time Market is for a fifteen (15) minute time period. The CAISO's procurement of Ancillary Services from imports or System Resources in the HASP and from Generating Units for the Real-Time Market is based on the Ancillary Service Bids submitted in the HASP.

As of the CAISO Operations Date, the CAISO will contract for long-term Voltage Support service with Owners of Reliability Must-Run Units under Reliability Must-Run Contracts. Black Start capability will initially be procured by the CAISO through individual contracts with Scheduling Coordinators for Reliability Must-Run Units and other Generating Units which have Black Start capability. These requirements and standards apply to all Ancillary Services whether self-provided or procured by the CAISO.

8.3.2 Procurement Not Limited to CAISO Control Area.

The CAISO will procure Spinning Reserves and Non-Spinning Reserves from Generating Units operating within the CAISO Control Area and from imports of System Resources. Scheduling Coordinators are allowed to bid Regulation from resources located outside the CAISO Control Area by dynamically scheduling such resources. Each System Resource used to bid Regulation must comply with the Dynamic Scheduling Protocol in Appendix X. When bidding to supply Ancillary Services in the IFM, HASP or RTM, imports compete for use of intertie transmission capacity when the requested use is in the same direction, e.g., imports of Ancillary Services compete with Energy on interties in the import direction and exports of Ancillary Services (*i.e.*, on demand obligations) compete with Energy on interties in the export direction. To the extent there is Congestion, imports of Ancillary Services will pay Congestion costs in the IFM, HASP and RTM markets.

Outage, the CAISO will give notice of any change in the use of Ancillary Services Regions as soon as reasonably practicable after the occurrence of the Forced Outage.

Details regarding: (a) how the CAISO establishes Sub-Regions and the Ancillary Service limits (*i.e.*, a maximum or a minimum amount (or both a maximum and minimum amounts) of Ancillary Services to be procured within a region) for the System Region and/or Sub-Regions, and (b) the process the CAISO will use to notify Market Participants of any change in Ancillary Services Regions, are contained in the Business Practice Manual for Ancillary Services.

8.3.4 Certification and Testing Requirements.

Each Generating Unit, System Unit, or Load, that is allowed to submit a Bid or self-provide Ancillary Services under this Tariff, and each System Resource that is allowed to submit a Bid to provide Ancillary Services under this Tariff, must comply with the CAISO's certification and testing requirements as contained in the Business Practice Manual. Each Generating Unit and System Unit used to bid Regulation or used to self-provide Regulation must have been certified and tested by the CAISO using the process defined in Part A of Appendix K. Each Dynamic System Resource offering Regulation must comply with the Dynamic Scheduling Protocol in Appendix X. Spinning Reserve may be provided only from Generating Units, System Resources that submit Bids to provide Spinning Reserve from imports, or System Units, which have been certified and tested by the CAISO using the process defined in Appendix K. Non-Spinning Reserve may be provided from Loads, Demand which can be reduced by Dispatch, on-demand rights from other entities or Control Areas, Generating Units, System Resources that submit Bids to provide Non-Spinning Reserve from imports, or System Units, which have been certified and tested by the CAISO using the process defined in – Parts C of Appendix K, respectively. Voltage Support may only be provided from resources including Loads, Generating Units and System Units which have been certified and tested by the CAISO using the process defined in Part D of Appendix K. Black Start capability may only be provided from Generating Units which have been certified and tested by the CAISO using the process defined in Part E of Appendix K. CAISO certification to provide Ancillary Services may be revoked by the CAISO under the provisions of this Tariff and Parts A-E of Appendix K.

standards for dynamic imports from System Resources. Participating Generators and operators of System Units providing Regulation shall also provide communication links meeting CAISO standards for direct digital control. Operators of System Resources providing Regulation shall provide communications links meeting CAISO standards for imports of Regulation. If any communication system becomes unavailable, the relevant Participating Generators, operators of System Units, Loads and System Resources and the CAISO shall take immediate action to identify the cause of the interruption and to restore the communication system. A Scheduling Coordinator that has provided a Submission to Self-Provide an Ancillary Service, has submitted a Bid in or contracted for Ancillary Services shall ensure that the Generating Unit, System Unit, Load or System Resource concerned is able to receive and implement Dispatch Instructions.

8.4.6 Metering Infrastructure.

All Participating Generators, owners or operators of Loads and operators of System Units or System Resources which a Scheduling Coordinator wishes to bid to provide Ancillary Services shall have the metering infrastructure for the Generating Units, System Units, Loads or System Resources concerned which complies with requirements to be established by the CAISO relating to:

- (a) meter type;
- (b) meter location;
- (c) meter reading responsibility;
- (d) meter capability in regard to AGC response; and
- (e) any other aspect of metering infrastructure required by the CAISO under this CAISO Tariff.

8.4.6.1 Additional Requirements for Black Start Units.

A Participating Generator who wishes to offer Black Start must ensure that the requirements set out in Appendix D to this CAISO Tariff are met in relation to the Generating Units from which Black Start will be offered.

8.4.7 Methodology For Procurement of Ancillary Services

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Issued on: November 20, 2006

Effective: November 1, 2007

The CAISO shall pay owners of Reliability Must-Run Units for Black Start Energy output through their Scheduling Coordinators. The CAISO shall pay Black Start Generators for Black Start Energy output directly.

8.6 Obligations for and Self-Provision of Ancillary Services.

8.6.1 Ancillary Service Obligations.

Each Scheduling Coordinator shall be assigned a share of the total Regulation Down, Regulation Up,, Spinning Reserve, and Non-Spinning requirements by the CAISO, as set forth in Sections 11.10.2, 11.10.3 and 11.10.4, (*i.e.*, a share of the total requirements for each ancillary service in the Day-Ahead Market, HASP, and the Real-Time Market). Any references in this CAISO Tariff to the Ancillary Service "Regulation" shall be read as referring to "Regulation Up" or "Regulation Down".

8.6.2 Right to Self-Provide.

Each Scheduling Coordinator may choose to self-provide all, or a portion, of its Regulation Up, Regulation Down, Spinning Reserve, and Non Spinning Reserve, obligations in the Day-Ahead Market, and, to the extent needed to satisfy CAISO's additional requirement, HASP and Real Time Market from resources eligible for self-provision. The right to Self-Provide Ancillary Services from capacity that is under a contractual obligation to provide Energy, including but not limited to capacity subject to an RMR Contract and local Resource Adequacy resources, shall be conditional; self-provision of Ancillary Services from such capacity will only be permitted to the extent that capacity is not needed for Energy as a result of the MPM-RRD process described in this CAISO Tariff. To self-provide Ancillary Services a Scheduling Coordinator must provide the CAISO with a Submission to Self Provide an Ancillary Service. Both Ancillary Service Bids and Submissions to Self Provide Ancillary Service can be provided to the CAISO for the same Ancillary Service and for the same hour in the same market.

A Submission to Self-Provide an Ancillary Service is a submission that contains all of the requirements for an Ancillary Service Bid with the exception of capacity price information. Prior to evaluating Ancillary Service Bids, the CAISO will determine whether Submissions to Self Provide Ancillary Services are feasible with regard to resource operating characteristics and regional constraints and are qualified to

provide the Ancillary Services in the markets for which they were submitted. A Self Provided Ancillary Service is a Submission to Self Provide an Ancillary Service that has been accepted by the CAISO. If the total Submissions to Self Provide Ancillary Services exceed the maximum regional requirement for the relevant Ancillary Service in an Ancillary Services Region, the submissions that would otherwise be accepted by the CAISO as feasible and qualified will be awarded on a pro-rata basis among the suppliers offering to Self-Provide the Ancillary Service up to the amount of the requirement. If a regional constraint imposes a limit on the total amount of Reg-Up, Spin, and Non-Spin, and the total self-provision of these AS in that region exceeds that limit, Self-Provided AS are qualified pro rata from higher to lower quality service in three tiers: Reg-Up first, followed by Spin, and then by Non-Spin. Following this process, unless a higher quality Self-Provided Ancillary Service in a constrained region is fully qualified, the pro rata allocation in the subsequent lower quality Self-Provided Ancillary Service for that region will be nil. Submissions to Self Provide Ancillary Services in excess of the maximum regional requirement for the relevant Ancillary Service in an Ancillary Services Region will not be accepted and qualified by the CAISO as Self Provided Ancillary Services.

The CAISO shall schedule Self-Provided Ancillary Services in the Day-Ahead Market and the RTM and Dispatch Self-Provided Ancillary Services in the Real-Time. To the extent that a Scheduling Coordinator self-provides Regulation Up, Regulation Down, Spinning Reserve, and Non Spinning Reserve, the CAISO shall correspondingly reduce the quantity of the Ancillary Services it procures from Bids submitted in the Day-Ahead Market, HASP, and the Real-Time Market. To the extent a Scheduling Coordinator's Self Provided Ancillary Service for a particular Ancillary Service is greater than the Scheduling Coordinator's obligation for that particular Ancillary Service in a Settlement Interval, the Scheduling Coordinator will receive the user rate for the Self Provided Ancillary Service for the amount of the Self Provided Ancillary Service in excess of the Scheduling Coordinator's obligation.

Scheduling Coordinators may trade Ancillary Services so that any Scheduling Coordinator may reduce its Ancillary Services obligation through purchase of Ancillary Services capacity from another Scheduling Coordinator, or self-provide in excess of its obligation to sell Ancillary Services to another Scheduling Coordinator.

8.6.3 Services Which May Be Self-Provided.

The CAISO shall permit Scheduling Coordinators to self-provide the following Ancillary Services:

of the notice to the provider or owner or operator of the Generating Unit, Load, or System Resource providing Ancillary Services or RUC Capacity. For any Resource Adequacy Resource failing a compliance test, the CAISO also will provide notification of the failure to the California Public Utilities Commission, Local Regulatory Authority, or federal agency with jurisdiction over the Load Serving Entity that listed the Resource Adequacy Resource on its Resource Adequacy Plan, and FERC.

- (b) Penalties for Failure to Pass Compliance Testing. The Scheduling Coordinator whose resource fails a compliance test shall be subject to the financial penalties provided for in the CAISO Tariff. In addition, the CAISO shall institute the sanctions described in Section 8.9.16.

8.9.8 Performance Audits for Standard Compliance.

In addition to testing under Section 8.10, the CAISO will periodically audit the performance of resources providing RUC Capacity or Ancillary Services to confirm the ability of such resources to provide the RUC Capacity or to meet the applicable Ancillary Service standard for performance and control.

8.9.9 Performance Audit for Regulation.

The CAISO will audit the performance of a Generating Unit providing Regulation by monitoring its response to CAISO EMS control or, in the case of an external import of a System Resource providing Regulation, by monitoring the dynamic interchange response to CAISO EMS control around its Set Point within its rated MW/minute capability over the range of Regulation capacity scheduled for the current Settlement Period.

8.9.10 Performance Audit for Spinning Reserve.

The CAISO will audit the performance of a Generating Unit or external import of a System Resource providing Spinning Reserve by auditing its response to Dispatch Instructions and by analysis of Meter

Data associated with the Generating Unit. Such audits may not necessarily occur on the hour. A
Generating Unit providing Spinning Reserve shall be evaluated on its ability to respond to a Dispatch
Instruction, move at the MW/minute capability stated in its Bid, reach the amount of Spinning Reserve
capacity scheduled for the current Settlement Period within ten minutes of issue of the Dispatch

demonstrate the effective function of automatic voltage control equipment for the amount of Voltage Support under the control of the CAISO for the current Settlement Period.

8.9.13 Performance Audit for Black Start.

The CAISO will audit the performance of a Black Start Generating Unit by analysis of Meter Data and other records to determine that the performance criteria relating to the Black Start from that Black Start Generating Unit were met when required.

8.9.14 Performance Audit for RUC Capacity.

The CAISO will audit the performance of a Generating Unit, Participating Load, or System Resource providing RUC Capacity by auditing its response to Dispatch Instructions, and by analysis of Meter Data associated with the resource. Such audits may not necessarily occur on the hour. A Generating Unit providing RUC Capacity shall be evaluated on its ability to respond to a Dispatch Instruction, start within the designated time delay, move at the MW/minute capability stated in its Bid, reach the amount of RUC Capacity scheduled for the Settlement Period concerned and sustain operation at this level for a sufficient time to assure availability over the specified period. An external import of a System Resource providing RUC Capacity shall be evaluated on its ability to respond to a Dispatch Instruction, start within the designated time delay, move at the MW/minute capability stated in its Bid, reach the amount of RUC Capacity scheduled for the Settlement Period concerned and sustain operation at this level for a sufficient time to assure availability over the specified period.

8.9.15 Consequences of Failure to Pass Performance Audits.

- (a) Notification of Performance Audit Results. The CAISO shall give the Scheduling Coordinator for a provider of RUC Capacity or Ancillary Services written notice of the results of such audit. The CAISO will at the same time send a copy of the notice to the provider of RUC Capacity or Ancillary Services. For any Resource Adequacy resource failing to pass a performance audit, the CAISO also will provide notification of the failure

to the California Public Utilities Commission, Local Regulatory Authority, or federal agency with jurisdiction over the Load Serving Entity that listed the Resource Adequacy Resource on its Resource Adequacy Plan, and the FERC.

equal to zero. Examples of the rescission of payments for Undispatchable, Unavailable, or Undelivered Ancillary Service Capacity or RUC Capacity are set forth in the BPM on compliance matters.

8.10.8.1 Rescission of Payments for Undispatchable Ancillary Service Capacity or RUC Capacity.

Undispatchable Capacity is Awarded Ancillary Services capacity, Self Provided Ancillary Service capacity, or capacity committed in RUC, that is not available for use due to a derate or outage of the resource. Undispatchable Capacity includes Awards for Spinning Reserve and Non-Spinning Reserve that are not available for use due to ramp rate constraints, (e.g., operational ramping ability is lower than Operating Reserve ramp rate). The CAISO shall calculate the real-time ability of each Generating Unit, Participating Load, System Unit or System Resource to deliver Energy from Ancillary Services capacity Self Provided Ancillary Services capacity or capacity committed in RUC for each Settlement Interval based on its maximum operating capability, actual telemetered out, and operational ramp rate as described in Section 30.10. System Resources that are awarded Ancillary Services Capacity or RUC Capacity in the Day-Ahead Market are required to electronically tag (E-Tag as prescribed by the WECC) the Ancillary Services Capacity or RUC Capacity. If the amounts of Ancillary Services Capacity or RUC Capacity in an electronic tag differ from the amounts of Ancillary Services Capacity or RUC Capacity for System Resource, the Undispatchable Capacity will equal the amount of the difference. If a Scheduling Coordinator has Undispatchable Capacity that it is obligated to supply to the CAISO during a Settlement Interval, the Ancillary Service capacity payment or RUC Availability Payment for the amount of Energy that cannot be delivered from the Generating Unit, Participating Load, System Unit or System Resource for the Settlement Interval shall be rescinded; provided, however, that to the extent an Ancillary Service procured in the IFM from a System Resource becomes undispatchable due to an intertie transmission derate before the Operating Hour for which it was procured, in rescinding the Ancillary Service capacity payment, the CAISO shall credit back to the Scheduling Coordinator any congestion charge assessed pursuant to Section 11.10.1.1.1 of the CAISO Tariff, but at the lower of the Day-Ahead and HASP Shadow Price on the corresponding intertie.

For capacity committed in RUC from a Resource Adequacy (RA) resource that becomes Undispatchable Capacity, the payment obligation shall be equivalent to payment obligation which would arise if the resource were eligible to receive a RUC Availability Payment. Such payment obligation is in addition to the consequences for non-compliance under a Local Regulatory Authority's Resource Adequacy Program. The CAISO will report instances of non-compliance under this Section 8.10.8 to the appropriate Local Regulatory Authority.

8.10.8.2.3 In calculating the amount of the payment to be rescinded under Section 8.10.8.2, the CAISO shall reduce the payment for Ancillary Service capacity otherwise payable by one sixth of the product of the applicable prices and the amount of Ancillary Service capacity from which the Generating Unit, Participating Load, System Unit or System Resource has supplied Uninstructed Energy in the Settlement Interval.

8.10.8.3 Rescission of Payments for Undelivered Ancillary Service Capacity or RUC Capacity.

Undelivered Capacity is Awarded Ancillary Services capacity and Self Provided Ancillary Services capacity, or capacity committed in RUC that was dispatched by the CAISO but where the Dispatch Instruction was not followed and a certain percentage or more of the scheduled Energy was not provided in Real-Time. For each Settlement Interval in which a Generating Unit, Participating Load, System Unit or System Resource fails to supply Energy from Spinning Reserve, or Non-Spinning Reserve capacity in accordance with a Dispatch Instruction, or supplies only a portion of the Energy specified in the Dispatch Instruction, the capacity payment will be reduced to the extent of the deficiency.

If the total metered output of a Generating Unit, Participating Load, System Unit or System Resource is insufficient to supply the amount of Instructed Energy associated with a Dispatch Instruction issued in accordance with awarded or Self-Provided Spinning Reserves, or Awarded or Self-Provided Non-Spinning Reserves in any Settlement Interval, then the capacity payment associated with the difference between the scheduled amount of each Ancillary Service for which insufficient Energy was delivered and the actual output attributed to the response to the Dispatch Instruction shall be rescinded. However, no capacity payment shall be rescinded if the shortfall in the metered output of the Generating Unit, Participating Load, System Unit, or System Resource is less than a deadband amount published by CAISO on the CAISO Website at least twenty-four hours prior to the Settlement Interval. For any Settlement Interval with respect to which no deadband amount has been published by the CAISO, the deadband amount shall be zero MWH.

For each Settlement Interval in which the total metered output for a Generating Unit, Participating Load, System Unit or System Resource is less than Real-Time expected Energy by more than the Tolerance Band and less than the RUC Schedule, the RUC Award for that Settlement Interval will be rescinded.

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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, as provided in Section 9.3.6.3, 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 For Transmission Facilities.

Except for Outages that may have a significant effect upon CRR revenue adequacy, 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 transmission facilities on its system, subject to the conditions of Sections 9.3.6.4A, 9.3.6.7 and

9.3.6.8. For Outages that may have a significant effect upon CRR revenue adequacy, an Operator may, upon thirty (30) days notice in advance of the first day of the month the Outage is proposed to be scheduled (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.

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) Excess Cost Payments; (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.

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-rata. 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 or shortfall generated from Hourly CRR Settlements as described in Section 11.2.4.4, and (2) any surplus revenue or shortfall that remains from the monthly

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clearing of the CRR Balancing Account as described in Section 11.2.4.4.1. 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 as described in Section 11.5.3. The CAISO shall allocate Charges or Payments associated with any non-zero amounts resulting from the sum of IIE, UIE and UFE as described in Section 11.5.4.2. Imbalance Energy due to Exceptional Dispatches, as well as the

allocation of related costs, including Excess Costs Payments is settled as described in Section 11.5.6.

The CAISO shall reverse Congestion Charges for valid and balanced ETC and TOR Self-Schedules as described in Section 11.5.7. The CAISO will settle Energy for emergency assistance as described in Section 11.5.8.

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 Pricing for Imbalance Energy and Allocation of Non-Zero Amounts of the Sum of IIE, UIE and UFE.

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.

11.5.4.2 Allocations of Non-Zero Amounts of the sum of IIE, UIE and UFE.

The CAISO will first compute the Real-Time Congestion Offset and allocate it to all Scheduling Coordinators based on Measured Demand, excluding demand associated with ETC or TOR Self-Schedules for which Real-Time Congestion Credit was provided as specified in Section 11.5.7. To the extent that the sum of the Settlement Amounts for IIE, UIE, and UFE, less Real-Time Congestion Offset, 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.

11.5.5 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 Interruption, 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 Cost Payments 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. A Resource must be operating within its Tolerance Band for the relevant Settlement Interval in order to be eligible for Excess Cost Payment.

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 as described in Section 34.9.3 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 as described in Section 34.9.3 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 Cost Payments for Exceptional Dispatches used for Transmission-Related Modeling Limitations.

The Excess Cost Payment for Exceptional Dispatches used for transmission-related modeling limitations as described in Section 34.9.3 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. A Resource must be operating within its Tolerance Band for the relevant Settlement Interval in order to be eligible for Excess Cost Payment.

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 as described in Section 34.9.3 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 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 as described in Section 34.9.3 in that Settlement Interval shall be charged to the Participating Transmission Owner in whose Participating TO Service Territory the transmission-related modeling limitation as described in Section 34.9.3 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. These allocations to Participating TO's Transmission Revenue Requirement shall constitute Reliability Services Costs.

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 MSS 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 RMR Dispatch shall be allocated like other Instructed Imbalance Energy in accordance with Section 11.5.4.2.

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 11.5.6.2.5.2.

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.

11.5.8 Settlement for Emergency Assistance.

This Section 11.5.8 shall apply to Settlement for emergency assistance provided to or by the CAISO. In any case in which the CAISO has entered into an agreement regarding emergency assistance, which agreement has been accepted by FERC, the provisions of the agreement shall prevail over any conflicting provisions of this Section 11.5.8. Where the provisions of this Section 11.5.8 do not conflict with the provisions of the FERC-accepted agreement, the provisions of this Section 11.5.8 shall apply to the subject emergency assistance.

11.5.8.1 Settlement for Energy Purchased by the CAISO for System Emergency Conditions, to Avoid Market Intervention, or to Prevent or Relieve Imminent System Emergencies, Other than Energy from Exceptional Dispatches.

The Settlement price for Energy that is delivered to the CAISO from a utility in another Control Area as a result of a CAISO request pursuant to Section 42.1.5 or any other provision of the CAISO Tariff for

assistance in System Emergency conditions, to avoid an intervention in market operations, or to prevent or relieve an imminent System Emergency, other than Energy from an Exceptional Dispatch, shall be either (i) a negotiated price agreed upon by the CAISO and the seller or (ii) a price established by the seller for such emergency assistance in advance, as may be applicable. In the event no Settlement price is established prior to the delivery of the emergency Energy, the default Settlement price shall be the simple average of the relevant Dispatch Interval LMPs at the applicable Scheduling Point, plus all other charges applicable to imports to the CAISO Control Area, as specified in the CAISO Tariff. If the default Settlement price is determined by the seller not to compensate the seller for the value of the emergency Energy delivered to the CAISO, then the seller shall have the opportunity to provide the CAISO with cost support information demonstrating that a higher price is justified. The CAISO shall have the discretion to pay that higher price based on the seller's justification of this higher price. Payment by the CAISO for such emergency assistance will be made in accordance with the Settlement process, billing cycle, and payment timeline set forth in the CAISO Tariff. The costs for such emergency assistance will be settled in two payments: (1) the costs will first be settled at the simple average of the relevant Dispatch Interval LMPs and included in the total IIE Settlement Amount as described in Section 11.5.1.1; and (2) costs in excess of the simple average of the relevant Dispatch Interval LMPs plus other applicable charges will be settled in accordance with Section 11.5.8.1.1. The allocation of the amounts settled in accordance with Section 11.5.1.1 will be settled according to Section 11.5.4.2.

11.5.8.1.1 Settlement and Allocation of Excess Costs Payments for Emergency Energy Purchases, Other than Energy from Exceptional Dispatches, to Scheduling Coordinators

The Excess Cost Payments for emergency Energy purchased in the circumstances specified in Section 11.5.8.1 is calculated for each purchase for each Settlement Interval as the cost difference between the Settlement amount calculated pursuant to Section 11.5.8.1 for the purchase and the simple average of the relevant Dispatch Interval LMPs at the applicable Scheduling Point. The Excess Cost Payments for emergency Energy purchased in the circumstances specified in Section 11.5.8.1 shall be allocated in the same manner as specified in Section 11.5.6.2.5.2 for the allocation of the Excess Cost Payments portion of payments for Exceptional Dispatches for emergency conditions.

11.5.8.2 Settlement for Energy Supplied by the CAISO in Response to a Request for Emergency Assistance.

The Settlement price for emergency Energy that is delivered by the CAISO to a utility in another Control Area in response to a request for emergency assistance shall be the simple average of the relevant Dispatch Interval LMPs at the applicable Scheduling Point, which shall serve as the effective market price for that Energy, plus all other charges applicable to exports from the CAISO Control Area, as specified in the CAISO Tariff and will be included in the total IIE Settlement Amount as described in Section 11.5.1.1 and will be allocated according to Section 11.5.4.2. Such price may be estimated prior to delivery and finalized in the Settlement process. The CAISO will establish a Scheduling Coordinator account, if necessary, for the purchaser for the sole purpose of facilitating the Settlement of such emergency assistance. Payment to the CAISO for such emergency assistance shall be made in accordance with the Settlement process, billing cycle, and payment timeline set forth in the CAISO Tariff.

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. In any Settlement Interval a resource is eligible for Bid Cost Recovery payments only if it is On. All Bid Costs shall be based on mitigated Bids as specified in Section 39.7. In order to be eligible for Bid Cost Recovery, Non-Dynamic Resource-Specific System Resources must provide to the CAISO Revenue-Quality Meter Data demonstrating that they have performed in accordance with their CAISO commitments.

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. ELS Resources committed through the ELC Process described in Section 31.7 of the CAISO Tariff are considered to have been committed in the IFM Commitment Period for the applicable Trading Day for the purposes of determining BCR settlement in this section 11.8.

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 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

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.

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, RUC, or RTM 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

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 Energy Bid Cost

For Pumped Storage Hydro Units and Participating Load only, the IFM Pump and Participating Load Energy Bid Cost for the applicable Settlement Interval shall be the Pumping and Participating Load Energy 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 Energy Bid Cost is negative. The Pump and Participating Load Energy Bid 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. The IFM Energy Bid Cost for a Participating Load for any Settlement Interval is set to zero for actual Energy consumed in excess of the Day-Ahead Schedule for Demand.

11.8.2.1.5 IFM Energy Bid Cost.

For any Settlement Interval, the IFM Energy Bid Cost for Bid Cost Recovery Eligible resources, except Participating Loads, 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. The IFM Energy Bid Cost for Bid Cost Recovery Eligible Resources, except Participating Loads, for any Settlement Interval is set to zero for any portion of the Day-Ahead Schedule that is not delivered from the otherwise Bid Cost Recovery Eligible Resource that has metered Generation below its Day-Ahead Schedule; any portion of the Day-Ahead Schedule that is actually delivered remains eligible for IFM Energy Bid Cost Recovery.

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.

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, RUC, or RTM 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. The RUC Availability 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 is operating below its RUC schedule, and also has a negative 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 Availability Bid Cost for Participating Loads for any Settlement Interval is set to zero if the Bid Cost Recovery Eligible Resource is operating below its RUC Schedule, and has a negative Uninstructed Imbalance Energy (UIE) magnitude in that Settlement Interval in excess of the greater of: (1) 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.

11.8.3.2 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. If the RUC Availability bid cost of a BCR-eligible resource is reduced to zero in a Settlement Interval because of uninstructed deviation as stated in Section 11.8.3.1.3, then the RUC Market Revenue for that resource for that Settlement Interval shall also be set to 0 since the resource is subject to RUC no pay as specified in Section 8.10.8.

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.

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:

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 Energy Bid Cost.

For Pumped Storage Hydro Units and Participating Load only, the Real-Time Market Pumping and Participating Load Energy Bid Cost for the applicable Settlement Interval shall be the Pumping and Participating Load Energy Bid Cost submitted to the CAISO divided by the number of Settlement Intervals in a Trading Hour. The Pumping and Participating Load Energy Bid Cost is negative since it represents the amount the entity is willing to pay to pump or serve Load. The Pumping and Participating Load Energy Bid 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. The Real-Time Market Energy Bid Cost for a Participating Load for any Settlement Interval is set to zero for any Energy consumed in excess of instructed Energy.

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 except Participating Loads 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, Rerate Energy, MSS Load following Energy, Ramping Energy Deviation and Regulating Energy, with the relevant Energy bid prices, if any, for each Dispatch Interval in the Settlement Interval. The Real-Time Market Energy Bid Cost for a Bid Cost Recovery Eligible Unit except Participating Loads for a Settlement Interval is set to zero for any undelivered Real-Time instructed Energy by the Bid Cost Recovery Eligible Resource. Any Uninstructed Energy in excess of instructed Energy is also not eligible for Bid Cost Recovery.

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, Rerate Energy, MSS Load Following Energy, Ramping Energy Deviation 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, Rerate Energy, MSS Load following Energy, Ramping Energy Deviation 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.

(i) In the first tier, the Hourly Net IFM Bid Cost Uplift is allocated to Scheduling Coordinators in proportion to their non-negative IFM Load Uplift Obligation, but with an IFM Bid Cost Uplift rate not exceeding the ratio of the Hourly Net IFM Bid Cost Uplift for the Trading Hour 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. The IFM Load Uplift Obligation for each Scheduling Coordinator is the difference between the total Demand scheduled in the Day-Ahead Schedule of that Scheduling Coordinator and the scheduled Generation from the Self-Schedules in the Day-Ahead Schedule of that Scheduling Coordinator, plus imports scheduled by that Scheduling Coordinator in its Day-Ahead Schedule, adjusted by any applicable Inter-SC Trades of IFM Load Uplift Obligations.

(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. As specified in 31.5.2.2, MSS Operators that have opted out of RUC participation are exempt from allocation or RUC BCR allocation. 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 Deviation CAISO Demand in that Trading Hour. The Scheduling Coordinator shall be charged at a rate which is the lower of 1) the Hourly Net RUC Bid Cost Uplift divided by the Net Negative Deviation CAISO Demand for all Scheduling Coordinators in that Trading Hour; or 2) the Hourly Net RUC Bid Cost Uplift divided by the RUC Capacity, for all Scheduling Coordinators 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 metered CAISO 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. The IFM co-optimizes Energy and Ancillary Services subject to resource, network and regional constraints, and awards Ancillary Services resources in economic merit order subject to those constraints. For each service, the economic merit order is determined as the sum of the Ancillary Service capacity Bid price of the resource and the foregone opportunity cost of Energy in the IFM for that resource. 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/hr). The ASMPs determined by the IFM optimization process at each resource location where an Ancillary Service Bid is accepted will be no lower than the sum of (i) the Ancillary Service capacity Bid price submitted for that resource, and (ii) the foregone opportunity cost of Energy in the IFM for that resource. The foregone opportunity cost of Energy is measured as the positive difference between the IFM LMP at the resource's Pricing Node and the resource's Energy Bid price (e.g., if the resource's Energy Bid price is higher than the LMP, the opportunity cost is \$0). If a resource has submitted an Ancillary Service Bid but no Energy Bid and is under an obligation to offer Energy in the DAM (e.g. a non-hydro RA resource), its Default Energy Bid will be used, and its opportunity cost calculated accordingly. If a resource has submitted an Ancillary Service Bid but no Energy Bid and is not under an obligation to offer Energy in the DAM, its Energy opportunity cost is \$0 (since it cannot be dispatched for Energy even if the LMP at its Location goes to the Bid cap). 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 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

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 Net Obligation for Regulation Down Reserve.

Each Scheduling Coordinator's hourly net 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 Net Obligation for Regulation Up.

Each Scheduling Coordinator's hourly net 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.

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 Net Obligation for Spinning Reserves.

Each Scheduling Coordinator's hourly net 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 NOROCAP), 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.

11.10.4.2 Hourly Net Obligation for Non-Spinning Reserves.

Each Scheduling Coordinator's hourly net obligation for Non-Spinning Reserves is determined as follows: the product of the Scheduling Coordinator's total Ancillary Services Obligation for Operating Reserve for the hour (and if negative, multiplied by NOROCAF) multiplied by the ratio of the CAISO's total Ancillary Services Obligation for Non-Spinning Reserves in the hour to the CAISO's total Operating Reserve obligations in the hour, reduced by the accepted Self-Provided Ancillary Services for Non-Spinning Reserves, plus or minus any Non-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, 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

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- 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 pursuant to Section 4.9.13.2 (regardless of gross or net settlement election) are exempt from Uninstructed Deviation Penalties in this Section 11.23. All MSS resources not designated as Load-following resources pursuant to Section 4.9.13.2 (regardless of gross or net settlement election) are subject to Uninstructed Deviation Penalties in this Section 11.23.
- 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) **[Not Used]**
- 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;

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 TRTC for Existing Contracts or TORs shall not be subject to Uninstructed Deviation Penalties. Valid changes to ETC Self-Schedules or TOR Self-Schedules submitted after the close of the HASP or the RTM 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

including monthly payments, any reimbursement for capital improvement, termination fees and any other payments to which the CAISO is liable under Reliability Must-Run Contracts.

12.5 Credit Obligations for CRR Holders and Candidate CRR Holders.

12.5.1 Credit Limits for CRR Auctions.

To establish available credit for participating in any CRR Auction, each Candidate CRR Holder must have an Approved Credit Rating or have provided security in a form consistent with Section 12 of this CAISO Tariff, which shall establish the amount of credit available to the Candidate CRR Holder. For a candidate CRR Holder that does not maintain an Approved Credit Rating, the amount of available credit for participating in a CRR Auction shall not exceed the difference between the value of security posted in accordance with this Section 12 of the CAISO Tariff and the Candidate CRR Holder's estimated aggregate liability.

12.5.2 Credit Requirements for CRR Obligations upon Allocation, Auction or Transfer.

The CAISO shall not release any CRR Obligations allocated, awarded in an auction, or proposed to be transferred to a Candidate CRR Holder, except upon receipt of security, in a form consistent with this Section 12 of the CAISO Tariff, equal to the value of the net projected obligation of the CRR for the entire term of the CRR, unless that Candidate CRR Holder has an Approved Credit Rating. The CAISO will determine the value of the net projected obligation of each CRR Obligation using appropriate methods, including proxy values or values based on experience, which shall be published in a Business Practice Manual. For negatively priced CRR Obligations awarded in an auction, the minimum value of the net projected obligation shall be set at the price determined in the auction. The CAISO may reassess its net projected obligation determinations at any time during the term of the CRR and shall require additional security if the determination results in an increase in a CRR Holder's aggregate estimated liability that is not covered by available security.

16.6.3 Treatment of Valid ETC Self-Schedules

The resulting Valid ETC Schedules shall have the following Settlement treatment:

- (1) The CAISO will apply the ETC Settlement treatment in Sections 11.2.1.5 and 11.5.7.1.
- (2) The CAISO shall base the Marginal Cost of Losses on LMP differentials at the Existing Contract source(s) and sink(s) identified in the valid ETC Self-Schedule.
- (3) The holders of Existing Rights will not be entitled to an allocation of revenues from the CAISO, including Access Charge revenue related to those Existing Rights.
- (4) Parties with Existing Rights shall continue to pay for Transmission Losses or Ancillary Services requirements in accordance with such Existing Contracts as they may be modified or changed in accordance with the terms of the Existing Contract. The Participating TOs shall continue to provide Transmission Losses and any other Ancillary Services to the holder of the rights under an Existing Contract as may be required by the Existing Contracts. The CAISO will charge Scheduling Coordinators submitting the ETC Self-Schedule for Transmission Losses and Ancillary Services in accordance with the CAISO Tariff and any shortfall or surplus between the CAISO charges and the Existing Rights shall be settled bilaterally between the Existing Contract parties or through the relevant TO Tariff. To enable holders of Existing Rights to determine whether the CAISO's calculations result in any associated shortfall or surplus and to enable the parties to the Existing Contracts to settle the differences bilaterally or through the relevant TO Tariff, the CAISO shall calculate and provide the Scheduling Coordinator's Settlements the amounts paid for the MCL for the amounts MWh submitted with a valid ETC Self-Schedule. Each Participating TO will be responsible for recovering any deficits or crediting any surpluses associated with differences in Transmission Losses and Transmission Loss Requirements and/or Ancillary Services requirements, through its bilateral arrangements or its Transmission Owner's Tariff.

16.6.4 Notification to Scheduling Coordinators of CAISO Determination

To the extent practicable, after performing validation of the ETC Self-Schedule, and prior to taking any action pursuant to Section 16.6.2, the CAISO will notify the Scheduling Coordinator indicating whether the ETC Self-Schedule is valid or invalid.

16.7 [Not Used]

16.8 [Not Used]

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17 Transmission Ownership Rights ("TOR").

Transmission Ownership Rights represent transmission capacity on facilities that are located within the CAISO Control Area that are either wholly or partially owned by an entity that is not a Participating TO. This Section 17 shall apply to the TORs of Non-Participating TOs. In any case in which the CAISO has entered into a bilateral agreement with a Non-Participating TO regarding its TORs, which agreement has been accepted by FERC, the provisions of the agreement shall prevail over any conflicting provisions of this Section 17. Where the provisions of this Section 17 do not conflict with the provisions of the FERC-accepted agreement, the provisions of this Section 17 shall apply to the subject TORs.

17.1 Transmission Rights and Transmission Curtailment Instructions

17.1.1 Responsibility to Create TRTC

To enable the CAISO to exercise its responsibilities as Control Area Operator in accordance with Applicable Reliability Criteria, each Non-Participating TO holding a TOR must work with the CAISO to develop the Transmission Rights and Transmission Curtailment Instructions ("TRTC") that allow the TOR to be accommodated in a way that: (i) maintains the existing scheduling and curtailment priorities of the TOR holder; (ii) is minimally burdensome to the CAISO (i.e., creates the least impact on the CAISO's preferred operational policies and procedures); (iii) to the extent possible, imposes no additional financial burden on the TOR holder (beyond that set forth in an applicable Existing Contract or any other contract pertaining to the TOR); (iv) is minimally burdensome to the TOR holder from an operational point of view; and (v) does not require the CAISO to interpret or underwrite the economics of any applicable Existing Contract. To enable the CAISO to exercise its responsibilities as Control Area Operator in accordance with Applicable Reliability Criteria, the parties holding joint ownership interests and Entitlements in facilities including TORs must attempt to jointly develop and agree on any TRTC that will be submitted to the CAISO. TOR holders and any other parties holding joint ownership interests and Entitlements in facilities including TORs shall also be responsible to submit to the CAISO any other necessary operating instructions based on their interpretations of the agreements applicable to those TORs and joint ownership interests and Entitlements needed by the CAISO to enable the CAISO to perform its duties.

17.1.2 TOR Scheduling Coordinator Responsibilities

To enable the CAISO to exercise its responsibilities as Control Area Operator in accordance with Applicable Reliability Criteria, each TOR holder must designate a Scheduling Coordinator as the responsible entity for submitting TOR Self-Schedules for the relevant TOR. The designated Scheduling Coordinator shall submit TOR Self-Schedules consistent with the terms and conditions specified in the TRTC, which shall be validated as specified in Section 17.3.

17.1.3 Submission of TRTC.

For each TOR, the Non-Participating TO holding the TOR shall be obligated to submit TRTC to the CAISO electronically, unless the Non-Participating TO specifies to the CAISO otherwise. The Non-Participating TO shall notify the CAISO in writing the identity of the responsible party for submission of the TRTC, subject to the terms of any applicable Existing Contract that may specify the responsible party for submission of the TRTC and the term of such agreement between the parties to the Existing Contract. The Non-Participating TO shall undertake all obligations with respect to the submission of the TRTC to the CAISO and any subsequent obligations that follow with respect to the creation, management and updates to the TRTC. The CAISO is responsible for implementing only one TRTC for each TOR and for implementing only those TRTC that have been received and accepted by the CAISO. The Non-Participating TO shall submit the TRTC to the CAISO associated with its TORs thirty (30) days prior to the date on which the scheduling or curtailment of the use of the TORs is to change or commence.

17.1.4 TRTC Content.

TRTC will include the following information at a minimum and such other information as the CAISO may reasonably require the Participating TO to provide to enable the CAISO to carry out its functions under the CAISO Tariff, Operating Procedures and Business Practice Manuals:

- (1) A unique contract reference number for each source and sink combination applicable to the TOR (TOR reference number or CRN that will be assigned by the CAISO and communicated to the Non-Participating TO that references a single TOR or a set of interdependent TORs for each source and sink combination);

- (2) Whether the instruction can be exercised independent of the CAISO's day-to-day involvement ("Yes/No");
- (3) Name of an operational single point of contact for instructions and a 24-hour a day telephone number for the Non-Participating TO contact for TOR issues or the agreed upon party;
- (4) Name(s) and number(s) of TOR(s) that are represented by the unique CRN;
- (5) Transmission path name(s) and location(s) (described in terms of the Point(s) of Receipt and Point(s) of Delivery);
- (6) Names of the party(ies) holding the TOR(s);
- (7) Scheduling Coordinator Business Associate Identification ("BAID") (the BAID of the Scheduling Coordinator who will submit TOR Self-Schedules which make use of the TOR(s));
- (8) Amount of ownership rights in MW, by the holder of the TORs;
- (9) For TOR Self-Schedules submitted in the DAM: the time of the day preceding the Trading Day at which the Scheduling Coordinator submits TOR Self-Schedules to the CAISO referencing the TOR(s) identified in the TRTC;
- (10) For TOR Self-Schedules submitted in the HASP, for the HASP and RTM, the number of minutes prior to the start of the Operating Hour at which the Scheduling Coordinator may submit TOR Self-Schedule adjustments to the CAISO regarding the TOR(s) identified in the TRTC;
- (11) Term of ownership interest in the TOR(s);
- (12) Any special procedures that would require the CAISO to implement curtailments in any manner different than pro rata reduction of the transfer capability of the transmission line. Any such instructions submitted to the CAISO must be clear, unambiguous, and not

require the CAISO to make any judgments or interpretations as to the meaning intent, results, or purpose of the curtailment procedures or of any applicable Existing Contract, otherwise, they will not be accepted by the CAISO.

17.1.5 Changes and Updates to TRTC.

Updates or changes to the TRTC must be submitted to the CAISO through a revised set of TRTC by the Non-Participating TO, on an as needed or as required basis. The CAISO will implement the updated or changed TRTC as soon as practicable but no later than seven (7) days after receiving clear and unambiguous details of the updated or changed instructions under normal conditions. If the CAISO finds the TRTC to be inconsistent with the CAISO Tariff, the CAISO will notify the Non-Participating TO within forty-eight (48) hours after receipt of the updated or changed TRTC indicating the nature of the problem and allowing the Non-Participating TO to resubmit the TRTC as if they were new, updated or changed TRTC. If the CAISO finds the updated or changed TRTC to be acceptable, the CAISO will time-stamp the updated TRTC as received, confirm such receipt to the Non-Participating TO, and indicate the time at which the updated instructions take effect if prior to the seven (7) day deadline referred to above. In the event of a System Emergency, the CAISO will implement such submitted changes to the TRTC as soon as practical.

17.1.6 CAISO Role in Accepting TRTC.

The parties holding joint ownership interests and Entitlements in a facility including a TOR must, in the first instance, attempt jointly to agree on any TRTC that will be submitted to the CAISO. In the event that the parties holding joint ownership interests and Entitlements in a facility including a TOR cannot agree upon the TRTC, the dispute resolution provisions of any applicable Existing Contract shall be used to resolve the dispute; provided that, until the dispute is resolved, and unless the applicable Existing Contract specifies otherwise, the CAISO shall implement the Participating TO's TRTC, if one of the parties holding a joint ownership interest or an Entitlement in the facility is a Participating TO. If no party holding a joint ownership interest or Entitlement in the facility is a Participating TO and the parties cannot agree to the TRTC to be submitted by the parties, until the dispute is resolved, the CAISO

shall implement the TRTC of the Non-Participating TO with the greatest ownership interest in the TOR.
The CAISO shall not be responsible for resolution of any disputes that arise over the accuracy of the TRTC consistent with its obligations in Section 17.1.4.

17.1.7 Implementation of TRTC.

The CAISO shall determine, based on the information provided by the Non-Participating TOs under TRTC, the transmission capacities that must be reserved for TORs at Scheduling Points.

The CAISO shall coordinate the scheduling of TORs with the scheduling of CAISO transmission service, using the CAISO's Bid submission rules described in Section 30. In doing so, the CAISO shall create an automated day-to-day verification process based on parameters provided by the Non-Participating TO for the TOR to serve as the basis for TOR Self-Schedule validation. The Non-Participating TO will be responsible for: (1) the accuracy of the data files against which the CAISO will validate the TOR Self-Schedule; and (2) providing the data file to the CAISO.

The TOR holders shall remain liable for their performance under any applicable Existing Contracts or other agreements pertaining to their TORs. The CAISO shall be liable in accordance with the provisions of this CAISO Tariff for any damage or injury caused by its non-compliance with the TRTC submitted to it pursuant to this Section 17.1.

Unless specified otherwise, in the event that the dispute resolution mechanisms prescribed in an Existing Contract applicable to a TOR, including all recourses legally available under the contract, cannot, in the first instance, result in a resolution of such a dispute, the CAISO ADR Procedures will be used to resolve any disputes between the CAISO and the Non-Participating TO regarding any aspects of the implementation of Section 17, including the reasonableness of a Non-Participating TO's TRTC or any other decision rules which the Non-Participating TO may submit to the CAISO as part of the TRTC. The holders of TORs shall have standing to participate in the CAISO ADR Procedures.

17.2 Treatment of TORs.

The CAISO will accommodate TORs, so that the holders of TORs will receive the same priorities (in

scheduling, curtailment, assignment and other aspects of transmission system usage) to which they are entitled under any applicable Existing Contracts or other agreements pertaining to the operation of their TORs.

In addition, scheduling deadlines and operational procedures associated with TORs will be honored by the CAISO, provided such information is explicitly included in the TRTC. The CAISO will accommodate and honor TORs as follows:

(1) The CAISO will reserve transmission capacity equal to the TOR transmission capacity and make a corresponding adjustment in its determination of ATC. The CAISO will not limit parallel flow from flowing on TOR transmission capacity consistent with the redispatch provisions of Section 17.2(3), just as the CAISO does not limit TOR Self-Schedules from flowing on non-TOR transmission. There shall be no compensation for parallel flow for either the CAISO or the TOR holder.

(2) In the HASP, the CAISO will give valid TOR Self-Schedules priority over other non-TOR Day-Ahead Schedules and HASP Bids. In the event of a reduction in capacity on the transmission path associated with the TOR, the CAISO will honor the TOR priority in accordance with this Section 17.

(3) The CAISO will allow the holder of a TOR to make changes to the scheduled amounts of supply after the submission of HASP TOR Self-Schedules in accordance with the TRTC established for such changes. The CAISO will, as necessary, redispatch non-TOR resources to accommodate valid TOR Self-Schedule changes in Real-Time.

17.2.1 System Emergency Exceptions.

The CAISO will honor the terms of TORs, provided that in a System Emergency and circumstances in which the CAISO considers that a System Emergency is imminent or threatened, to enable the CAISO to exercise its responsibilities as Control Area Operator in accordance with Applicable Reliability Criteria holders of TORs must follow CAISO operating orders even if those operating orders directly conflict with the terms of applicable Existing Contracts or any other contracts pertaining to the TORs. For this purpose CAISO operating orders to shed Load shall not be considered as an impairment to public health or safety. This section does not prohibit a Scheduling Coordinator from modifying its Bid or re-purchasing Energy in the HASP or RTM.

17.3 Valid TOR Self-Schedules.

The CAISO will accept a valid TOR Self-Schedule from a Scheduling Coordinator. That Scheduling Coordinator shall be either the holder of the TOR or its designee. TOR Self-Schedules submitted by Scheduling Coordinators to the CAISO must be submitted in accordance with this CAISO Tariff.

17.3.1 Validation of TOR Self-Schedules.

A TOR Self-Schedule is a valid TOR Self-Schedule when the CAISO has determined that the TOR Self-Schedule, submitted to the CAISO pursuant to the requirements for Bids in Section 30, properly reflects TORs consistent with the TRTC, is labeled with a unique TOR identifier, and includes balanced sources and sinks, within the TOR capacity limits.

17.3.2 Treatment of Invalid TOR Self-Schedules.

17.3.2.1 Inconsistent with the TRTC.

Except for the reasons listed below in 17.3.2, if the CAISO finds that the TOR Self-Schedule is not consistent with the TRTC, the CAISO shall find that the TOR Self-Schedule is not valid. If the CAISO finds the TOR Self-Schedule to be invalid, the CAISO shall notify the Scheduling Coordinator and convert the TOR Self-Schedule to an ordinary Self-Schedule and treat the TOR Self-Schedule as an ordinary Self-Schedule as such for terms of scheduling priority and settlements.

17.3.2.2 Unbalanced TOR Self-Schedules.

If the TOR Self-Schedule is not balanced, the TOR Self-Schedule will not be a valid TOR Self-Schedule and the CAISO will: (i) remove any scheduling priority for the entire TOR Self-Schedule; (ii) apply the TOR settlement treatment pursuant to Sections 11.2.1.5 and 11.5.7.1 to the valid balanced portions only; and (iii) assess any charges and make any payments consistent with the treatment of ordinary Self-Schedules for the unbalanced portions.

17.3.2.3 Exceeds Capacity Limits for TORs as Reflected in TRTC.

If the TOR Self-Schedule exceeds the capacity limits of the TOR as reflected in TRTC, the TOR Self-Schedule will not be a valid TOR-Self-Schedule and the CAISO will: (i) remove any scheduling priority for

the entire TOR Self-Schedule; (ii) apply the TOR settlement treatment pursuant to Sections 11.2.1.5 and 11.5.7.1 to the valid balanced portions within the capacity limits of the TOR as reflected in the TRTC; and (iii) assess any charges and make any payments consistent with the treatment of ordinary Self-Schedules for the portions in excess of the capacity limits of the TOR as reflected in the TRTC.

17.3.3 Treatment of Valid TOR Self-Schedules

The resulting valid TOR Self-Schedules shall have the following Settlement treatment:

- (1) The CAISO will apply the TOR Settlement treatment in Sections 11.2.1.5 and 11.5.7.1.
- (2) The CAISO shall base the Marginal Cost of Losses on LMP differentials at the source(s) and sink(s) identified in the valid TOR Self-Schedule.
- (3) The CAISO will assess only charges applicable to Ancillary Services, Imbalance Energy, Transmission Losses, and Grid Management Charges for the use of a TOR and will not assess charges for neutrality, UFE, transmission Access Charges, Minimum Load Costs, or other charges that might otherwise be applicable to the Demand or exports served solely over the TOR.
- (4) The holders of TORs will not be entitled to an allocation of revenues from the CAISO, including Access Charge revenues.
- (5) Parties with TORs shall continue to pay for Transmission Losses or Ancillary Services requirements in accordance with any Existing Contracts applicable to those TORs as they may be modified or changed in accordance with the terms of the Existing Contract. Any affected Participating TOs shall continue to provide Transmission Losses and any other Ancillary Services to the holder of a TOR subject to an Existing Contract as may be required by the Existing Contract. As described in Section 17.3.3(3) above, the CAISO will charge Scheduling Coordinators submitting the TOR Self-Schedule the charges applicable to Transmission Losses, Ancillary Services, Imbalance Energy, and Grid Management Charges in accordance with the CAISO Tariff (e.g., the Transmission Losses Charge based on the Marginal Cost of Losses), and any shortfall or surplus between the CAISO charges and the provisions of any applicable Existing Contract shall be settled bilaterally between the Existing Contract parties or through the relevant TO Tariff. To enable holders of TORs to determine whether the CAISO's

calculations result in any associated shortfall or surplus and to enable the parties to the Existing Contracts to settle the differences bilaterally or through the relevant TO Tariff, the CAISO shall calculate and provide the Scheduling Coordinator's Settlements the amounts paid for the MCL for the amounts MWh submitted with a valid TOR Self-Schedule. Each Participating TO will be responsible for recovering any deficits or crediting any surpluses associated with differences in Transmission Losses and Transmission Loss Requirements and/or Ancillary Services requirements, through its bilateral arrangements or its Transmission Owner Tariff.

17.3.4 Notification to Scheduling Coordinators of CAISO Determination.

To the extent practicable, after performing validation of the TOR Self-Schedule, and prior to taking any action pursuant to 17.6.2, the CAISO will notify the Scheduling Coordinator indicating whether the TOR Self-Schedule is valid or invalid.

17.4 The HASP.

17.4.1 Scheduling Deadlines.

Holders of TORs may submit TOR Self-Schedules for the use of those rights by the deadline for the Market Close for the HASP.

17.5 The CAISO's Real-Time Process.

Consistent with this Section 17, the CAISO will honor those scheduling flexibilities that may be exercised by holders of TORs through their respective Scheduling Coordinators during the CAISO's Real-Time Market to the extent that such flexibilities do not interfere with or jeopardize the safe and reliable operation of the CAISO Controlled Grid or Control Area operations.

17.6 Inter-Control Area Changes to Bids that Rely on TORs.

Changes to TOR Self-Schedules that occur during the CAISO's Real-Time Market that involve changes to CAISO Control Area imports or exports with other Control Areas (that is, inter-Control Area changes to TOR Self-Schedules) will be allowed and will be recorded by the CAISO based upon notification received from the Scheduling Coordinator representing the holder of the TOR. The Scheduling Coordinator

representing the holder of the TOR must notify the CAISO of any such changes to external import/export in submitted TOR Self-Schedules. The Scheduling Coordinator representing the holder of the TOR must notify the CAISO of Real-Time Market changes to external import/export schedules in submitted TOR Self-Schedules, by telephone. The timing and content of any such notification must be consistent with the TRTC previously submitted to the CAISO by the Non-Participating TO. The CAISO will manually adjust or update the HASP Schedule for the Scheduling Coordinator to conform with the other Control Area's net TOR Self-Schedule in Real-Time, and the notifying Scheduling Coordinator will be responsible for and manage any resulting Energy imbalance. These Imbalance Energy deviations will be priced and charged to the Scheduling Coordinator representing the holder of the TOR in accordance with the Real-Time LMP.

17.7 Intra-Control Area Changes to Schedules that Rely on TORs.

Changes to TOR Self-Schedules that occur during the CAISO's Real-Time processes that do not involve changes to CAISO Control Area imports or exports with other Control Areas (that is, intra-Control Area changes to Schedules) will be allowed and will give rise to Imbalance Energy deviations. These Imbalance Energy deviations will be priced and charged to the Scheduling Coordinator representing the holder of the TOR in accordance with the Real-Time LMP.

17.8 Continuation of Rights and Obligations of Non-Participating TOs Regarding TORs and Under Existing Contracts Applicable to TORs.

The transmission service rights and obligations of Non-Participating TOs under Existing Contracts applicable to their TORs, including all terms, conditions and rates of the Existing Contracts, as they may change from time to time under the terms of the Existing Contracts, will continue to be honored by the parties to those contracts, for the duration of those contracts.

17.8.1 Participating TO Obligation.

If a Participating TO is a party to an Existing Contract with provisions applicable to a TOR of a Non-Participating TO, the Participating TO shall attempt to negotiate changes to the Existing Contract to align

the contract's scheduling and operating provisions with the CAISO's scheduling and operational procedures, rules and protocols, to align operations under the contract with CAISO operations, and to minimize the contract parties' costs of administering the contract while preserving their financial rights and obligations.

17.8.2 Right to Use and Ownership of TORs.

If a Non-Participating TO has an Existing Contract with a Participating TO under which the Non-Participating TO's TORs, or a portion thereof, are subject to use by the Participating TO, the Non-Participating TO's rights to the use and ownership of its TORs shall remain unchanged, regardless of the Participating TO's act of turning over the Participating TO's Entitlement to use the Non-Participating TO's TORs to the extent possible to the Operational Control of the CAISO.

The CAISO will accept valid TOR Self-Schedules from holders of TORs that are Scheduling Coordinators or that are represented by a Scheduling Coordinator. TOR Self-Schedules submitted by Scheduling Coordinators to the CAISO must be submitted in accordance with Section 17 and Section 30. The CAISO may refuse to accept TOR Self-Schedules that do not meet the requirements of the principles, protocols and rules referred to in this Section 17.

17.8.3 Dispute Resolution for Existing Contracts Applicable to TORs.

The CAISO will, if requested, advise parties to Existing Contracts applicable to TORs regarding the operational aspects of any Existing Contract renegotiations that they undertake.

If the parties to an Existing Contract applicable to a TOR are unable to reach agreement on the changes needed to meet the requirements of this CAISO Tariff, any disputes related thereto shall be addressed using the dispute resolution provisions of the Existing Contract, including any remedies as are provided by law. The rights of the parties to seek changes or to challenge such changes, under the FPA or as otherwise provided by law, are preserved consistent with the terms of the Existing Contract. Unless and until the necessary changes to the Existing Contract are made, all terms and conditions of the Existing Contracts will continue to be honored by the parties to the Existing Contracts.

17.9 Conversion of Participating TOs' TORs and Rights and Obligations Under Existing Contracts Applicable to TORs.

Non-Participating TOs holding TORs and who choose to become Participating TOs must, at the time of becoming a Participating TO, turn over Operational Control of those TORs to the CAISO in accordance with Section 4.3.1 and convert any Existing Contract rights associated with those TORs to Converted Rights in accordance with Section 4.3.1.6.

17.10 TOR Operational Obligations.

To enable the CAISO to exercise its responsibilities as Control Area Operator in accordance with Applicable Reliability Criteria, each Non-Participating TO must operate its ownership interests in facilities in which it holds a TOR in accordance with Good Utility Practice and Applicable Reliability Criteria.

20 CONFIDENTIALITY.

20.1 CAISO.

The CAISO shall maintain the confidentiality of all of the documents, data and information provided to it by any Market Participant that are treated as confidential or commercially sensitive under Section 20.2; provided, however, that the CAISO need not keep confidential: (1) information that is explicitly subject to public data exchange pursuant to Section 6 of this CAISO Tariff; (2) information that the CAISO or the Market Participant providing the information is required to disclose pursuant to this CAISO Tariff, or applicable regulatory requirements (provided that the CAISO shall comply with any applicable limits on such disclosure); or (3) information that becomes available to the public on a non-confidential basis (other than as a result of the CAISO's breach of this CAISO Tariff).

20.2 Confidential Information.

The following information provided to the CAISO by Scheduling Coordinators shall be treated by the CAISO as confidential:

- (a) individual Bids;
- (b) CRR bids and other CRR Allocation nomination information;
- (c) transactions between Scheduling Coordinators, including Inter-SC Trades;
- (d) individual Generator Outage programs unless a Generator makes a change to its Generator Outage program which causes Congestion in the short term (i.e. one month or less), in which case, the CAISO may publish the identity of that Generator;
- (e) The following information related to the resource adequacy program in accordance with Section 40 of this CAISO Tariff:
 - (i) Annual and monthly Resource Adequacy Plans and Supply Plans;
 - (ii) Demand forecasts; and
 - (iii) Information on existing import contracts and any trades or sales of allocated import capacity.

20.3 Other Parties.

No Market Participant shall have the right hereunder to receive from the CAISO or to review any documents, data or other information of another Market Participant to the extent such documents, data or information is to be treated as in accordance with Section 20.2; provided, however, a Market Participant may receive and review any composite documents, data, and other information that may be developed based upon such confidential documents, data, or information, if the composite document does not

(d) Notwithstanding the provisions of Section 20.2(e), information submitted through Resource Adequacy Plans and Supply Plans in accordance with Section 40 of the CAISO Tariff may be provided to:

- (i) the Scheduling Coordinator(s) and/or Market Participant(s) involved in a dispute or discrepancy pursuant as to whether a resource is properly identified in a Resource Adequacy Plan or a Supply Plan only to the limited extent necessary to identify the disputed transaction and the relevant counterparty or counterparties.
- (ii) the regulatory entity, whether the CPUC, other Local Regulatory Authority or federal agency, with jurisdiction over a Load Serving Entity involved in a dispute or discrepancy as to whether a resource is properly identified in a Resource Adequacy Plan or the Supply Plan, or otherwise identified by the CAISO as exhibiting a potential deficiency in demonstrating compliance with resource adequacy rules adopted by the CPUC, other Local Regulatory Authority, of federal agency, as applicable. The information provided shall be limited to the particular dispute, discrepancy, or deficiency.

Nothing in this Section 20 shall limit the ability of the CAISO to aggregate data for public release about the adequacy of supply.

20.5 Confidentiality.

The CAISO shall implement and maintain a system of communications with Scheduling Coordinators that includes the strict use of passwords for access to data to ensure compliance with Section 20. Access within the CAISO to such data on CAISO's communications systems, including databases and backup files, shall be strictly limited to authorized CAISO personnel through the use of passwords and other appropriate means.

system will be as determined through the regional reliability council process of the Western Electricity Coordinating Council or its successor. If the parties agree to a compensation package, the CAISO will provide notice of agreement on the CAISO Website. The CAISO will file a proposed compensation package with the Commission.

24.7.4 Once a New Participating TO has executed the Transmission Control Agreement and it has become effective, the cost for New High Voltage Facilities for all Participating TOs shall be included in the CAISO Grid-wide component of the High Voltage Access Charge in accordance with Schedule 3 of Appendix F, unless and with respect to Western Path 15 only, cost recovery is provided in Section 24.7.3. The Participating TO who is supporting the cost of the New High Voltage Facility shall include such costs in its High Voltage Transmission Revenue Requirement, regardless of which TAC Area the facility is geographically located.

24.8 Ownership of and Charges for Expansion Facilities.

24.8.1 All transmission additions and upgrades constructed in accordance with this Section 24 shall form part of the CAISO Controlled Grid and shall be operated and maintained by a Participating TO in accordance with the Transmission Control Agreement.

24.8.2 Each Participating TO that owns or operates transmission additions and upgrades constructed in accordance with this Section 24 shall provide access to them and charge for their use in accordance with this CAISO Tariff and its TO Tariff.

24.9 Expansion by "Local Furnishing" Participating TOs.

Notwithstanding any other provision of this CAISO Tariff, a Local Furnishing Participating TO shall not be obligated to construct or expand facilities, (including interconnection facilities as described in Section 8 of the TO Tariff) unless the CAISO or Project Sponsor has tendered an application under FPA Section 211 that requests FERC to issue an order directing the Local Furnishing Participating TO to construct such facilities pursuant to Section 24 of the CAISO Tariff. The Local Furnishing Participating TO shall, within 10 days of receiving a copy of the Section 211 application, waive its right to a request for service under FPA Section 213(a) and to the issuance of a proposed order under FPA Section 212(c). Upon receipt of

27.1.1.3 Marginal Cost of Congestion.

The Marginal Cost of Congestion at a PNode reflects a linear combination of the shadow prices of all binding constraints in the network, each multiplied by the corresponding Power Transfer Distribution Factor (PTDF). The Marginal Cost of Congestion may be positive or negative depending on whether a power injection (*i.e.*, incremental Load increase) at that Location marginally increases or decreases Congestion.

27.2 Load Aggregation Points (LAP).

The CAISO shall create Load Aggregation Points and shall maintain Default LAPs at which all Demand shall Bid and be settled, except as provided in Section 27.2.1 and Section 30.5.3.2.

27.2.1 Metered Subsystems.

The CAISO shall define specific MSS-LAPs for each MSS. The MSS LAP shall be made up the PNodes within the MSS that have Load served off of those Nodes. The MSS-LAPs have unique Load Distribution Factors that reflect the distribution of the MSS Demand to the network nodes within the MSS. These MSS LAPs are separate from the Default LAPs, and the load distribution factors of the Default LAP do not reflect any MSS Load.

27.2.2 Determination of LAP Prices.

27.2.2.1 IFM LAP Prices.

The IFM LAP Price for a given Trading Hour is the weighted average of the individual IFM LMPs at the PNodes within the LAP, with the weights equal to the nodal Demand associated with that LAP that is scheduled by the IFM. The weights used in calculating the Default LAP prices will equal the total Demand scheduled by the IFM in each Default LAP except for the Demand specified in Sections 27.2.1 and 30.5.3.2.

27.2.2.2 Real-Time Market LAP Prices.

The Hourly Real-Time LAP Price is computed as described in Section 11.5.2.2. The weights used for calculating the Hourly Real-Time LAP Price at the time the RTM runs will not exclude the Demand specified in Sections 27.2.1 and 30.5.3.2. The weights used for calculating Hourly Real-Time LAP Price used for Settlements will be calculated based on meter data and will appropriately exclude the Demand

RTUC. In the Day-Ahead MPM-RRD, IFM and RUC processes the SCUC optimizes over the 24 hourly intervals of the next Trading Day. In the RTUC, which runs every 15 minutes, the SCUC optimizes over from four to seven 15-minute intervals comprising a portion of the current or imminent Trading Hour and the entire subsequent Trading Hour. In the HASP, which is a special run of the RTUC that runs once per hour just before the top of the hour, and its associated MPM-RRD process, the SCUC optimizes over seven 15-minute intervals comprising the last 45 minutes of the imminent Trading Hour and the entire subsequent Trading Hour. Following the HASP run of the RTUC, each of the next three runs of the RTUC successively drops one 15-minute interval from the front of the optimization Time Horizon. In the STUC the SCUC optimizes over seventeen fifteen-minute intervals comprising the last 15 minutes of the imminent Trading Hour and the entire next four Trading Hours. The CAISO will also utilize the SCUC algorithm on a two-day-ahead basis to commit Extremely Long Start Resources, for which commitment in the DAM does not provide sufficient time to start-up and be available to supply Energy during the next Trading Day as provided in Section 27.4.3.

27.4.1.1 Timing of Unit Commitment Instructions

For the Time Horizon of any given CAISO Markets Process, the associated SCUC optimization will typically commit resources having different start-up times, not all of which need to be started up immediately upon completion of that CAISO Markets Process. The CAISO may defer issuing a start-up instruction to a resource that can be started at a later time and still be available to supply Energy at the time the CAISO Markets Process indicated it would be needed. The CAISO shall re-evaluate the need to commit such resources in a subsequent CAISO Markets Process based on the most recent forecasts and other information about system conditions.

27.4.2 Security Constrained Economic Dispatch.

SCED is the optimization engine used to run the RTD to determine the optimal five-minute Dispatch Instructions throughout the Trading Hour consistent with resource and transmission constraints within the CAISO Control Area. The SCED runs every five minutes and utilizes a Time Horizon comprised of up to 13 five-minute intervals, but produces Dispatch Instructions only for the first five-minute interval of that time horizon. The SCED produces LMPs at each PNode that are used for Settlements as described in

Section 11.5.

27.5 Full Network Model.

27.5.1 Description of FNM for CAISO Markets.

The FNM is a representation of the CAISO Control Area that enables the CAISO to conduct power flow analyses to identify transmission constraints for the optimization of the CAISO Markets. External Control Areas are not modeled, except for transmission facilities for which Participating TOs have converted their scheduling rights. Resources are modeled at the appropriate network nodes. For the CAISO Markets Processes, the FNM incorporates Transmission Losses and models and enforces all network Constraints, which are reflected in the Day-Ahead Schedules, AS and RUC Awards, HASP Intertie Schedules, Dispatch Instructions and the LMPs resulting from each CAISO market process. For the HASP, STUC, RTUC and the RTD processes, the Real-Time power flow parameters developed from the State Estimator are applied to the FNM. In the FNM the Scheduling Points on the boundaries of the CAISO Controlled Grid and CAISO Control Area are modeled radially, except as described in Section 27.5.3 regarding embedded and adjacent Control Areas.

27.5.2 Metered Subsystems.

The FNM includes a full model of MSS transmission networks used for power flow calculations and congestion management in the CAISO Markets Processes. Network constraints (i.e. circuit ratings, thermal ratings, etc.) within the MSS, or at the its boundaries, shall be monitored but not enforced in the CAISO's FNM. If overloads are observed in the forward markets are internal to the MSS or at the MSS boundaries and are attributable to MSS operations, the CAISO shall communicate such events to the Scheduling Coordinator for the MSS and coordinate any manual re-dispatch required in Real-Time. If, independent of the CAISO, the Scheduling Coordinator for the MSS is unable to resolve Congestion internal to the MSS or at the MSS boundaries in Real-Time, the CAISO will use Exceptional Dispatch Instructions on Resources that have been Bid into the HASP and RTM to resolve the Congestion. The costs of such Exceptional Dispatch will be allocated to the responsible MSS Operator. Consistent with Section 4.9, the CAISO and MSS Operator shall develop specific procedures for each MSS to determine how network constraints will be handled.

27.5.3 Embedded Control Areas and Adjacent Control Areas.

To the extent sufficient data is available or adequate estimates can be made for the embedded Control Areas and adjacent Control Areas, the FNM will include a full model of embedded Control Areas and adjacent Control Areas used for power flow calculations and congestion management in the CAISO Markets Processes. The CAISO monitors but does not enforce the network constraints for embedded Control Areas or adjacent Control Areas in running the CAISO Markets Processes. The CAISO models the resistive component for transmission losses on embedded Control Areas and adjacent Control Areas but does not allow such losses to determine LMPs.

27.5.4 Accounting for Changes in Topology in FNM

The CAISO will incorporate into the FNM information received pursuant to Section 24 for transmission expansion and Section 25 for generation interconnection to account for changes to the CAISO Controlled Grid and other facilities located within the CAISO Control Area. This information will be incorporated into the network model data base in which the electrical network model is maintained for use by the State Estimator and which forms the basis for the FNM used by the CAISO Markets. The updated power system network model will be transferred at periodic model update cycle intervals established by the CAISO and incorporated into the FNM for use in the CAISO Markets. The Business Practice Manual for Managing Full Network Model will describe the information to be provided by Market Participants and the process by which the CAISO incorporates this information in the FNM.

27.6 State Estimator.

The State Estimator produces a power flow solution based upon the modeled representation of the electrical network and available Real-Time SCADA telemetry. When this solution is applied to the FNM, it provides a reference of system conditions for determining Dispatch Instructions. The State Estimator also provides a reference for Real-Time Load Distribution Factors used to distribute the Real-Time CAISO Forecast of CAISO Demand as well as provide a source of historical data for the LDF library. If the State Estimator is not capable of providing CAISO with a solution to clear the CAISO Markets, the CAISO shall

use the last best State-Estimator solution for determining Dispatch Instructions, provided the State Estimator is not unavailable for an extended period. If the State Estimator is not available for an extended period of time, the CAISO shall use the Load Distribution Factors from the Load Distribution Factors library as applicable to the prevailing system and time of use conditions to determine Dispatch Instructions.

27.7 Constrained Output Generators.

27.7.1 Start-Up and Minimum Load Costs and Energy Bids of Constrained Output

Generators. COGs will be eligible to set LMPs in the IFM based on their Energy Bids, as set out in this Section 27.7.1. Before each calendar year, the COG must elect one of the methods described in Section 27.7.1.1 for specifying its Start-Up Costs and Minimum Load Costs, and must elect one of the methods described in Sections 27.7.1.2 and 27.7.1.3 for determining its Energy Bids.

27.7.1.1 Start-Up and Minimum Load Options. A COG may elect to recover Start-Up and Minimum Load Costs through a cost-based option based on heat rate and fuel costs. Fuel costs are adjustable by the CAISO on a daily basis for gas fired resources, or are registered non-adjustable costs for other resources. Alternatively, a COG may elect to register in the Master File a six-month value of its own choosing that does not need to be cost-based and will not be adjusted for fuel cost changes.

27.7.1.2 Energy Bids Calculated from Start-Up and Minimum Load Costs. Under both options for specifying Start-Up and Minimum Load costs described in Section 27.7.1.1, a COG's Energy Bid will be determined by dividing its Minimum Load Cost by the MW quantity of its PMin. Based on the assumption that its PMin equals its PMax it will be eligible to set the LMP in the IFM and the RTD based on this Energy Bid.

27.7.1.3 Eligibility to Submit Market-Based Energy Bids by Waiving COG Status. For the purposes of specifying an Energy Bid that is not based on its Minimum Load Cost, a COG may elect to be modeled with different PMin and PMax values if the physical characteristics of the resource support such differences. Under this election the COG's PMin must be greater than or equal to its PMax minus the maximum of 3 MW or 5 percent of its PMax. Under this option the resource is capable of being Dispatched at an operating point other than zero or its PMax, the resource does not meet the definition of COG and the resource is treated in the CAISO Markets Processes like any other resource. Such a resource may submit a market Energy Bid for the MW difference between its PMin and PMax, and if scheduled or issued a CAISO Schedule or Dispatch Instruction in this range it would be subject to Local Market Power Mitigation, eligible to set the LMP and would receive any appropriate BCR like any other resource.

27.7.2 Constrained Output Generators in the IFM.

In the IFM, COGs that elect the option described in Section 27.7.1.2 are modeled as though they are not constrained and can operate flexibly between zero and their PMax, which equals their PMin. Such a COG is eligible to set IFM LMPs in any Settlement Period in which a portion of its output is needed as a

flexible resource to serve Demand. Such a COG is not eligible for recovery of Minimum Load Costs or BCR in the IFM due to the conversion of its Minimum Load Cost to an Energy Bid and its treatment by the IFM as a flexible resource. Such a COG is eligible for Start-Up cost recovery based on its Commitment Period as determined in the RUC, HASP, STUC or RTUC. COGs that elect the option described in

28.1.6.3 Physical Trade Post-Market Confirmation.

The CAISO conducts post-market confirmation of Physical Trades that pass pre-market validation in Section 28.1.6.2 after the Market Clearing and the market results are posted to ensure that the Generating Unit has a Schedule that can support all of the Physical Trades. During the post-market confirmation process, the MWh quantity of Physical Trades that passed the CAISO's pre-market validation process may be reduced if the Generating Unit supporting the Physical Trades has a Schedule that is below the quantity of Physical Trades at that Location. The MWh quantities of Physical Trades that are reduced during the post-market confirmation process are settled at the Existing Zone Generation Trading Hub price for the Existing Zone associated with the Generating Unit identified in the Inter-SC Trade of Energy. The portion of Physical Trades that remains intact will be settled at the LMP for the identified PNode for the Generating Unit.

28.1.6.4 Inter-SC Trades of Energy at Aggregated Pricing Nodes.

Inter-SC Trades of Energy at Aggregated Pricing Nodes that are also defined Trading Hubs or LAPs are subject to the general validation procedures in Section 28.1.5 but are not subject to the three-stage physical validation procedures for Physical Trades described in Section 28.1.6 above.

28.2 INTER-SC TRADES OF ANCILLARY SERVICES.

Scheduling Coordinators may submit Inter-SC Trades of Ancillary Services no later than the Market Close for the HASP. Inter-SC Trades of Ancillary Services enable a Scheduling Coordinator to transfer any fixed quantity of Ancillary Services (MW) to another Scheduling Coordinator. An Inter-SC Trade of AS shall consist of a quantity in MWs traded between two Scheduling Coordinators for a specific hour and for a specific Ancillary Service type. The Inter-SC Trade of AS is a financial trade. The CAISO shall charge and pay the two parties of the trade based on the quantity (MW) of the Ancillary Service Obligation traded times the user rate for the Ancillary Service trades for the Trading Hour. Scheduling Coordinators may submit Inter-SC Trades of Ancillary Services for Regulation Up, Regulation Down, Spinning and Non-Spinning Reserves.

28.2.1 Information Requirements.

An Inter-SC Trade of Ancillary Services shall contain the following information: (i) the Scheduling Coordinator identification for the Scheduling Coordinator from whom the MW amounts of Ancillary Service

30. BIDS, INCLUDING SELF-SCHEDULES, SUBMISSION FOR ALL CAISO MARKETS

30.1 Bids, Including Self-Schedules.

Scheduling Coordinators shall submit Bids to participate in the CAISO Markets, as well as any Self-Schedules, ETC Self-Schedules, TOR Self-Schedules, or Self-Provision of Ancillary Services. Bids submitted in the DAM apply to the 24 hours of the next Trading Day (23 or 25 hours on the Daylight Savings transition days) and are used in both the IFM and RUC. Scheduling Coordinators may submit Bids for the DAM as early as 7 days ahead of the targeted Trading Day. Bids submitted in the HASP apply to a single Trading Hour and are used in the HASP and the RTM. Bidding rules for each type of resource are contained in this Section 30 and additional specifications regarding bidding practices are contained in the Business Practice Manuals posted on the CAISO Website. Bids will consist of various components described in this Section 30 through which the Scheduling Coordinator provides information regarding the parameters and conditions pursuant to which the Bid may be optimized by the CAISO Markets.

30.2 Bid Types.

There are three types of Bids: Energy Bids, Ancillary Services Bids, and RUC Availability Bids. Each Bid type can be submitted as either an Economic Bid or a Self-Schedule (except for RUC Availability Bids, which cannot be self-scheduled). Economic Bids specify prices for MW amounts of capacity or MWh amounts of Energy. Self-Schedules do not have any prices associated for MW or MWh. Energy Bids, including both Economic Bids and Self-Schedules, may be either Supply Bids or Demand Bids. Ancillary Services Bids and RUC Availability Bids are Supply Bids only. Ancillary Services may be self-provided by providing a Submission to Self-Provide an Ancillary Service and having that submission accepted by the CAISO. Rules for submitting the three types of Bids vary by the type of resource to which the Bid applies as described in Section 30.5 and as further required in each CAISO Markets process as specified in Sections 31, 33, and 34.

30.3 [NOT USED]

30.4 Election for Start-Up and Minimum Load Costs.

Generating Units, Non-Dynamic and Dynamic System Resources may elect on a semi-annual basis either of the two options provided below for specifying their Start-Up and Minimum Load Costs to be used in the CAISO Markets Processes. Unless the Scheduling Coordinator has submitted Bid-based Start-Up and Minimum Load Costs, the CAISO will assume the cost-based option as the default option.

(1) Cost-based. This option uses fuel-cost adjusted formulas for Start-Up and Minimum Load Costs based on the resource's actual performance parameters. The Start-Up and Minimum Load Costs values contained in the resource's Bids as utilized in the CAISO Markets Processes will be these formulaic values adjusted for fuel-cost variation on a daily basis. Resources will not be able to Bid alternative values for Start-Up and Minimum Load Costs. In the event that a unit does not provide sufficient data for the CAISO to determine its costs, the CAISO will assume that the unit's Start-Up and Minimum Load Costs are zero.

(2) Bid-based. The resource may submit values of its choosing for Start-Up and Minimum Load Costs without regard to the resource's performance parameters or underlying costs. The SU and ML cost values contained in the resource's Bids as utilized in the CAISO Markets Processes will be these pre-specified values and will be fixed for six months. Resources will not be able to Bid alternative values for Start-Up and Minimum Load Costs.

30.5 Bidding Rules.

30.5.1 General Bidding Rules.

(a) All Energy and Ancillary Services Bids of each Scheduling Coordinator for the following Trading Day shall be submitted at or prior to 10:00 a.m. on the day preceding the Trading Day, but no sooner than 7 days prior to the Trading Day;

(b) Bid prices submitted by Scheduling Coordinator for Energy accepted and cleared in the IFM and scheduled in the Day-Ahead Schedule cannot be decreased. Bid prices for Energy submitted but not scheduled in the Day-Ahead Schedule may be increased or decreased in the HASP. Incremental Bid prices for Energy associated with Day-Ahead AS or RUC Awards in Bids submitted to the HASP may be revised. Scheduling Coordinators may revise ETC Self-Schedules for Supply only in the HASP to the extent such a change is consistent with TRTC Instructions provided to the CAISO by the PTO in accordance with Section 16 of this CAISO Tariff. Scheduling Coordinators may revise TOR Self-Schedules for Supply only in the HASP to the extent such a change is consistent with TRTC provided to

the CAISO by the Non-Participating TO in accordance with Section 17. Energy associated with awarded Ancillary Services capacity cannot be offered in the HASP or Real-Time Market;

(c) Scheduling Coordinators may submit Energy, AS and RUC Bids in the DAM that are different for each Trading Hour of the Trading Day;

(d) Bids for Energy or capacity that are submitted to one CAISO Market, but are not accepted in that market are no longer a binding commitment and Scheduling Coordinators may submit Bids in a subsequent CAISO Market at a different price; and

(e) The CAISO shall be entitled to take all reasonable measures to verify that Scheduling Coordinators meet the technical and financial criteria set forth in Section 4.5.1 hereof and the accuracy of information submitted to the CAISO pursuant to this Section 30.

30.5.2 Supply Bids.

30.5.2.1 Common Elements for Supply Bids.

In addition to the resource-specific Bid requirements of this Section, all Supply Bids must contain the following components: Scheduling Coordinator ID Code; Resource ID; Resource Location; PNode or Aggregated Pricing Node as applicable; Energy Bid Curve; Self-Schedule component; Ancillary Services Bid; RUC Availability Bid; the Market to which the Bid applies; Trading Day to which the Bid applies; Priority Type (if any). Supply Bids offered in the CAISO Markets must be monotonically increasing.

30.5.2.2 Supply Bids for Participating Generators.

In addition to the common elements listed in Section 30.5.2.1, Supply Bids for Participating Generators shall contain the following components: Start-Up Bid, Minimum Load Bid, Ramp Rate, minimum and maximum Operating limits; Distribution Curve; Must-Take/Must-Run Generation; Contingency Flag; and Contract Reference Number (if any). Combined-cycle Generation Units may only be registered under a single Resource ID.

30.5.2.3 Supply Bids for Participating Loads.

In addition to the common elements listed in Section 30.5.2.1, Scheduling Coordinators submitting Supply Bids for Participating Loads shall contain the following components: Pumping and Participating Load, Minimum Load Bid, Load Distribution Curve, Ramp Rate, Energy Limit, Demand Reduction Initiation, and Participating Load and Pump Shut-Down Costs for resources registered as Pumped Storage Hydro Units.

30.5.2.4 Supply Bids for System Resources.

In addition to the common elements listed in Section 30.5.2.1, Supply Bids for System Resources shall also contain: the relevant Ramp Rate; Start-Up Bid; and Minimum Load Bid. Start-Up Bids

and Minimum Load Bids for System Resources, except for Dynamic or Non-Dynamic System Resources must be zero. Dynamic or Non-Dynamic Resource-Specific System Resources may submit non-zero Start-Up and Minimum Loads Bids. Dynamic and Non-Dynamic Resource Specific System Resources must register resource specific information in the Master-File in a similar manner as Generating Units and are eligible to participate in the Day-Ahead Market on an equivalent basis as Generating Units and are not obligated to participate in RUC or the RTM if the resource did not receive a Day Ahead Schedule unless the resource is a Resource Adequacy Resource. If the Resource Specific System Resource is a Resource Adequacy Resource, the resource is obligated to make itself available to the CAISO market as prescribed by Section 40.6. Dynamic Resource-Specific System Resources are also eligible to participate in the HASP and RTM on an equivalent basis as Generating Units. Non-Dynamic Resource-Specific System Resources will be treated like other System Resources in the HASP and RTM. The quantity (in MWh) of Energy categorized as Interruptible Imports must also be included in the Bid. Bids submitted to the Day-Ahead Market for ELS Resources will be applicable for two days after they have been submitted and cannot be changed the day-after they have been submitted.

30.5.2.4.1 Intertie Block Bids.

Intertie Block Bids must contain the same energy Bid price for all hours of the period for which the Intertie Block Bid is submitted. Intertie Block Bids may only be submitted in the DAM.

30.5.2.5 Supply Bids for Metered Subsystems.

Consistent with the bidding rules specified in this Section 30.5, Scheduling Coordinators that represent MSS Operators may submit Bids for Energy and Ancillary Services, including Self-Schedules and Submissions to Self-Provide an Ancillary Service, to the DAM. All Bids to supply Energy by MSS Operators must identify each Generating Unit on an individual unit basis. The CAISO will not accept aggregated Generation Bids without complying with the requirements of Section 4.9.12 of the CAISO Tariff. All Scheduling Coordinators that represent MSS Operators must submit Demand Bids at the relevant MSS LAP. Scheduling Coordinators that represent MSS Operators must comply with Section 4.9 of the CAISO Tariff. Scheduling Coordinators that represent MSS Operators that have opted out of RUC participation pursuant to Section 31.5 must Self-Schedule one hundred (100) percent of the Demand Forecast for the MSS. For an MSS that elects Load following, the MSS Operator shall also self-schedule

or bid Supply to match the Demand Forecast. All Bids for MSSs must be identify each Generating Unit on an individual unit basis or a System Unit. For an MSS that elects Load following consistent with Section 4.9.9, the Scheduling Coordinator for the MSS Operator must include the following additional information with its Bids: the Generating Unit(s) that are Load following; the range of the Generating Unit(s) being reserved for Load following; whether the quantity of Load following capacity is either up or down; and, if there are multiple Generating Units in the MSS, the priority list or distribution factors among the Generating Units. The CAISO will not dispatch the resource within the range declared as Load-following capacity, leaving that capacity entirely available for the MSS to dispatch. The CAISO uses this information in the IFM runs and the RUC to simulate MSS Load following. The Scheduling Coordinator for the MSS Operator may change these characteristics through the Bid submission process in the HASP.

30.5.2.6 Ancillary Services Bids.

There are four distinct Ancillary Services: Regulation-Up, Regulation-Down, Spinning Reserve and Non-Spinning Reserve. Participating Generators are eligible to provide all Ancillary Services. Dynamic System Resources are eligible to provide Operating Reserves and Regulation. Non-Dynamic System Resources are eligible to provide Operating Reserves only. No System Resource, including Dynamic and Non-Dynamic Resource Specific System Resources, can be used for self-provision of Ancillary Services. All System Resources, including Dynamic and Non-Dynamic Resource Specific System Resources, will be charged the Shadow Price as prescribed in Section 11.10 of the CAISO Tariff. Participating Loads are eligible to provide Non-Spinning Reserve only. A Scheduling Coordinator may submit Ancillary Services Bids for Regulation-Up, Regulation-Down, Spinning, and Non-Spinning Reserve for the same capacity by providing a separate price in \$/MW per hour as desired for each Ancillary Service. The Bid for each Ancillary Services is a single Bid segment. Only resources certified by the CAISO as capable of providing Ancillary Services are eligible to provide Ancillary Services. In addition to the common elements listed in Section 30.5.2.1, all Ancillary Services Bid components of a Supply Bid must contain the following: (1) the type of Ancillary Service for which a Bid is being submitted; (2) an Energy Bid associated with capacity Bid before the close of the Real-Time Market (submitting an Energy Bid associated with a Ancillary Service Bid in the Day-Ahead Market is optional); (3) Ramp Rate (Operating Reserve Ramp Rate and regulating ramp rate, if applicable); (4) Distribution Curve for Physical Scheduling Plant or System Unit; and (5) maximum operating level (MOLmax) and minimum operating level (MOLmin). A Submission to Self Provide an Ancillary Service shall contain all of the requirements of a Bid for Ancillary Services with the exception of Ancillary Service Bid price information. In addition, Scheduling Coordinators must comply with the Ancillary Services requirements of Section 8.5 of the CAISO Tariff.

30.5.2.6.1 Regulation Up or Down Bid Information.

In the case of Regulation Up or Down, the Ancillary Services Bid must also contain: (a) the upward and downward range of generating capacity over which the resource is willing to provide Regulation within a range from a minimum of 10 minutes to a maximum of 30 minutes; and (b) the bid price of the capacity

reservation, stated separately for Regulation Up and Regulation Down (\$/MW). In the case of Regulation Up or Down from Dynamic System Resources, the Ancillary Services Bid must also contain: (a) the Scheduling Point (the name), (b) Interchange ID code of the selling entity, (c) external Control Area ID, (d) Schedule ID (NERC ID number), and (e) the Contract Reference Number, if applicable.

30.5.2.6.2 Spinning Reserve Capacity Bid Information.

In the case of Spinning Reserve capacity, the Ancillary Services Bid must also contain: (a) MW of additional capability synchronized to the system, immediately responsive to system frequency, and available within 10 minutes; (b) Bid price of capacity reservation, and (c) an indication whether the capacity reserved would be available to supply Imbalance Energy only in the event of the occurrence of an unplanned Outage, a Contingency or an imminent or actual System Emergency (Contingency Flag). In the case of Spinning Reserve capacity from System Resources, the Ancillary Services Bid must also contain: (a) Interchange ID code of the selling entity, (b) Schedule ID (NERC ID number, and (c) a Contract Reference Number, if applicable.

30.5.2.6.3 Non-Spinning Reserve Capacity.

In the case of Non-Spinning Reserve, the Ancillary Service Bid must also contain: (a) the MW capability available within 10 minutes; (b) the Bid price of the capacity reservation; (c) time of synchronization following notification (min); and (d) an indication whether the capacity reserved would be available to supply Imbalance Energy only in the event of the occurrence of an unplanned Outage, a Contingency or an imminent or actual System Emergency (Contingency Flag). In the case of Non-Spinning Reserve Capacity from System Resources, the Ancillary Services Bid must also contain: (a) Interchange ID code of the selling entity, (b) Schedule ID (NERC ID number); and (c) a Contract Reference Number, if applicable. In the case of Non-Spinning Reserve Capacity from Load within the CAISO Control Area, the Ancillary Service Bid must also contain: (a) a Load identification name and Location Code, (b) Demand reduction available within 10 minutes, (c) time to interruption following notification (min), and (d) maximum allowable curtailment duration (hr).

30.5.2.6.4 For Self-Provided Ancillary Services.

Scheduling Coordinators electing to self-provide Ancillary Services shall supply the information referred to in this Section 30.5 in relation to each Ancillary Service to be self-provided, excluding the capacity price information, but including the name of the trading Scheduling Coordinator in the case of Inter-Scheduling Coordinator Ancillary Service Trades. The portion of the single Energy Bid that corresponds to the high end of the resource's operating range, shall be allocated to any awarded or self-provided Ancillary Services in the following order from higher to lower capacity: (a) Regulation Up; (b) Spinning Reserve; and (c) Non-Spinning Reserve. For resources providing Regulation Up, the upper regulating limit shall be

used if it is lower than the highest operating limit. The remaining portion of the Energy Bid (i.e. that portion not associated with capacity committed to provide Ancillary Services) shall constitute a Bid to provide Energy.

30.5.2.7 RUC Availability Bids.

Scheduling Coordinators may submit RUC Availability Bids for specific Generating Units in the DAM. Capacity that does not have Bids for Supply of Energy in the IFM will not be eligible to participate in the RUC process. The RUC Availability Bid component is MW-quantity of non-RA Capacity in \$/MW per hour, and \$0/MW for RA Capacity.

30.5.3 Demand Bids.

Each Scheduling Coordinator representing Demand shall submit Bids indicating the hourly quantity of Energy in MWh that it intends to purchase in the IFM for each Trading Hour of the Trading Day. Scheduling Coordinators must submit Demand Bids, including Self Schedules, for CAISO Demand at Load Aggregation Points except as provided in Section 30.5.3.2. Scheduling Coordinators must submit a zero RUC Availability Bid for the portion of their qualified RA Capacity. If submitting Self-Schedules at Scheduling Points for export in the IFM, the Scheduling Coordinator shall indicate whether or not the export is served from Generation from Resource Adequacy Capacity, and if submitting Self-Schedules at Scheduling Points for export in HASP the Scheduling Coordinator shall indicate whether or not the export is served from Generation from Resource Adequacy Capacity or RUC Capacity.

30.5.3.1 Demand Bids Components.

Demand Bids must have the following components: Scheduling Coordinator ID code; a Demand Bid Curve that is a monotonically decreasing staircase function of no more than 10 segments defined by 11 ordered pairs of MW and \$/MWh; Location Code for the LAP or PNode, as applicable; and hourly scheduled MWh within the range of the Bid curve, including any zero values, for each Settlement Period of the Trading Day.

30.5.3.2 Exceptions to Requirement for Submission of Demand Bids and Settlement at the LAP.

The following are exceptions to the requirement that Demand Bids be submitted and settled at the LAP:

- (a) ETC or TOR Self-Schedules submitted consistent with the submitted TRTC Instructions;
- (b) Participating Load Bids for Supply and Demand may be submitted and settled at a PNode; and
- (c) Export Bids are submitted and settled at Scheduling Points, which do not constitute a LAP.

in this Section 30.7 again), cancel, or modify the Bid. Valid or Modified Bids that are not re-submitted or cancelled become Clean Bids after the Market Close of the DAM. Modified Bids will reflect the full capability of the resource as defined in the Master File.

30.7.3.4 Validation after Market Close.

To the extent that Scheduling Coordinators fail to enter a Bid for resource that is required to bid in the full range of available Capacity consistent with the Resource Adequacy provisions of Section 40, the CAISO will create a Bid for the Scheduling Coordinator, which is referred to as the Generated Bid. This does not apply to Load-following MSSs. The Generated Bid will be created only after the Market Close for the DAM and will be based entirely on data in the Master File. The Scheduling Coordinator may view Generated Bids, but may not modify such Bids. The CAISO will provide notice to the Scheduling Coordinator of the use of a Generated Bid prior to Market Clearing of the IFM.

30.7.4 HASP and RTM Validation.

The HASP and RTM Bids will follow the same validation process implemented in the DAM except that the CAISO will not validate the Bid before and again after the Master File Data update. HASP and RTM Bids are only validated based on the current Master File Data on the relevant Trading Day.

30.8 Validation of ETC Self-Schedules.

ETC Self-Schedules shall be validated pursuant to the procedures set forth in Section 16.6.

30.9 Validation of Ancillary Services Bids.

Throughout the validation process described in Section 30.7, the CAISO will verify that each Ancillary Services Bid conforms to the content, format and syntax specified for the relevant Ancillary Service. If the Ancillary Services Bid does not so conform, the CAISO will send a notification to the Scheduling Coordinator notifying the Scheduling Coordinator of the errors in the Bids as described in Section 30.7. When the Bids are submitted, a technical validation will be performed to verify that the bid quantity of Regulation, Spinning Reserve, or Non-Spinning Reserve does not exceed the available capacity for Regulation, or Operating Reserves on the Generating Units, System Units, Participating Loads and external imports/exports bid. The Scheduling Coordinator will be notified within a reasonable time of any validation errors. For each error detected, an error message will be generated by the CAISO in the

31 Day-Ahead Market.

The DAM consists of the following functions performed in sequence: the MPM-RRD, IFM, and RUC. Scheduling Coordinators may submit Bids for Energy, Ancillary Services and RUC Capacity for an applicable Trading Day. The CAISO shall issue Schedules for all Supply and Demand, including Participating Load, pursuant to their Bids as provided in this Section 31.

31.1 Bid Submission and Validation in the Day-Ahead Market.

Scheduling Coordinators submit a single Bid to be used in the DAM, which includes the MPM-RRD, the IFM and RUC. Scheduling Coordinators may submit Bids for the DAM as early as seven (7) days ahead of the targeted Trading Day and up to Market Close of the DAM for the target Trading Day. The CAISO will validate all Bids submitted to the DAM pursuant to the procedures set forth in Section 30.7.

Scheduling Coordinators must submit Bids for participation in the IFM for RA Capacity as required in Section 40. Bids for Ancillary Services that are not Submissions to Self-Provide an Ancillary Service in the DAM must also contain a Bid for Energy.

31.2 Market Power Mitigation and Reliability Requirement Determination (MPM-RRD).

After the Market Close of the DAM, and after the CAISO has validated the Bids pursuant to Section 30.7, the CAISO will perform the MPM-RRD procedures in a series of processing runs that occur prior to the IFM Market-Clearing run. The MPM process determines which Bids need to be mitigated in the IFM. The RRD process determines RMR requirements for RMR Units. The MPM-RRD process optimizes resources using the same optimization used in the IFM, but instead of using Demand Bids as in the IFM the MPM-RRD process optimizes resources to meet one hundred percent of the CAISO Demand Forecast and Export Bids to the extent the Export Bids are selected in the MPM-RRD process, and meet one hundred percent of Ancillary Services requirements based on Supply Bids submitted to the DAM. The pool of resources committed in the MPM-RRD process is then passed to the IFM to constitute the pool of resources available for commitment in the IFM. The CAISO performs the MPM-RRD for the DAM for the 24 hours of the next Trading Day.

31.2.1 The Reliability and Market Power Mitigation Runs.

The first run of the MPM-RRD procedures is the Competitive Constraint Run (CCR), in which only limits on transmission lines pre-designated as competitive are enforced. The only RMR units considered in the

CCR are Condition 1 RMR units that have provided market Bids for the DAM. The second run is the All Constraints Run (ACR), during which the all transmission constraints are enforced. All RMR units, Condition 1 and Condition 2, are considered in the ACR. The resources committed in the ACR form the pool of resources that is available for commitment in the IFM.

31.2.2 Bid Mitigation.

The CAISO shall compare the resource dispatch levels derived from CCR and ACR and will mitigate Bids as follows.

31.2.2.1 RMR Units.

For a Condition 1 Unit that is dispatched in the CCR, the Bid used in the ACR for the entire portion of the unit's Bid above the CCR dispatch level and below the Maximum Net Dependable Capacity specified in the RMR Contract will be set to the lower of the RMR Proxy Bid, or the DAM Bid, but not lower than the unit's highest Bid price that cleared the CCR. If a Condition 1 Unit is dispatched in the CCR and receives a greater dispatch in the ACR, the entire portion of the unit's Bid curve above the CCR dispatch level and below the Maximum Net Dependable Capacity specified in the RMR Contract, will be set to the lower of the RMR Proxy Bid or the DAM Bid, but not lower than the unit's highest Bid price that cleared the CCR for purposes of being considered in the IFM. For purposes of the MPM-RRD, RMR Condition 1 Units will be treated like non-RMR Units with respect to any capacity in excess of the Maximum Net Dependable Capacity specified in the RMR Contract. For Condition 1 RMR Units, the market Bid at and below the CCR dispatch level will be retained in the IFM. For Condition 2 RMR Units and for Condition 1 RMR Units that either did not submit DAM Bids or submitted DAM Bids but were not dispatched in the CCR, the CAISO will use the RMR Proxy Bid in the ACR to determine the Energy required from RMR Units for each Trading Hour. If the dispatch level produced through the ACR for a Condition 1 RMR Unit is not greater than the dispatch level produced through CCR, the Unit's original, unmitigated DAM Bid will be retained in its entirety. For a Condition 1 RMR Unit, if the dispatch level produced through the ACR is greater than the dispatch level produced through the CCR, and for a Condition 2 RMR Unit that is dispatched through the ACR, the resource will be flagged as an RMR Dispatch in the Day-Ahead Schedule and shall constitute a Dispatch Notice pursuant to the RMR Contract.

31.2.2.2 Non-RMR Units.

If the dispatch level produced through the ACR is greater than the dispatch level produced through CCR, then the resource is subject to Local Market Power Mitigation, in which case the entire portion of the unit's Bid curve that is above the CCR dispatch level will be mitigated to the lower of the Default Energy Bid as specified in Section 39, or the DAM Bid, but no lower than the unit's highest Bid price that cleared the CCR.

31.3 Integrated Forward Market.

After the MPM-RRD and prior to RUC, the CAISO shall perform the IFM. The IFM performs Unit Commitment and Congestion Management, clears the Energy Bids as modified and in the MPM-RRD, taking into account transmission limits and technical and inter-temporal operating constraints, and ensures that adequate Ancillary Services are procured in the CAISO Control Area to meet 100 percent of the CAISO Forecast of CAISO Demand requirements. The IFM utilizes a set of integrated programs that: (1) determine Day-Ahead Schedules and AS Awards, and related LMPs and ASMPs; and (2) optimally commits resources that are bid in to the DAM. The IFM utilizes a SCUC algorithm based on multi-part supply Bids (including a Start-Up Bid, Minimum Load Bid, and Energy Bid Curve), and a capacity reservation Bid for Ancillary Services as well as Self-Schedules submitted by Scheduling Coordinators. The IFM also provides for the optimal management of Use-Limited Resources. The ELS Resources committed through the ELC Process conducted two days before the day the IFM process is conducted for the next Trading Day as described in Section 31.7 of the CAISO Tariff are binding and the IFM process will model such capacity as capacity that is under a contractual obligation to provide.

31.3.1 Market Clearing and Price Determination.

31.3.1.1 The IFM produces: (1) a set of hourly Day-Ahead Schedules, AS Awards, and AS Schedules for all participating Scheduling Coordinators that cover each Trading Hour of the next Trading Day; and (2) the hourly LMPs for Energy and the ASMPs for Ancillary Services to be used for settlement of the IFM. The CAISO will publish the LMPs at each PNode as calculated in the IFM. In determining

Day-Ahead Schedules, AS Awards, and AS Schedules the IFM optimization will minimize total bid costs based on submitted and mitigated Bids while respecting the operating characteristics of resources, the operating limits of transmission facilities, and a set of scheduling priorities that are described in Section 31.4. In performing its optimization, the IFM first tries to complete its required functions utilizing

Economic Bids without adjusting Self-Schedules, and adjusts Self-Schedules only if it is not possible to balance Supply and Demand and manage Congestion with available Economic Bids.

31.3.1.2 Reduction of LAP Demand.

To the extent the CAISO cannot resolve a non-competitive transmission constraint utilizing effective Economic Bids such that Load at the LAP level in the pre-IFM Pass 2 (ACR) would otherwise be adjusted to relieve the constraint, the CAISO will take the following actions in sequence:

1) Step 1: Schedule the Energy from Self-provided Ancillary Service Bids from capacity that is obligated to offer an Energy Bid under a must-offer obligation such as RMR or Resource Adequacy. Since the otherwise Self-Provided Ancillary Services capacity in question is under a must offer obligation, the associated Energy Bid prices will be either: (a) submitted Energy Bids; or (b) Default Energy Bids to the extent an Energy Bid was not submitted for the Self-Provided Ancillary Services capacity, but not lower than any Energy Bids from the same resource that may have cleared Pre-IFM Pass 1 (ACR).

2) Step 2: In case the measure in Step 1 is insufficient to avoid adjustment of Load at the LAP level, the CAISO will evaluate the validity of the binding transmission constraint and if it is determined that the constraint can be relaxed based on the operating practices, will relax the constraint consistent with operating practices. The CAISO will use the following rules in relaxing the transmission constraints in this step 2:

- (a) No constraints on WECC Rated Paths or interties with adjacent Control Areas would be relaxed.
- (b) Only the transmission constraints that can be mitigated in the Real-Time Market or Real-Time operation are candidates for constraint relaxation. The criteria used to assess whether or not the constraint can be mitigated in Real-Time can include, but are not limited to, the following: (1) there is a Submission to Self-Provide an Ancillary Service for Operating Reserves from non-RA Resources or non-RMR Units within the transmission constrained Load pocket constrained by the transmission path in question; provided, however, such Submissions to Self-Provide an Ancillary Service cannot be used in Step 1, but is available in Real-Time; (2) Scheduling Coordinators have submitted Self-

Schedules for Participating Load in the constrained Load pocket; or (3) there are non-RA Resources and non-RMR Units within the constrained Load pocket that did not participate in the Day-Ahead Market but can be called upon under their Participating Generator Agreement before CAISO curtails firm Load.

- (c) Candidate constraints will be relaxed by assigning a high penalty for constraint violation (as opposed to enforcing them as hard constraints) in this Step 2. Such penalty will be lower than the penalty for curtailing firm (Price Taker) Load.
- (d) The higher of the facility rating or the pre-IFM flows through the facility with relaxed constraints in this Step 2 will be used as hard limits in IFM.
- (e) To avoid unwarranted price impact in IFM, a constraint violation penalty equal to three times the prevailing Energy Bid cap as specified in Section 39.6 will be applied to the constraints relaxed in Step 2 between their operating limit and the relaxed limit determined.
- (f) The information relating to the relaxed constraints will be forwarded to CAISO Operator together with the necessary mitigating measures.

3) Step 3: In case the measures in Step 1 and Step 2 are insufficient, the CAISO may "soften" the LDF constraints on a Node or sub-LAP basis, i.e., adjust Load at individual Nodes or, in aggregate, a group of Nodes to relieve the constraint in such a way that minimizes the quantity of load curtailed. The adjustment to Load at individual Nodes shall be facilitated by adjustment and renormalization of applicable LDFs.

31.3.2 Congestion and Transmission Losses Cost Determination.

Except for those transactions exempt from such charges as specified in Section 11.2.1.5, Scheduling Coordinators will be responsible for MCC and MCL as specified in Section 27.1. The CAISO will determine the Marginal Losses Surplus it has collected and will allocate such revenues to Scheduling Coordinators as described in Section 11.2.1.6.

31.3.3 Metered Subsystems.

In clearing the IFM, the CAISO will not enforce constraints within each MSS. The Full Network Model (FNM) includes a full model of MSS transmission networks used for power flow calculations and constraint management in the IFM and RTM. Network constraints (i.e. circuit ratings, thermal ratings, etc.) within the MSS, or at the its boundaries, shall be monitored but not enforced in the CAISO's FNM. If overloads are observed in the forward markets are internal to the MSS or at the MSS boundaries and are attributable to MSS operations, the CAISO shall communicate such events to the Scheduling Coordinator for the MSS and coordinate any manual re-dispatch required in Real-Time. If, independent of the CAISO, the Scheduling Coordinator for the MSS is unable to resolve Congestion internal to the MSS or at the MSS boundaries in Real-Time, the CAISO will use Exceptional Dispatch Instructions on Resources that have been Bid into the HASP and RTM to resolve the congestion. Such costs will be allocated pursuant to the provisions specified in Section 11.5.6.2.5.2. The CAISO and MSS Operator shall develop specific procedures for each MSS to determine how network constraints will be handled. The Scheduling Coordinator for the MSS shall be responsible for payment of Marginal Losses for transactions at any points of interconnection between the MSS and the CAISO Controlled Grid, and for the delivery of Energy to the MSS or from the MSS in accordance with the CAISO Tariff. For MSS Operators that elect Load following, the CAISO shall exclude the effect of Transmission Losses in the relevant MSS in the CAISO's calculation of loss sensitivity factors used to calculate LMPs.

31.4 Uneconomic Adjustments in the IFM.

All Self-Schedules are respected by SCUC to the maximum extent possible and are protected from curtailment in the Congestion Management process to the extent that there are Economic Bids that can relieve Congestion. If all Economic Bids in the IFM are exhausted, resource Self-Schedules between the resource's Minimum Load and the first Energy level of the first Energy Bid point will be subject to uneconomic adjustments based on the scheduling priorities listed below. Through this process, imports and exports may be reduced to zero, Demand Bids may be reduced to zero, price taker Demand (LAP load) may be reduced, and generation may be reduced to a lower operating (or regulating) limit (or lower

regulating limit plus any qualified Regulation Down Award or Self-Provision of Ancillary Services, if applicable). Any schedules below the Minimum Load level are treated as fixed schedules and are not subject to uneconomic adjustments for Congestion management. The provisions of this section shall apply only to the extent they do not conflict with any MSS Agreement. The scheduling priorities for the IFM from highest priority (last to be adjusted) to lowest priority (first to be adjusted) are as follows:

- a) Reliability Must Run (RMR) pre-dispatch reduction;
- b) Day-Ahead TOR (balanced demand and supply reduction);
- c) Day-Ahead ETCs (balanced demand and supply reduction); Different ETC Priority Levels will be observed based upon global ETC priorities provided to the CAISO by the responsible PTOs;
- d) Other Self Scheduled CAISO Demand reduction subject to Section 31.3.1.2 and Self-Scheduled exports at Scheduling Points explicitly sourced by non-Resource Adequacy Capacity;
- e) Self-Scheduled exports at Scheduling Points not explicitly sourced by non-Resource Adequacy Capacity;
- f) Day-Ahead Ahead Regulatory Must Run and Regulatory Must Take reduction;
- g) Other Self Scheduled Supply reduction; and
- h) Economic Demand and Supply Bids.

31.5 Residual Unit Commitment.

The CAISO shall perform the RUC process after the IFM. In the event that the IFM did not commit sufficient resources to meet CAISO Demand Forecast and account for other factors such as load forecast error, as described in the Business Practice Manuals, the RUC shall commit additional resources and identify additional RUC Capacity to ensure sufficient on-line resources to meet Demand for each hour of the next Trading Day. RUC Capacity is selected by a SCUC optimization that uses the same FNM used in the IFM to help ensure the deliverability of Energy from the RUC Capacity.

31.5.1 RUC Participation.

31.5.1.1 Capacity Eligible for RUC Participation.

RUC participation is voluntary for Capacity that has not been designated as RA Capacity. Scheduling Coordinators may make such Capacity available for participation in RUC by submitting a RUC Availability Bid, provided the Scheduling Coordinator has also submitted an Energy Bid for such Capacity into the IFM. Capacity from Non-Dynamic System Resources that has not been designated RA Capacity is not eligible to participate in RUC. Capacity from resources including System Resources that has been

designated as qualified RA Capacity must participate in RUC. System Resources eligible to participate in RUC will be considered on an hourly basis; that is, RUC will not observe any multi-hour block constraints that may have been submitted in conjunction with Energy Bids to the IFM. RMR Capacity will be considered in RUC in accordance with Section 31.5.1.3. MSS resources may participate in RUC in accordance with Section 31.5.2.3. COG resources are accounted for in RUC, but may not submit or be paid RUC Availability Payments. The ELS Resources committed through the ELC Process conducted two days before the day the RUC process is conducted for the next Trading Day as described in Section 31.7 of the CAISO Tariff are binding and the RUC process will model such capacity as capacity that is under a contractual obligation to provide.

31.5.1.2 RUC Availability Bids.

Scheduling Coordinators may only submit RUC Availability Bids for Capacity (above the minimum load) for which they are also submitting an Energy Bid to participate in the IFM. The RUC Availability Bid for the RA Capacity submitted by a Scheduling Coordinator must be \$0/MW per hour for the entire RA Capacity. If the Scheduling Coordinator fails to submit a \$0/MW per hour for RA Capacity, the CAISO will insert the \$0/MW per hour for the full amount of RA Capacity for a given resource. Scheduling Coordinators may submit non-zero RUC Availability Bids for the portion of a resource's Capacity that is not RA Capacity.

31.5.1.3 RMR Resources.

If a resource is determined to have an RMR requirement for any Trading Hour of the next day, either by the MPM-RRD process or by the CAISO through a manual RMR Dispatch Notice, and if any portion of the RMR requirement has not been cleared in the IFM, the entire portion of the RMR requirement will be represented as a RMR Self-Schedule in the RUC.

31.5.2 Metered Subsystem RUC Obligation.

MSS Operators are permitted to make an annual election to opt-in or opt-out of RUC participation. MSS Operators that elect to Load-follow are automatically considered to opt-out of the RUC participation. Prior

to the deadline for the annual CRR Allocation and Auction process, as specified in Section 36, an MSS Operator that has selected not to Load-follow shall notify the CAISO of its RUC participation option for the following CRR cycle.

31.5.2.1 MSS Operator Opts-In to RUC Procurement.

If the MSS Operator opts-in to the RUC procurement process, the Scheduling Coordinator for the MSS will be treated like any other Scheduling Coordinator that Bids in the DAM with respect to RUC procurement by the CAISO and allocation of RUC costs. The CAISO will consider the CAISO forecast of

penalty point against it for each occurrence; (ii) if the difference in any hour is more than the lesser of five (5) percent or ten (10) MW, but less than the lesser of ten (10) percent or twenty (20) MW, then the Scheduling Coordinator for the MSS will have two (2) penalty points against it for each occurrence; (iii) if the difference in any hour is more than the lesser of ten (10) percent or twenty (20) MW, then the Scheduling Coordinator for the MSS will have five (5) penalty points against it for each occurrence. The maximum penalty points that can be accrued during a single Trading Day for each MSS will be five (5). A total of more than twenty (20) penalty points within twelve (12) consecutive months will require the MSS to opt-in to RUC for the remainder of the CRR Cycle and for the following CRR Cycle. The provisions in this Section 31.5.2.2 do not apply to MSS Operator that has elected to Load-follow, and only apply to non-Load-following MSS Operators.

31.5.2.3 MSS Option to Bid RUC Capacity.

The Scheduling Coordinator for the MSS Operator may submit RUC Availability Bids for the capacity of MSS Resources and receive RUC Availability Payments and RUC Cost Compensation for such capacity selected in RUC, subject to the same bidding and operational requirements as any other resources providing RUC capacity. This capability is not affected by the MSS Operator's decision to Opt-In to or Opt-Out of RUC per Sections 31.5.2.1 and 31.5.2.2.

31.5.3 RUC Procurement Target.

The procurement target for RUC in any given Trading Hour will be determined based on the next day's hourly CAISO Forecast of CAISO Demand less the Energy scheduled in the Day-Ahead Schedule, and accounting for other factors, as appropriate, such as load forecast error and estimated incremental HASP Bids including those from PIRP resources. The adjustments listed below in Sections 31.5.3.1 to 31.5.3.6 will be made to the CAISO Forecast of CAISO Demand to account for the conditions as provided therein. Adjustments may be made on a RUC zone basis. The RUC procurement target-setting procedure is designed to meet the requirements of reliable grid operation without unnecessary over-procurement of RUC Capacity or over-commitment of resources. Additional detail on the process for setting the RUC procurement target is specified in the Business Practice Manuals.

31.5.3.1 CAISO Operator Review & Adjustment

The CAISO Operator reviews the CAISO Forecast of CAISO Demand and all calculated adjustments as provided in Sections 31.5.3.2 through 31.5.3.6. The CAISO Operator shall accept, modify, or reject such adjustments based on Good Utility Practice. If the CAISO Operator determines it must modify or reject adjustments, the CAISO Operator shall log sufficient information as to reason, Operating Hour, and specific modification(s) made to the calculated adjustments.

31.5.3.2 Demand Response Adjustments

The CAISO shall account for demand response that is clearly communicated to the CAISO as certain to be curtailed for the next Trading Day only for the two following types of demand response: 1) demand response triggered by a staged emergency event; and 2) demand response that is triggered by a price or an event known in advance. If an LSE informs the CAISO prior to close of the DAM, the CAISO Forecast of CAISO Demand used as the RUC procurement target will be reduced accordingly.

31.5.3.3 MSS Adjustment

As specified in section 31.5.2.1, MSS Operators are permitted to make an annual election to opt-in or opt-out of RUC participation. If the MSS Operator opts-in to the RUC procurement process, the CAISO considers the CAISO's forecast of the MSS Demand in setting the RUC procurement target and if an MSS Operator opts-out of the RUC procurement process, CAISO does not consider the CAISO's forecast of the MSS Demand in setting the RUC procurement target. An MSS that has elected to opt-out of RUC, or has elected to Load follow and therefore has also elected to opt-out of RUC, is required to provide sufficient resources in the Day-Ahead Market, and in the case of a Load following MSS, follow its Load within a tolerance band. To reflect these options and to prevent committing additional capacity or resources for any differences between the CAISO Forecast of CAISO Demand for the MSS and the MSS Self-Scheduled quantities in the IFM, the CAISO replaces the CAISO Forecast of CAISO Demand for such MSSs with the quantity of Demand self-scheduled by the MSS in the IFM.

31.5.3.4 Eligible Intermittent Resource Adjustment

Eligible Intermittent Resources may submit Bids, including Self-Schedules in the Day-Ahead Market and the quantity ultimately scheduled from Eligible Intermittent Resources may differ from the CAISO forecasted deliveries from the Eligible Intermittent Resources. CAISO may adjust the forecasted Demand either up or down for such differences by RUC zone for which the Eligible Intermittent Resource resides. To the extent the scheduled quantity for an Eligible Intermittent Resource in IFM is less than the quantity forecasted by CAISO, the CAISO makes a Supply side adjustment in RUC by using the CAISO forecasted quantity for the Eligible Intermittent Resource as the expected delivered quantity. To the extent the scheduled quantity for an Eligible Intermittent Resource in IFM is greater than the quantity forecasted by CAISO, CAISO makes a Demand side adjustment to the RUC zone Demand equal to the difference between the Day-Ahead Schedule and the CAISO forecasted quantity.

31.5.3.5 Real-Time Expected Incremental Supply Self-Schedule Adjustment

In order to avoid over procurement of RUC, CAISO shall, using a similar-day approach, estimate the HASP Self-Schedules for resources that usually submit HASP Self-Schedules that are greater than their Day-Ahead Schedules. The CAISO Operator may set the length of the Self-Schedule moving average window. Initially this moving average window shall be set by default to seven days; in which case the weekday estimate is based on the average of five most recent weekdays and the weekend estimate is based on the average of the two most recent weekend days. To the extent weather conditions differ significantly from the historical days, additional adjustment may be necessary. After determining the estimate of Real-Time Self-Schedules, using a similar day forecasting approach, the CAISO adjusts the CAISO Forecast of CAISO Demand of a RUC zone based on the forecasted quantity changes in Supply as a result of Self-Schedules submitted in RTM. This adjustment for forecasted Real-Time Self-Schedules may result in positive or negative adjustments. Demand adjustments to the CAISO Forecast of CAISO Demand result when there is a net forecast decrease in Real-Time Self-Schedule Supply relative to the

Day-Ahead Schedule Supply. Supply adjustments to the individual resources occur when there is a net forecast increase in Real-Time Self-Schedule Supply relative to the Day-Ahead Schedule Supply of the individual resource.

31.5.3.6 Day-Ahead Ancillary Service Procurement Deficiency Adjustment

While CAISO intends to procure 100% of its forecasted Ancillary Service reserve requirement in the IFM based on the CAISO Forecast of CAISO Demand as specified in Section 8.3.1, CAISO shall make adjustments to the CAISO Forecast of CAISO Demand used in RUC to ensure sufficient capacity is available or resources committed in cases that CAISO is unable to procure 100% of its forecasted reserve requirement in the IFM; provided, however, that the CAISO shall not procure specific Ancillary Services products in RUC, nor will the RUC optimization consider AS-related performance requirements of available capacity.

31.6.2 If the CAISO temporarily implements a waiver or variation of such timing requirements, the CAISO will publish the following information on the CAISO's secure communication system as soon as practicable:

- (i) the exact timing requirements affected;
- (ii) details of any substituted timing requirements;
- (iii) an estimate of the period for which this waiver or variation will apply;
- (iv) reasons for the temporary waiver or variation.

31.6.3 If, despite the variation of any time requirement or the omission of any step, the CAISO either fails to receive sufficient Bids or fails to clear Day-Ahead Market, the CAISO may abort the Day-Ahead Market and require all Bids to be submitted in the HASP and RTM.

31.6.4 Demand Information.

By 6:00 a.m. on the day preceding the Trading Day, each Scheduling Coordinator shall provide to the CAISO a Demand Forecast specified by UDC Service Area for which it will submit a Bid for each of the Settlement Periods of the following Trading Day. The CAISO shall aggregate the Demand information by UDC Service Area and transmit the aggregate Demand information to each UDC serving such aggregate Demand.

31.7 Extremely Long-Start Commitment Process

The CAISO shall perform the Extremely Long-Start Commitment Process (ELC Process) after the regular DAM results are posted. During the ELC Process the CAISO shall use a 48-hour simultaneous SCUC to assist it in determining the commitment of ELS Resources. ELS Resources are flagged in the Master File and are the only resources eligible to be committed in the ELC Process.

31.7.1 Execution of the Extremely Long-Start Commitment Process

Each day after the DAM results are posted, the CAISO shall conduct the ELC Process to determine commitment of ELS Resources for to be available to the CAISO Markets in the second day out. The

CAISO will use the latest CAISO Forecast of CAISO Demand available to the CAISO for the Trading Day two days ahead of the current day that the ELC Process is executed. For the purpose of conducting the ELC Process, the CAISO will set the Ancillary Services requirements for the second day out based on the CAISO Forecast of CAISO Demand and forecasted firm imports. The CAISO shall execute a 48-hour simultaneous SCUC process to inform the decisions made in the ELC Process. The result of the 48-hour simultaneous SCUC process shall be reviewed by the CAISO Operator. The CAISO Operator shall use its operator judgment consistent with Good Utility Practice to determine whether the commitment instructions to the ELS Resources for the second day in the 48-hour Time Horizon should be implemented. The ELC Process shall not dispatch Energy for the ELC Process Time Horizon and therefore the commitment instructions do not include megawatts schedules greater than the Minimum Load. The Energy and Ancillary Service requirements are re-evaluated by the IFM executed the day after the applicable ELC Process. The commitment statuses of the ELS Resources are passed to the Bid validation process for use in the DAM for the Trading Day two days after the current day when ELC Process is executed.

31.7.2 Inputs Used in the Extremely Long-Start Commitment Process

31.7.2.1 Energy Bids & Ancillary Services Bids for The First Day of the ELC Process Time Horizon

The commitment results that have been determined in the DAM for the Trading Day as reflected in the Day-Ahead Schedule and RUC Schedule issued on the current day that the ELC Process is executed, representing the first day of the 48-hour ELC Process, are modeled as self-committed. These resources are modeled as Self-Scheduled at the greater of the Day-Ahead Schedule for Energy or RMR Generation requirement, plus any RUC Awards for the purpose of running the 48-hour SCUC optimization in the ELC Process. This Self-Scheduled consideration is only for modeling purposes and does not affect eligibility for BCR of such resources for that Trading Day. The Self-Provided Ancillary Services and the Ancillary Service Awards produced by the IFM application on the current day that the ELC Process is executed are fixed in the applicable ELC Process and, therefore, the ELC Process does not procure any additional Ancillary Services for the first day of the ELC Process Time Horizon.

31.7.2.2 Energy Bids & Ancillary Services Bids for the Second Day of the ELC Process

Time Horizon

For all resources that are not ELS Resources, Bids for supply of Energy and Ancillary Services submitted for the first Trading Day of the ELC Process as submitted for the DAM for the same Trading Day are replicated as a surrogate for the Bids for the second Trading Day of the ELC Process Time Horizon. For all ELS Resources, Bids submitted for the Trading Day two days ahead of the current day on which the ELC Process is executed will be used as the Bids used for the second Trading Day of the ELC Process Time Horizon.

31.7.2.3 Outages Considerations

Any resource and transmission Outages and de-rates, including Ramp Rate de-rates, are considered in the applicable commitment intervals in the two-day Time Horizon.

31.7.2.4 Initial & Boundary Conditions

The CAISO will make the following assumptions in the ELC Process regarding resources already committed:

- 1) A resource that is committed by the IFM in a Trading Hour in the Trading Day is considered committed in the same hour in the same Trading Day within the ELC Process Time Horizon.
- 2) A resource that has an RMR requirement in a Trading Hour in the Trading Day is considered committed in the same hour in the same Trading Day within the ELC Process Time Horizon.
- 3) A resource that has a RUC Schedule in a Trading Hour in the Trading Day is considered committed in the same hour in the same Trading Day within the ELC Process Time Horizon.

31.7.2.5 Constraints

The ELC Process optimization will enforce the same Constraints that are enforced in RUC on the day the ELC Process is executed. These include but are not limited to the following:

- 1) The Energy balancing constraints to meeting CAISO Forecast of CAISO Demand adjustable by RUC zones.
- 2) The resource Constraints including capacity, Ramp Rates, Energy Limits, Forbidden Operating Regions, Minimum Run Time and Minimum Down Time constraints, considering any Outages in the ELC Process Time Horizon.
- 3) The transmission Constraints including branch limits, Branch Group Limits, and Nomograms, considering any Outages in the ELC Process Time Horizon.
- 4) Both Self-Provided Ancillary Services and Ancillary Services Awards are fixed for the first day of the ELC Process Time Horizon. The AS requirements as used in the IFM remain the same for the first day of the ELC Process Time Horizon optimization. The Ancillary Services requirements for the second day of the ELC Process Time Horizon are specified for the ELC Process optimization using the Ancillary Services procurement process.

31.7.3 Output of Extremely Long-Start Commitment Process

The results of the ELC Process are produced by 1500 hours two days ahead of the Trading Day. The results of the ELC Process indicate the commitment decisions for ELS Resources that were made in the ELC Process the day before. These commitment decisions are binding and the DAM applications model the committed ELS Resources as resources that are under a contractual obligation to provide. The CAISO Commitment or Self-Commitment Period determination for the ELS Resources depends on the DAM results and the Clean and Generated Bids, following the same rules that apply to other resources. All commitment intervals for the ELS Resources will be classified as CAISO Commitment Periods, unless there is a Self-Schedule or Self-Provided AS for that interval.

33.2 The HASP Optimization.

After the Market Close for the HASP and RTM for the relevant Trading Hour, the Bids have been validated and the MPM-RRD process has been performed, the HASP optimization determines feasible but non-binding HASP Advisory Schedules for Generating Units for each 15-minute interval of the Trading Hour, as well as binding hourly HASP Intertie Schedules and binding hourly HASP AS Awards from Non-Dynamic System Resources for that Trading Hour. The HASP may also commit resources whose Start-Up Time is within its Time Horizon. The HASP, like the other runs of the RTUC, utilizes the same SCUC optimization and FNM as the IFM, with the FNM updated to reflect changes in system conditions as appropriate, to ensure that HASP Intertie Schedules are feasible. Instead of clearing against Demand Bids as in the IFM, the HASP clears Supply against the CAISO Forecast of CAISO Demand plus submitted Export Bids, to the extent the Export Bids are selected in the MPM-RRD process. The HASP optimization also factors in forecasted unscheduled flow at the interties. The HASP optimization produces Settlement prices for hourly imports and exports to and from the CAISO Control Area reflected in the HASP Intertie Schedule and for the HASP AS Awards for System Resources.

33.3 Treatment of Self-Schedules in HASP.

Scheduling Coordinators may submit Self-Schedules for Supply of Energy to the HASP. This includes Self-Schedules by Participating Load that is submitting Bids as a negative generator. Scheduling Coordinators may not submit Self-Schedules for CAISO Demand in HASP. Scheduling Coordinators may submit Self-Schedules for exports at Scheduling Points including but not limited to exports that utilize TORs and ETC rights that have post-Day-Ahead scheduling rights, and including Self-Schedules for wheel-throughs. The HASP optimization clears Bids, including Self-Schedules, while preserving all priorities in this process consistent with Section 31.4. The HASP optimization does not adjust submitted Self Schedules unless it is not possible to balance Supply and the CAISO Forecast of CAISO Demand plus Export Bids and manage Congestion using the available Economic Bids, in which case the HASP performs non-economic adjustments to Self-Schedules. The MWh quantities of Self-Scheduled Supply

that clear in the HASP constitute a feasible dispatch for the RTM at the time HASP is run, but the HASP results do not constitute a final schedule for Generating Units because these resources may be adjusted non-economically in the RTD if necessary to manage Congestion and clear Supply and Demand. Self-Schedules submitted for Generation Units that clear in the HASP will be issued HASP Advisory Schedules. Scheduling Coordinators representing RA-PIRP resources must

submit Self-Schedules in HASP in accordance with the forecast provided by the independent Forecast Service Provider.

33.4 MPM-RRD for the HASP and the RTM.

After the Market Close of the HASP and RTM, after the CAISO has validated the Bids pursuant to section 30.7, and prior to running the HASP optimization, the CAISO conducts the MPM-RRD process, the results of which will be utilized in the HASP optimization and all RTM processes for the Trading Hour. The MPM-RRD process for the HASP and RTM produces results for each fifteen-minute interval of the Trading Hour and thus may produce up to four mitigated Bids for any given resource for the Trading Hour. A single mitigated Bid for the entire Trading Hour is calculated using the minimum Bid price of the four mitigated Bid curves at each Bid quantity level. The Bids are mitigated only for the Bid quantities that are above the minimum quantity cleared in the CCR across all four 15-minute intervals. For a Condition 1 RMR Unit, if the dispatch level produced through the ACR is greater than the dispatch level produced through the CCR, and for a Condition 2 RMR Unit that is dispatched through the ACR, the resource will be flagged as an RMR Dispatch in the RTM and shall constitute a Dispatch Notice pursuant to the RMR Contract.

33.5 [NOT USED]

33.6 HASP Results.

The CAISO publishes the binding HASP Intertie Schedules and HASP AS Awards for System Resources, as well as HASP Advisory Schedules and HASP AS Awards for internal Generating Units no later than 45 minutes prior to the Trading Hour.

33.7 Ancillary Services in the HASP and the RTUC.

To maintain required Ancillary Services when changes in forecasts of Demand and resource outages occur after the Day-Ahead AS Awards are established, the CAISO utilizes the RTUC runs, including the HASP, to procure additional Ancillary Services needed to meet reliability criteria. The HASP meets the expected need for additional Ancillary Services for the Trading Hour by utilizing the optimal mix of Ancillary Services from System Resources and from Generating Units. Only the AS from System Resources are binding Awards, and these are for the full Trading Hour. Those Generating Units designated in the HASP to provide Ancillary Services for the same Trading Hour are given non-binding

34. REAL-TIME MARKET.

The RTM is the market conducted by the CAISO during any given operating day in which Scheduling Coordinators may provide Real-Time Imbalance Energy and Ancillary Services. The Real-Time Market consists of the Real-Time Unit Commitment (RTUC), the Short-Term Unit Commitment (STUC) and the Real-Time Dispatch (RTD) processes. The Short-Term Unit Commitment (STUC) runs once per hour at the top of the hour and utilizes the SCUC optimization to commit Medium Start, Short-Start and Fast Start Resources to meet the CAISO Demand Forecast. The CAISO shall dispatch all resources, including Participating Load pursuant to submitted Bids or pursuant to the provisions below on Exceptional Dispatch. The Time Horizon of the STUC is approximately 255 minutes, starting with the fourth 15-minute interval of the next Trading Hour and extending for the next four Trading Hours. The RTUC runs every 15 minutes and utilizes the SCUC optimization to commit Fast-Start and some Short-Start resources and to procure any needed AS on a 15-minute basis. Any given run of the RTUC will have a Time Horizon of approximately 60 to 105 minutes (four to seven 15-minute intervals) depending on when during the hour the run occurs. Not all resources committed in a given STUC or RTUC run will necessarily receive CAISO commitment instructions immediately, because during the Trading Day the CAISO may issue a commitment instruction to a resource only at the latest possible time that allows the resource to be ready to provide energy when it is expected to be needed. The RTD uses a Security Constrained Economic Dispatch (SCED) algorithm every five minutes throughout the Trading Hour to determine optimal Dispatch Instructions to balance Supply and Demand and maintain required Ancillary Services quantities for the next binding target interval. The RTD optimization utilizes up to a 65-minute Time Horizon (13 five-minute intervals), but the CAISO issues Dispatch Instructions only for the next target five-minute Interval. The RTUC, STUC and RTD processes of the RTM use the same FNM used in the DAM and the HASP, subject to any necessary updates of the FNM pursuant to changes in grid conditions after the DAM has run.

34.1 Inputs to the Real-Time Market.

The RTM utilizes results produced by the DAM and HASP for each Trading Hour of the Trading Day, including the combined commitments contained in the Day-Ahead Schedules, Day Ahead AS Awards, RUC Awards, HASP Intertie Schedules, HASP Self-Schedules, HASP Intertie AS Awards and the MPM-RRD that is run as part of the HASP to determine reliability needs and mitigated bids for each relevant

where applicable: (a) Regulation-Up; (b) Spinning Reserve; and (c) Non-Spinning Reserve. For resources providing Regulation-Up, the applicable upper regulating limit shall be used as the basis of allocation if it is lower than the upper portion of the energy curve. The remaining portion of the Energy Bid Curve, if there is any, shall constitute a Bid for RTM Energy.

34.9 Exceptional Dispatch.

The CAISO may perform Exceptional Dispatches for the circumstances described in this Section 34.9, which may require the issuance of forced Shut Downs or forced Start-Ups. The CAISO shall conduct all Exceptional Dispatches consistent with good utility practice. Dispatch Instructions issued pursuant to Exceptional Dispatches shall be entered manually by the Operator into the RTM optimization software so that they will be accounted for and included in the communication of Dispatch Instructions to Scheduling Coordinators. Exceptional Dispatches are not derived through the use of the RTM optimization software and are not used to establish the LMP at the applicable PNode. The CAISO will record the circumstances that have led to the Exceptional Dispatch. Imbalance Energy delivered or consumed pursuant to the various types of Exceptional Dispatch are settled according to the provisions in Section 11.5.6.

34.9.1 System Reliability Exceptional Dispatches.

The CAISO may manually dispatch Generation Units, System Units, Participating Loads, Dynamic System Resources, and Condition 2 RMR Units pursuant to Section 41.8, in addition to or instead of resources dispatched by RTM optimization software during a System Emergency, or to prevent an imminent System Emergency or a situation that threatens System Reliability and cannot be addressed by the RTM optimization and system modeling. To the extent possible, the CAISO shall utilize available and effective Bids from resources before Dispatching resources without Bids. To deal with any threats to System Reliability, the CAISO may also dispatch in the Real-Time Non-Dynamic System Resources that have not been or would not be selected by the RTM for Dispatch, but for which the relevant Scheduling Coordinator has submitted a Bid into the HASP.

34.9.2 Other Exceptional Dispatch.

The CAISO may also manually dispatch resources in addition to or instead of resources dispatched by the RTM optimization software to: (1) perform Ancillary Services testing; (2) perform pre-commercial operations testing for Generating Units; (3) mitigate for Overgeneration; (4) provide for Black Start; (5) provide for Voltage Support; (6) accommodate TOR or ETC Self-Schedule changes after the Market Close of the HASP; or (7) to reverse a commitment instruction issued through the IFM that is no longer optimal as determined through RUC. If the CAISO dispatches an RMR Unit for Voltage Support, the RMR Unit will be compensated under its RMR Contract and not as an Exceptional Dispatch under the CAISO Tariff.

34.9.3 Transmission-Related Modeling Limitations

The CAISO may also manually Dispatch resources in addition to or instead of resources dispatched by the RTM optimization software to address transmission-related modeling limitations in the Full Network Model. Transmission-related modeling limitations for the purposes of Exceptional Dispatch, including for settlement of such Exceptional Dispatch as described in Section 11.5.6, shall consist of any FNM modeling limitations that arise from transmission maintenance, lack of voltage support at proper levels as well as incomplete or incorrect information about the transmission network, for which the PTOs have primary responsibility.

34.10 Uneconomic Adjustments in the RTM.

All Self-Schedules are respected by the SCED and SCUC to the maximum extent possible and are protected from curtailment in the Congestion Management process to the extent that there are effective Economic Bids that can relieve Congestion. If all Economic Bids for the RTM are exhausted, all Self-Schedules between the Minimum Load and the lowest energy level of the first Energy Bid point will be subject to uneconomic adjustments based on assigned scheduling priorities. Through this process, imports and exports may be reduced to zero, Demand may be reduced to zero, and Generation may be reduced to a lower operating (or Regulating) limit (or lower Regulating limit plus any qualified Regulation

Down Award or Self-Provision of Ancillary Services, if applicable). Any schedules below the Minimum Load level are treated as fixed schedules and are not subject to uneconomic adjustments for Congestion management but may be subject to decommitment via an Exceptional Dispatch if necessary as a last resort to relieve Congestion that could not otherwise be managed.

34.10.1 Increasing Supply.

The scheduling priorities as defined in the RTM optimization to meet the need for increasing Supply as reflected from higher to lower priority are as follows:

- a) Non-Participating Load reduction or Self-Schedules for exports at Scheduling Points in HASP served by Generation from non-Resource Adequacy Capacity or from non-RUC Capacity;
- b) Self-Schedules for exports at Scheduling Points in HASP not served by Generation from non-Resource Adequacy Capacity or not served by Generation from non-RUC Capacity;
- c) Contingency-Only Operating Reserve if activated by Operator to provide Energy (as indicated by the Contingency flag and the Contingency condition);
- d) Economic Bids submitted in the HASP or RTM.

34.10.2 Decreasing Supply.

The scheduling priorities as defined in the RTM optimization to meet the need for decreasing supply as reflected from higher to lower priority are as follows:

- a) Non-Participating Load increase;
- b) Reliability Must Run (RMR) Schedule (Day-Ahead manual pre-dispatch or Manual RMR Dispatches or Dispatches that are flagged as RMR Dispatches following the MPM-RRD process);
- c) Transmission Ownership Right (TOR) Self-Schedule;
- d) Existing Rights (ETC) Self-Schedule;
- e) Regulatory Must Run and Regulatory Must Take (RMT) Self-Schedule;
- f) Participating Load increase;
- g) Day-Ahead Supply Schedule;
- h) Self-Schedule submitted in HASP; and
- i) Economic Bids submitted in the HASP or RTM.

These dispatch priorities as defined in the RTM optimization may be superseded by operator actions and procedures.

34.11 Means of Dispatch Communication.

The CAISO dispatches Regulation by AGC to Participating Generators and, for Dynamic System Resources, through dedicated communication links that satisfy the CAISO's standards for external imports of Regulation. The CAISO communicates all other Dispatch Instructions electronically, except that, at the CAISO's discretion, the CAISO may communicate Dispatch Instructions by telephone, or facsimile. Scheduling Coordinators shall confirm the Dispatch Instructions that are communicated orally by repeating them to the CAISO employee providing the Dispatch Instruction. Except in the case of deteriorating system conditions or an actual or threatened System Emergency, and except for Dispatch Instructions for Regulation, the CAISO sends all Dispatch Instructions to the Scheduling Coordinator. The recipient Scheduling Coordinator shall immediately communicate the Dispatch Instruction to the operator

Instruction in accordance with its terms, the resource shall be considered to be non-conforming to the Dispatch Instruction unless the resource has notified the CAISO of an event that prevents it from performing its obligations within 30 minutes of the onset of such event through a SLIC log entry.

Notification of non-compliance via the Automated Dispatch System (ADS) will not supplant nor serve as the official notification mechanism to the CAISO. If the resource is considered to be non-conforming as described above, the Scheduling Coordinator for the resource concerned shall be subject to Uninstructed Imbalance Energy as specified in Section 11.5.2 and Uninstructed Deviation Penalties as specified in Section 11.23. This applies whether any Ancillary Service concerned are contracted or self-provided. For a non-Dynamic System Resource Dispatch Instruction prior to the Trade Hour, the Scheduling Coordinator shall inform the CAISO of its ability to conform to a Dispatch Instruction via "ADS". A decline of such a Non-Dynamic System Resource for a Dispatch Instruction received at least 40 minutes prior to the Trading Hour will be subject to Uninstructed Deviation Penalties as specific in Section 11.23. A decline of such a Non-Dynamic System resource for a Dispatch Instruction received less than 40 minutes prior to the Trading Hour will not be subject to Uninstructed Deviation Penalties.

34.12 Metered Subsystems.

Scheduling Coordinators that represent MSSs may submit Bids for Supply of Energy to the RTM, irrespective of whether the MSS is a Load following MSS. All Bids submitted for MSS generating resources for the RTM and all Dispatch Instructions shall be generating resource-specific. MSS non-Load following resources are responsible for following Dispatch Instructions. Load following MSS Operators shall provide the CAISO with an estimate of the number of MWs the applicable generating resource(s) will be generating over the next two hours in 5-minute interval resolution. The Dispatch Instructions for Load-following resources are incorporated with generation estimates provided by MSS Operators. Such MSS Load-following resources can deviate from the Dispatch Instructions in Real-Time to facilitate the following of load without being subject to the Uninstructed Deviation Penalty as further described in Section 11.23 of the CAISO Tariff. The State Estimator will estimate all MSS Load in Real-

Time and will incorporate the information provided by the Load following MSS Operator in clearing the RTM and its Dispatch Instructions.

34.13 Real-Time Bid Submission.

Bids submitted in HASP for all Generating Resources and Participating Load shall be used in the Real-Time Market. Energy Bids in the RTM must also contain a Bid for Ancillary Services to the extent the

Resources identified as MSS Load following resources are not eligible to set the LMP. A resource constrained at an upper or lower operating limit, a boundary of a Forbidden Operating Region or dispatched for a quantity of Energy such that its full ramping capability is constraining the ability of the resource to be dispatched for additional Energy in target interval. cannot be marginal (i.e., it is constrained by the ramping capability) and thus is not eligible to set the Dispatch Interval LMP. Non-Dynamic System Resources are not eligible to set the Dispatch Interval LMP. Dynamic System Resources are eligible to set the Dispatch Interval LMP. Constrained Output Generation that has the ability to be committed or shut off within the two-hour Time Horizon of the RTM will be eligible to set the Dispatch Interval LMP if any portion of its Energy is necessary to serve Demand. Dispatches of Regulation resources by EMS in response to AGC will not set the RTM LMP. Dispatches of Regulation resources Dispatch Operating Point by RTM SCED will be eligible to set the RTM LMP.

34.19.2.4 Real-Time LMP When Responding To A Contingency.

In cases when a Contingency occurs and the CAISO must activate its Operating Reserves, it may perform a Real-Time Contingency Dispatch (RTCD) for a target interval 10 minutes from the current time. When activating a Contingency Dispatch and returning to normal dispatch in RTM, LMPs shall be based on the last available price from either the Contingency Dispatch or normal Dispatch run relative to the 5 minute pricing target.

34.19.2.5 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 11.12 at the monthly weighted average Dispatch Interval LMP, as calculated in accordance with Section 11.5.4.1 at each Pnode associated with the Participating Intermittent Resource, and using the monthly weighted average with weights equal to total Real-Time Generation.

used to determine the prior Seasonal Available CRR Capacity and that have already been placed in-service and energized at the time the CAISO starts the applicable monthly process, (ii) OTC adjusted for any scheduled derates for that month, and (iii) a downward adjustment due to TOR as determined by the CAISO.

36.4.1 Transmission Capacity Available for CRR Allocation and CRR Auction.

The CAISO makes available seventy-five percent (75%) of Seasonal Available CRR Capacity for the annual CRR Allocation and CRR Auction processes, and one hundred percent (100%) of Monthly Available CRR Capacity for the monthly CRR Allocation and CRR Auction processes. Available Capacity at Scheduling Points shall be determined in accordance with Section 36.8.4.1 for the purposes of CRR Allocation and CRR Auction of CRRs that have a CRR Source identified at a Scheduling Point. Before commencing with the annual or monthly CRR Allocation and Auction processes, the CAISO may distribute any CRRs to sponsors of merchant transmission projects in accordance with Section 36.11 and will model those as fixed injections and withdrawals on the DC FNM to be used in the allocation and auction. These fixed injections and withdrawals are not modified by the simultaneous feasibility test.

36.4.2 Simultaneous Feasibility.

The annual and monthly CRR Allocation processes release CRRs to fulfill CRR nominations as fully as possible subject to a Simultaneous Feasibility Test ("SFT"). To the extent that nominations are not simultaneously feasible, the nominations are reduced in accordance with the CRR Allocation optimization formulation until simultaneous feasibility is achieved. The CRR Allocation optimization formulation, detailed in the Business Practice Manuals, reduces allocated CRRs based on effectiveness in relieving overloaded constraints in order to minimize the total MW volume reduction of nominations while achieving simultaneous feasibility. The SFT for each CRR Allocation considers:

- a. CRRs representing ETCs, Converted ETCs and any TOR capacity that was not captured in the adjustments described in Section 36.4, which the CAISO deems necessary to prevent the congestion settlement of ETCs, Converted ETCs, and TORs from causing revenue inadequacy of allocated and auctioned CRRs;

b. In the case of the monthly CRR Allocation, the CRRs already released for that month in the annual allocation and auction; and,

The CAISO conducts an annual CRR Allocation once a year for the entire year. The annual CRR Allocation releases Seasonal CRRs for four seasonal periods. The CAISO also conducts monthly CRR Allocations twelve times a year in advance of each month. Within each annual and monthly CRR Allocation process the CAISO performs distinct allocation processes for each on-peak and off-peak specification. The CRR Allocation process for CRR Year One is a distinct process that differs from subsequent annual CRR Allocations as described in Section 36.8.3.1 and 36.8.3.2. Each allocation procedure is based on nominations to the CAISO by LSEs eligible to receive CRRs. A timeline of the CRR Allocation and CRR Auction processes is contained in the BPMs.

36.8.2 Load Eligible for CRRs and Eligible CRR Sinks.

An LSE serving internal Load is eligible for CRRs up to its Seasonal or Monthly CRR Eligible Quantity, which is derived from its Seasonal or Monthly CRR Load Metric as follows. These quantities are calculated for each LSE separately for each combination of season and time of use period for the annual process, and for each time of use period for each monthly process, and for each CRR Sink at which the eligible LSE serves Load. MSS eligibility for CRRs will account for net or gross MSS settlement in accordance with Section 4.9.13.1. If the MSS elects net settlement, LSEs for such MSS Load shall submit CRR Sink nominations at the MSS LAP, and if the MSS elects for gross settlement LSEs for such MSS Load shall submit CRRs Sink nominations at the applicable Default LAP. Load that is Pumped-Storage Hydro Units but is not Participating Load may be scheduled and settled at a PNode or Custom Load Aggregation Point and therefore LSEs for such Load shall submit CRR Sink nominations at the applicable PNode or Custom Load Aggregation Point. Load that is a Participating Load that is also aggregated is scheduled and settled at a Custom Load Aggregation Point that is customized specifically for such Load and, therefore, LSEs for such Participating Load shall submit CRR Sink nominations at the Custom Load Aggregation Point. Load that is Participating Load is scheduled and settled at an individual PNode, and therefore LSEs for such Load shall submit CRR Sink nominations at the applicable PNode. As provided in Sections 30.5.3, Load that is non-Participating Load, is not Pumped-Storage Hydro Units, and is not Load associated with ETCs, TORs, or MSS that elects net settlement, is scheduled and settled

at the Default LAP. Therefore, LSEs for such Load shall submit CRR Sink nominations at their assigned Default LAP or Default LAPs if the Load they serve is located in more than one Default LAP. In tier 3 of the annual process and tier 2 of the monthly process, such LSEs may also submit CRR Sink nominations at a sub-LAP of their assigned Default LAP.

36.8.2.1 Seasonal CRR Eligible Quantity.

The CAISO constructs load duration curves for the annual CRR Allocation process for each LSE based on the LSE's submission to the CAISO of its historical hourly Load data for the prior year, for each LAP within which the LSE serves Load. An LSE's Seasonal CRR Load Metric for each season and time of use period is the MW level of Load that is exceeded only in 0.5% of the hours based on the LSE's historical Load data. In the event that the LSE has lost or gained net Load through Load migration during the course of the prior year, the historical load data will be adjusted to reflect the loss or gain in accordance with the applicable BPM. The CAISO calculates an LSE's Seasonal CRR Eligible Quantity by subtracting from that LSE's Seasonal CRR Load Metric the quantity of Load served by its TORs, ETCs, and Converted ETCs, and multiplying the result by 0.75.

36.8.2.2 Monthly CRR Eligible Quantity.

b. Tier 2. In Tier 2 of the annual CRR Allocation, the CAISO will allocate Seasonal CRRs to each LSE up to 50% of its Seasonal CRR Eligible Quantity for each season, time of use period and LAP, plus 50% of the net load gained by the LSE through Load migration during the year, minus the quantity of CRRs allocated to that LSE in Tier 1.

c. Tier 3. In Tier 3 of the annual CRR Allocation, the CAISO will allocate Seasonal CRRs to each LSE up to 100% of its Seasonal CRR Eligible Quantity for each season, time of use period and LAP, minus the quantity of CRRs allocated to that LSE in Tiers 1 and 2. In Tier 3 of the annual CRR Allocation, sub-LAPs will be eligible CRR Sinks provided that the sub-LAP is within the nominating LSE's LAP.

36.8.3.6 Monthly Allocation Beyond CRR Year One.

The monthly CRR Allocation shall consist of a sequence of two (2) tiers of allocations for each time of use period (on-peak and off-peak). The monthly CRR Allocation will distribute Monthly CRRs to LSEs up to one hundred percent (100%) of their Monthly CRR Eligible Quantity minus CRRs allocated to that LSE in the annual CRR Allocation.

a. Tier 1. In Tier 1 of the monthly CRR Allocations, each LSE may nominate Monthly CRRs up to 50% of its Monthly CRR Eligible Quantities;

b. Tier 2. In Tier 2 of the monthly CRR Allocations, each LSE may nominate Monthly CRRs up to 100% of its Monthly CRR Eligible Quantities, minus the quantity of CRRs allocated to that LSE in Tier 1. In Tier 2 of the Monthly Allocation, Sub-LAPs will be eligible CRR Sinks.

36.8.4 Eligible Sources for CRR Allocation.

Sources for CRR nominations in the annual and monthly CRR Allocation processes can be either PNodes or Trading Hubs. For Tiers 1 and 2 of the annual CRR Allocation in CRR Year One, LSEs requesting CRRs whose CRR Source is a specific Generating Unit will be limited to seventy-five percent (75%) of that Generating Unit's PMax, even if that Generating Unit is owned by or fully contracted to the LSE requesting the CRR. For Tiers 1 and 2 of the annual CRR Allocation in CRR Year One, LSEs requesting CRRs whose CRR Source is a Trading Hub will be limited to seventy-five

Tiers 1 and 2. For Tier 3 the CAISO will calculate and set aside for the Annual CRR Auction 50 percent of the import capacity at each Scheduling Point that remains after the Tier 1 and Tier 2 allocations. In the Monthly CRR Allocation processes subsequent to CRR Year One there will be no special provisions regarding CRR Sources at Scheduling Points in Tier 1. For Tier 2 the CAISO will calculate and set aside for the Monthly CRR Auction 50 percent of the import capacity that remains at each Scheduling Point after accounting for the Annual CRR allocation and auction results for that month and Tier 1 of the monthly CRR Allocation.

36.8.5 Load Migration Between LSEs.

Load migration between LSEs will be reflected in the hourly load data and load forecasts used by the CAISO to calculate the CRR Load Metrics and CRR Eligible Quantities for each LSE, in accordance with procedures set forth in the applicable BPM. When load migration occurs during an annual CRR cycle, such migration will be reflected in appropriate adjustments to each affected LSE's CRR Eligible Quantities in subsequent annual and monthly CRR Allocations, as well as its PNP Eligible Quantities in the next annual CRR allocation. LSEs that lose Load through Load migration must comply with Section 36.8.5.1.1.

36.8.5.1 Load Migration Reflected in the Annual Allocation Process.

An LSE who loses or gains net Load through Load migration in a given year will have its Seasonal CRR Eligible Quantities in the next Annual CRR Allocation reduced or increased, respectively, in proportion to the net Load lost or gained through Load migration. In addition, an LSE who loses Load through Load migration in a given year will have its PNP Eligible Quantities reduced in proportion to the gross amount of Load lost through Load Migration. The reduction in PNP Eligible Quantities will be applied as a constant percentage to all CRRs allocated to that LSE in the prior annual CRR Allocation. There is no increase in an LSE's PNP Eligible Quantities due to an increase in Load due to Load migration. Such an LSE may acquire additional CRRs for net Load gained in Tiers 2 and 3 of the subsequent annual CRR Allocation. The CAISO will reserve CRRs in the annual PNP corresponding to the CRRs released by LSEs whose PNP Eligible Quantities were reduced, and will then release these CRRs for Tiers 2 and 3.

This mechanism will ensure, in the event that changes to the DC FNM prevent the full allocation of PNP Eligible Quantities, that CRRs nominated in the PNP undergo the same proportional reduction as CRRs released by the LSEs who lose Load due to Load migration, so as not to unfairly disadvantage those LSEs who gain Load through Load migration. The Load-gaining LSE will not be required to request the precise CRRs released by the relevant Load-losing LSE but will be able to nominate its preferred CRRs in Tiers 2 and 3.

36.8.5.1.1 Mid-Year Adjustments in Seasonal CRR Holdings.

If an LSE loses Load through Load migration to another LSE at any time between annual CRR Allocations, the load-losing LSE must compensate the Load-gaining LSE in one of the following two manners: 1) using the SRS, the Load-losing LSE may transfer a percentage of its Seasonal CRR holdings, for the remainder of the annual CRR cycle and for both on-peak and off-peak periods, to the Load-gaining LSE in a quantity proportionate to the percentage of its Load lost to the other LSE through migration; or 2) the LSE who loses Load through Load migration to another LSE may make cash payments to the relevant Load-gaining LSE in a value commensurate with the hourly CRR Payment stream that would have accrued to the CRRs transferred, based on the quantity of CRRs awarded to the Load-losing LSE.

36.8.5.2 Load Migration Reflected in the Monthly Allocation Process.

An LSE who loses or gains net Load through Load migration must reflect that loss or gain in the monthly Load forecasts it submits to the CAISO for determining its monthly CRR Eligible Quantities for future monthly CRR allocations.

36.8.5.3 Adjustments for Load Growth.

LSEs who experience Load growth that is not due to Load migration will reflect such Load growth in the data submitted to the CAISO for determining Seasonal and Monthly CRR Eligible Quantities for the CRR Allocation processes.

violation shall be each failure to provide a full response to a written request and the Sanction shall be determined from the date that the response was due until a full response to the request is received.

37.6.3 Audit Materials.

37.6.3.1 Expected Conduct.

Except as provided below in Section 37.6.4 (Review by FERC), Market Participants shall comply with the CAISO's audit and/or test procedures, and further shall perform and timely submit an annual self-audit as required under the CAISO Tariff.

37.6.3.2 Sanctions.

For failure to submit an annual Scheduling Coordinator Self Audit report, the Sanction shall be \$1000/day until such report is received by the CAISO. For all other violations of this rule the Sanctions shall be as follows: for the first violation in a rolling 12-month period, \$1000/day; for the second violation in a rolling 12-month period, \$2000/day; for the third and subsequent violations in a rolling 12-month period, \$5000/day. For purposes of this subsection, a "violation" shall be each failure to provide all information required under the audit or test, from the date that the information was due until all required information is received by the CAISO.

37.6.4 Review by FERC.

A Market Participant who objects to an information, audit or test obligation that is enforceable under Section 37.6.1, Section 37.6.2 or Section 37.6.3 above shall have the right immediately (and in all events, no later than the due date for the information) to seek review of the obligation with FERC. In the event that such review is sought, the time for submitting the response or other information to the CAISO shall be tolled until FERC resolves the issue.

37.7 Prohibition of Electric Energy Market Manipulation.

It shall be a violation of this CAISO Tariff for an entity, directly or indirectly, in connection with the purchase or sale of electric energy or the purchase or sale of transmission services subject to the jurisdiction of the FERC, (i) to use or employ any device, scheme, or artifice to defraud, (ii) to make any

untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading, or (iii) to engage in any act, practice, or course of business that operates or would operate as a fraud or deceit upon any entity. Violations or potential violations of this rule shall be referred to FERC for appropriate sanction.

Actions or transactions by a Market Participant that are explicitly contemplated in the CAISO Tariff or are undertaken at the direction of the CAISO are not in violation of this Rule of Conduct.

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if such conduct is detected and the other applicable conditions for the imposition of Mitigation Measures are met:

- (1) Physical withholding of an Electric Facility, in whole or in part, that is, not offering to sell or schedule the output of or services provided by an Electric Facility capable of serving a CAISO Market. Such withholding may include, but not be limited to: (i) falsely declaring that an Electric Facility has been forced out of service or otherwise become totally or partially unavailable, (ii) refusing to offer Bids for an Electric Facility when it would be in the economic interest, absent market power, of the withholding entity to do so, (iii) declining Bids called upon by the CAISO (unless the CAISO is informed in accordance with established procedures that the relevant resource for which the Bid is submitted has undergone a forced outage or derate), or (iv) operating a Generating Unit in Real-Time to produce an output level that is less than the Dispatch Instruction.
- (2) Economic withholding of an Electric Facility, that is, submitting Bids for an Electric Facility that are unjustifiably high (relative to known operational characteristics and/or the known operating cost of the resource) so that: (i) the Electric Facility is not or will not be dispatched or scheduled, or (ii) the Bids will set LMPs.
- (3) Uneconomic production from an Electric Facility that is, increasing the output of an Electric Facility to levels that would otherwise be uneconomic in order to cause, and obtain benefits from, a transmission constraint.
- (4) Bidding practices that distort prices or uplift charges away from those expected in a competitive market.

39.3.2 Mitigation Measures may also be imposed to mitigate the market effects of a rule, standard, procedure, design feature, or known software imperfection of a CAISO Market that allows a Market Participant to manipulate market prices or otherwise impair the efficient operation of that market, pending the revision of such rule, standard, procedure design feature, or software defect to preclude such manipulation of prices or impairment of efficiency.

39.6.1.2 Maximum RUC Availability Bid Prices

The maximum RUC Availability Bid price shall be \$250/MW/h.

39.6.1.3 Maximum Ancillary Services Bid Prices

The maximum level for Ancillary Services Bid prices shall be \$250/MWh.

39.6.1.4 Minimum Bid Price for Energy Bids.

Energy Bids into the CAISO Markets less than $-\$30/\text{MWh}$ are not eligible to set any LMP. If the CAISO dispatches a resource with an Energy Bid less than $-\$30/\text{MWh}$, the Scheduling Coordinator on behalf of the resource will be eligible to be paid the Bid price upon the submission of detailed information justifying the cost components of the Bid to the CAISO and FERC no later than seven (7) days after the end of the month in which the Bid was submitted. The CAISO will treat such information as confidential and will apply the procedure in Section 20.4 of this CAISO Tariff with regard to requests for disclosure of such information. The CAISO shall pay Scheduling Coordinators for amounts in excess of $-\$30/\text{MWh}$ minimum Bid price upon FERC acceptance of the information justifying the cost components.

39.6.1.5 Minimum Bid Price for Ancillary and RUC Bids.

Ancillary Service Bids and RUC Availability Bids submitted into CAISO markets must have Bid prices not less than $\$0/\text{MW/h}$.

39.7 Local Market Power Mitigation for Energy Bids.

Local market power mitigation is based on a periodic assessment and designation of transmission constraints as competitive or non-competitive. Such periodic assessment will be performed at a minimum on an annual basis and potentially more frequently if needed due to changes in system conditions, network topology, or market performance. Any changes in constraint designations will be publicly noticed prior to making the change. Upon determination that an ad hoc assessment is warranted, the CAISO will notice market participants that such an assessment will be performed. The determination whether a unit is being dispatched to relieve congestion on a competitive or non-competitive transmission constraint is based on two preliminary market runs that are performed prior to the actual pricing run of the market and are described in Sections 31 and 33 for the DAM and RTM, respectively.

39.7.1 Calculation of Default Energy Bids

Default Energy Bids shall be calculated by the CAISO, for the on-peak hours and off-peak hours for both the DAM and RTMs, pursuant to one of the methodologies described in this Section. The Scheduling Coordinator for each Generating Unit owner or Participating Load must rank order the following options of calculating the Default Energy Bid starting with its preferred method. The Scheduling Coordinator must provide the data necessary for determining the Variable Costs unless the Negotiated Rate option precedes the Variable Cost option in the rank order, in which case the Scheduling Coordinator must have a Negotiated Rate established with the Independent Entity charged with calculating the Default Energy

Bid. If no rank order is specified for a Generating Unit or Participating Load, then the default rank order of (1) Variable Cost Option, (2) Negotiated Rate Option, (3) LMP Option will be applied.

39.7.1.1 Variable Cost Option.

The Variable Cost option will calculate the Default Energy Bid as Variable Costs plus ten percent (10%). Variable Cost will be comprised of two components: Fuel Cost and Variable Operation and Maintenance Cost. The Fuel Cost portion will be calculated for each Bid segment using the Heat Rate supplied by the resource owner on file in the Master File and applicable regional natural gas price indices as specified in the Business Practice Manual. The default value for the Variable Operation and Maintenance Cost portion will be \$2/MWh. Generating Units that are of the Combustion Turbine or Reciprocating Engine technology will be eligible for a default Variable Operation and Maintenance Cost of \$4/MWh. Resource specific values may be negotiated with the Independent Entity charged with calculating the Default Energy Bid.

39.7.1.2 LMP Option.

The CAISO will calculate the LMP Option for the Default Energy Bid as a weighted average of the lowest quartile of LMPs at the Generating Unit PNode in periods when the unit was Dispatched during the preceding ninety (90) days. The weighted average will be calculated based on the quantities Dispatched within each segment of the Default Energy Bid curve.

39.7.1.3 Negotiated Option.

The Negotiated Option is a Default Energy Bid that is derived through consultation between the Scheduling Coordinator for a Generating Unit and the CAISO or an alternative independent entity selected by the CAISO to determine an amount for its Default Energy Bid. The CAISO shall make an informational filing with FERC of any Default Energy Bids negotiated pursuant to this section of the CAISO Tariff, no later than seven (7) days after the end of the month in which the Default Energy Bids were established.

39.7.1.4 Frequently Mitigated Unit Option.

A Frequently Mitigated Unit that is eligible for a Bid Adder may select a fourth Default Energy Bid option, which is equal to the Variable Cost Option plus the Bid Adder as described in Section 39.7.

ARTICLE V – RESOURCE ADEQUACY

**40 RESOURCE ADEQUACY DEMONSTRATION FOR ALL SCHEDULING
COORDINATORS SCHEDULING DEMAND IN THE CAISO CONTROL AREA.**

40.1 Applicability.

A Load Serving Entity, and its Scheduling Coordinator, shall be exempt from Section 40 during the compliance year, as defined in the Business Practice Manual, if the metered peak Demand of the Load Serving Entity did not exceed one (1) MW during the twelve months preceding the compliance year. Section 40 shall apply to all other Load Serving Entities and their respective Scheduling Coordinators.

40.1.1 Election of Load Serving Entity Status

On an annual basis, in the manner and schedule set forth in the Business Practice Manual, the Scheduling Coordinator for a Load Serving Entity, not exempt under Section 40.1, shall inform the CAISO whether each such LSE elects to be either: (i) a Reserve Sharing LSE or a (ii) Modified Reserve Sharing LSE. A Scheduling Coordinator for a Load-following MSS is not required to make an election under this Section. Scheduling Coordinators for Load-following MSSs are subject solely to Sections 40.2.4 and 40.3.

The CAISO may confirm with the CPUC, Local Regulatory Authority, or federal agency, as applicable, the accuracy of the election by the Scheduling Coordinator for any LSE under its respective jurisdiction, or, in the absence of any election by the Scheduling Coordinator, the desired election for any LSE under its jurisdiction. The determination of the CPUC, Local Regulatory Authority, or federal agency will be deemed binding by the CAISO on the Scheduling Coordinator and the LSE. If the Scheduling Coordinator and CPUC, Local Regulatory Authority, or federal agency, as appropriate, fail to make the election on behalf of an LSE in accordance with the Business Practice Manual, the LSE shall be deemed a Reserve Sharing LSE.

40.2 Information Requirements Regarding Resource Adequacy Programs.

40.2.1. Reserve Sharing LSEs.

40.2.1.1 Requirements for CPUC Load Serving Entities Electing Reserve Sharing LSE

Status

- (a) The Scheduling Coordinators for a CPUC Load Serving Entity electing Reserve Sharing LSE status must provide the CAISO with all information or data to be provided to the CAISO as required by the CPUC and pursuant to the schedule adopted by the CPUC, including, but not limited to, annual and monthly Resource Adequacy Plans.
- (b) Where the information or data provided to the CAISO under Section 40.2.1.1(a) does not include Reserve Margin(s), then the provisions of Section 40.2.2.1 shall apply.
- (c) Where the information or data provided to the CAISO under Section 40.2.1.1(a) does not include criteria for determining qualifying resource types and their Qualifying Capacity, then the provisions of Section 40.8 shall apply.
- (d) Where the information or data provided to the CAISO under Section 40.2.1.1(a) does not include annual and monthly Demand Forecasts requirements, then the provisions of Section 40.2.2.3 shall apply.
- (e) Where the information or data provided to the CAISO under Section 40.2.1.1(a) does not include annual and monthly Resource Adequacy Plan requirements, then Section 40.2.2.4 shall apply.

40.2.2 Requirements for Non-CPUC Load Serving Entities Electing Reserve Sharing LSE

Status, Including Default Provisions for CPUC Load Serving Entities

40.2.2.1 Reserve Margin

- (a) The Scheduling Coordinator for a Non-CPUC Load Serving Entity electing Reserve Sharing LSE status must provide the CAISO with the Reserve Margin(s) adopted by the appropriate Local Regulatory Authority or federal agency for use in the annual Resource Adequacy Plan and monthly Resource Adequacy Plans listed as a percentage of the Demand Forecasts developed in accordance with Section 40.2.2.3.
- (b) For the Scheduling Coordinator for a non-CPUC Load Serving Entity for which the appropriate Local Regulatory Authority or federal agency has not established a Reserve Margin(s) or a CPUC Load Serving Entity subject to Section 40.2.1.1(b) that has elected Reserve Sharing LSE status, the Reserve Margin shall be no less than 15% of the applicable month's peak hour Demand of the LSE as determined by the Demand Forecasts developed in accordance with Section 40.2.2.3.

40.2.2.2 Qualifying Capacity Criteria

The Scheduling Coordinator for a Non-CPUC Load Serving Entity electing Reserve Sharing LSE status must provide the CAISO with a description of the criteria adopted by the Local Regulatory Authority or federal agency for determining qualifying resource types and the Qualifying Capacity from such resources and any modifications thereto as they are implemented from time to time. The Reserve Sharing LSE may elect to utilize the criteria set forth in Section 40.8.

40.2.2.3 Demand Forecasts

The Scheduling Coordinator for a Non-CPUC Load Serving Entity or CPUC Load Serving Entity subject to Section 40.2.1.1(b) electing Reserve Sharing LSE status must provide annual and monthly Demand Forecasts on the schedule set forth in the Business Practices Manual. The annual and monthly Demand Forecasts shall set forth the Load Serving Entity's respective annual and monthly non-coincident peak Demand for its Service Area, MSS area, or TAC Area in which the Load Serving Entity serves Load, unless either (i) the Load Serving Entity agrees to utilize the annual and monthly coincident peak Demand determinations provided by the California Energy Commission for such Load Serving Entity; or (ii) if the

California Energy Commission does not produce coincident peak Demand forecasts for the Load Serving Entity, the annual and monthly coincident peak Demand forecasts produced by the CAISO in accordance with its Business Practice Manual. Scheduling Coordinators must provide data and/or supporting information, as requested by the CAISO, for the Demand Forecasts required by this Section for each Load Serving Entity and a description of the criteria upon which the Demand Forecasts were developed, if applicable, and any modifications thereto as they are implemented from time to time.

40.2.2.4 Annual and Monthly Resource Adequacy Plans

The Scheduling Coordinator for a non-CPUC Load Serving Entity or a CPUC Load Serving Entities subject to Section 40.2.1.1(b) electing Reserve Sharing LSE status must provide annual and monthly Resource Adequacy Plans, on a schedule and in the reporting formats set forth in the CAISO's Business Practice Manual, for such Load Serving Entity. The annual Resource Adequacy Plan must, at a minimum, set forth the Local Capacity Area Resources, if any, procured by the Load Serving Entity as described in Section 40.3. The monthly Resource Adequacy Plan should identify the resources the Load Serving Entity will rely upon to satisfy the applicable month's peak hour Demand of the Load Serving Entity as determined by the Demand Forecasts developed in accordance with Section 40.2.2.3. and applicable Reserve Margin. Resource Adequacy Plans must utilize the Net Qualifying Capacity requirements of Section 40.4.

40.2.3 Modified Reserve Sharing LSEs.

40.2.3.1 Reserve Margin

- (a) The Scheduling Coordinator for a Load Serving Entity electing Modified Reserve Sharing LSE status must provide the CAISO with the Reserve Margin(s) adopted by the CPUC, appropriate Local Regulatory Authority or federal agency, as appropriate, for use in the annual Resource Adequacy Plan and monthly Resource Adequacy Plans listed as a percentage of the Demand Forecasts developed in accordance with Section 40.2.3.3.
- (b) For the Scheduling Coordinator for a Load Serving Entity electing Modified Reserve Sharing LSE status for which the CPUC, Local Regulatory Authority, or federal agency, as appropriate, has not established a Reserve Margin(s), the Reserve Margin shall be no less than 15% of the applicable month's peak hour Demand of the LSE as determined by the Demand Forecasts developed in accordance with Section 40.2.3.3.

40.2.3.2 Qualifying Capacity

The Scheduling Coordinator for a Load Serving Entity electing Modified Reserve Sharing LSE status must provide the CAISO with a description of the criteria for determining qualifying resource types and the Qualifying Capacity from such resources and any modifications thereto as they are implemented from time to time. The Modified Reserve Sharing LSE may elect to utilize the criteria set forth in Section 40.8.

40.2.3.3 Demand Forecasts

- (a) The Scheduling Coordinator for a Load Serving Entity electing Modified Reserve Sharing LSE status must submit, as part of its monthly Resource Adequacy Plan as, a Demand Forecast reflecting the non-coincident peak hour Demand to be served by the Modified Reserve Sharing LSE for the relevant month, measured in megawatts. This Demand Forecast plus the applicable Reserve Margin as set forth in Section 40.2.3.1 shall establish the Scheduling Coordinator's monthly Resource Adequacy Plan demonstration for each Modified Reserve Sharing LSE for the relevant month.

- (b) The Scheduling Coordinator for a Load Serving Entity electing Modified Reserve Sharing LSE status must submit, on the schedule and in the manner set forth in the Business Practice Manual, hourly Demand Forecasts for each Trading Hour of the next Trading Day for each Modified Reserve Sharing LSE represented.
- (c) The Scheduling Coordinator for a Load Serving Entity electing Modified Reserve Sharing LSE status must provide data or supporting information, as requested by the CAISO, for the Demand Forecasts required by Section 40.2.3.3 for each Modified Reserve Sharing LSE served by the Scheduling Coordinator and a description of the criteria upon which the Demand Forecast was developed, and any modifications thereto as they are implemented from time to time.

40.2.3.4 Annual and Monthly Resource Adequacy Plans

The Scheduling Coordinator for a Load Serving Entity electing Modified Reserve Sharing LSE status must provide annual and monthly Resource Adequacy Plans, on a schedule and in the format set forth in the Business Practice Manual, for each Modified Reserve Sharing LSE served by the Scheduling Coordinator. The annual Resource Adequacy Plan should set forth the Local Capacity Area Resources, if any, procured by the Modified Reserve Sharing LSE as described in Section 40.3. The monthly Resource Adequacy Plan should identify the resources the Modified Reserve Sharing LSE will rely upon to satisfy its monthly forecasted monthly Demand and Reserve Margin as set forth in Section 40.2.3.1, for the relevant reporting period and must utilize the Net Qualifying Capacity requirements of Section 40.4.

40.2.4 Load-Following MSS.

A Scheduling Coordinator for a Load-following MSS must provide an annual Resource Adequacy Plan that sets forth the Local Capacity Area Resources, if any, procured by the Load-following MSS as described in Section 40.3.

40.3 Local Capacity Area Resource Requirements Applicable to Scheduling Coordinators for All Load Serving Entities.

40.3.1 CAISO Technical Study.

The CAISO will, on an annual basis, perform and publish on the CAISO Website a technical study that determines the minimum amount of Local Capacity Area Resources that must be available to the CAISO within each Local Capacity Area identified in the technical study. The CAISO shall collaborate with the CPUC, Local Regulatory Authorities within the CAISO Control Area, and other market participants to establish the parameters, assumptions, and other criteria to be used and described in the technical study that permit compliance with Applicable Reliability Criteria.

40.3.2 Allocation of Local Capacity Area Resource Obligations.

The CAISO will allocate responsibility for Local Capacity Area Resources to Scheduling Coordinators Load Serving Entities in the following sequential manner:

- i. The responsibility for the aggregate Local Capacity Area Resources required for all Local Capacity Areas within each TAC Area will be allocated to all Scheduling Coordinators for Load Serving Entities that serve Load in the TAC Area in accordance with the Load Serving Entity's proportionate coincident share, on a gross Load basis, of the previous annual peak Demand in the TAC Area under the conditions used in the technical study. This will result in a MW responsibility for the entire TAC Area that may be met by procurement of that MW quantity in any Local Capacity Area in the TAC Area.
- ii. For Scheduling Coordinators for Non-CPUC Load Serving Entities, the Local Capacity Area Resource obligation will be allocated based on Section 40.3.2(i) above.
- iii. For Scheduling Coordinators for CPUC Load Serving Entities, the CAISO will allocate the Local Capacity Area Resource obligation based on an allocation methodology, if any, adopted by the

CPUC. However, if the allocation methodology adopted by the CPUC does not fully allocate the total sum of each CPUC Load Serving Entity's proportionate share calculated under Section 40.3.2(i), the CAISO will allocate the difference to all Scheduling Coordinators for CPUC Load Serving Entities in accordance with their proportionate share calculated under 40.3.2(i). If the CPUC does not adopt an allocation methodology, the CAISO will allocate Local Capacity Area Resources to Scheduling Coordinators for CPUC Load Serving Entities based on Section 40.3.2(i).

Once the CAISO has determined the total responsibility, the CAISO will inform each Scheduling Coordinator for LSE of its specific allocated responsibility for Local Capacity Area Resources.

40.3.3 Procurement of Local Capacity Area Resource Obligations by Load Serving Entities.

Nothing in this Section 40 obligates any Scheduling Coordinator to demonstrate on behalf of a Load Serving Entity that the Load Serving Entity has procured Local Capacity Area Resources to satisfy capacity requirements for each Local Capacity Area identified in the technical study. Scheduling Coordinators for Load Serving Entities may aggregate responsibilities for procurement of Local Capacity Area Resources. If a Load Serving Entity has procured Local Capacity Area Resources that satisfy generation capacity requirements for Local Capacity Areas, the Scheduling Coordinator for such Load Serving Entity shall include this information in its annual and monthly Resource Adequacy Plan(s).

40.3.4 Procurement of Local Capacity Area Resources by the CAISO.

The CAISO may procure Local Capacity Area Resources, pursuant to applicable provisions of the CAISO Tariff, including any mechanism incorporated into the CAISO Tariff specifically to permit procurement of Local Capacity Area Resources by the CAISO, to the extent:

- (i) a Scheduling Coordinator representing a Load Serving Entity with Load in the TAC Area in which the Local Capacity Area is located fails to demonstrate in an annual Resource Adequacy Plan procurement of the Load Serving Entity's share of Local Capacity Area Resources, as determined in Section 40.3.2, in which case the CAISO may procure Local Capacity Area

Resources to remedy the deficiency pursuant to Section 42.1.5 and allocate the costs of such procurement pursuant to Section 42.1.8(a); provided that the CAISO shall not procure Local Capacity Area Resources to remedy the deficiency of the Load Serving Entity unless in the aggregate a deficiency exists that results in the failure to comply with Applicable Reliability Criteria in the Local Capacity Area after taking into account Generating Units under Reliability Must-Run Contracts, if any, and all Resource Adequacy Resources reflected in all submitted annual Resource Adequacy Plans, whether or not such Resource Adequacy Resources are located in the applicable Local Capacity Area.

- (ii) the Local Capacity Area Resources specified in the annual Resource Adequacy Plans of all Scheduling Coordinators fail to permit or ensure compliance with Applicable Reliability Criteria

in one or more Local Capacity Areas, regardless of whether such resources satisfy, for the deficient Local Capacity Area, the minimum amount of Local Capacity Area Resources identified in the technical study performed under Section 40.3.1 and after taking into account Generating Units under Reliability Must-Run Contracts, if any, and all Resource Adequacy Resources reflected in all submitted annual Resource Adequacy Plans, whether or not such Resource Adequacy Resources are located in the applicable Local Capacity Area, in which case, the CAISO will procure Local Capacity Area Resources in an amount and location sufficient to permit or ensure compliance with such Applicable Reliability Criteria in the Local Capacity Area. The CAISO will procure any Local Capacity Resources required by this Section 40.3.4(ii) pursuant to Section 41 to the extent the failure to satisfy Applicable Reliability Criteria constitutes a violation of the technical evaluations performed pursuant to Section 41.3. The CAISO will procure any Local Capacity Area Resources required by this Section 40.3.4(ii) pursuant to Section 42.1 and will allocate the costs of such procurement pursuant to 42.1.8(b) to the extent the failure to satisfy Applicable Reliability Criteria constitutes a violation of the technical evaluations performed pursuant to Section 40.3.1, but not the technical evaluations performed pursuant to 41.3.

To the extent the cost of CAISO procurement under this Section is allocated to a Scheduling Coordinator, on behalf of a Load Serving Entity, that Scheduling Coordinator will receive credit toward its Local Capacity Area Resource obligation for the Load Serving Entity's pro rata share of the procured Local Capacity Area Resource. Whether or not the share of the Local Capacity Resource procured by the CAISO under this Section may count towards satisfaction of a Load Serving Entity's Reserve Margin shall be determined by the CPUC, Local Regulatory Authority, or federal agency with jurisdiction of the Load Serving Entity, unless the CPUC, Local Regulatory Authority, or federal agency has failed to establish a Reserve Margin, in which case the CAISO will assign the Load Serving Entity's share of the Local Capacity Area Resource towards satisfaction of its Reserve Margin pursuant to Sections 40.2.1.1(b), 40.2.2.1(b), and 40.2.3.1(b).

40.3.4.1 Factors for Procuring Local Capacity Resources

The CAISO shall procure Local Capacity Area Resources under Section 40.3.4 considering the

effectiveness of the capacity at meeting Applicable Reliability Criteria in the Local Capacity Area and the costs associated with the capacity. The CAISO is permitted to procure a Generating Unit or Participating Load resource even where only a portion of capacity of the Generating Unit or Participating Load resource is needed to meet Applicable Reliability Criteria in the Local Capacity Area.

40.3.4.2 Local Capacity Area Procurement Report

The CAISO shall publish a report on the CAISO Website which shall show the Local Capacity Area Resources procured under Section 40.3.4, the megawatts of capacity procured, the duration procurement, the reason(s) for the procurement, and all payments in dollars, itemized for each Local Capacity Area. The CAISO will provide a market notice of the availability of the report.

40.4 General Requirements on Resource Adequacy Resources.

40.4.1 Designation of Eligible Resources and Determination of Qualifying Capacity.

The CAISO shall use the criteria provided by the CPUC or Local Regulatory Authority to determine and verify, if necessary, the Qualifying Capacity of all Resource Adequacy Resources; however, to the extent a resource is listed by one or more Scheduling Coordinators in their Resource Adequacy Plans, which apply the criteria of more than one Local Regulatory Authority that leads to conflicting Qualifying Capacity values for that resource, the CAISO will accept the methodology that results in the highest Qualifying Capacity value. Only if the CPUC, Local Regulatory Authority, or federal agency has not established any Qualifying Capacity criteria, or chooses to rely on the criteria in this CAISO Tariff, will the provisions of Section 40.8 apply.

40.4.2 Net Qualifying Capacity Report.

The CAISO shall produce an annual report posted to the CAISO Website setting forth the Net Qualifying Capacity of all Participating Generators. All other Resource Adequacy Resources may be included in the annual report under Section 40.4.2 upon their request. Any disputes as to the CAISO's determination regarding Net Qualifying Capacity shall be subject to the CAISO ADR Procedures.

40.4.3 General Qualifications for Supplying Net Qualifying Capacity.

Resource Adequacy Resources included in a Resource Adequacy Plan submitted by a Scheduling Coordinator on behalf of a Load Serving Entity serving Load in the CAISO Control Area are subject to the following:

- (1) Be available for testing by the CAISO to validate Qualifying Capacity and determine Net Qualifying Capacity;
- (2) Provide any information requested by the CAISO to apply the performance criteria to be adopted by the CAISO pursuant to Section 40.4.5;
- (3) Submit Bids into the CAISO Markets as required by this CAISO Tariff;
- (4) Be in compliance with the criteria for Qualifying Capacity established by the CPUC, relevant Local Regulatory Authority, or federal agency and provided to the CAISO; and
- (5) Be subject to sanctions for non-performance as specified in the CAISO Tariff.

40.4.4. Reductions for Testing.

In accordance with the procedures specified in the Business Practice Manual, Participating Generators or other Generating Units or System Units included in a Resource Adequacy Plan submitted by a Scheduling Coordinator on behalf of a Load Serving Entity serving can have its Qualifying Capacity reduced if a CAISO testing program determines that it is not capable of supplying the full Qualifying Capacity amount.

40.4.5 Reductions for Performance Criteria.

No later than 12 months after the effective date of this Section 40, the CAISO will issue a report outlining a proposal with respect to performance criteria. The Scheduling Coordinator of a Resource Adequacy Resource shall provide or make available to the CAISO, subject to the confidentiality provisions of this CAISO Tariff, all documentation requested by the CAISO to determine, develop or implement the performance criteria, including, but not limited to, NERC Generating Availability Data System data. The CAISO will begin reducing Qualifying Capacity based on performance criteria after adoption of performance criteria by the CPUC and/or Local Regulatory Authorities.

40.4.6 Reductions for Deliverability.

40.4.6.1 Deliverability Within the CAISO Control Area.

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Issued on: November 20, 2006

Effective: November 1, 2007

In order to determine Net Qualifying Capacity from Resource Adequacy Resources subject to this Section 40.4, the CAISO will determine that a Resource Adequacy Resource is available to serve the aggregate of Load by means of a deliverability study. Documentation explaining the CAISO's deliverability analysis will be posted on the CAISO Website. The deliverability study will be performed annually and shall focus on peak Demand conditions. The results of the deliverability study shall be effective for a period no shorter than a compliance year. To the extent the deliverability study shows that the Qualifying Capacity is not deliverable to the aggregate of Demand under the conditions studied, the Qualifying Capacity of the Resource Adequacy Resource will be reduced on a MW basis for the capacity that is undeliverable.

40.4.6.2 Deliverability of Imports.

The CAISO shall, by means of an annual deliverability study, establish the total import capacity for each import path to be allocated to Scheduling Coordinators for Load Serving Entities. The study results shall be posted on the CAISO Website. For the purpose of accounting for import Resource Adequacy Capacity, the import capability of the system will be allocated by branch group to Scheduling Coordinators for Non-CPUC Load Serving Entities individually and to the Scheduling Coordinators for CPUC Load Serving Entities as an aggregated allocation, which will be subject to the allocation rules of the CPUC. The allocation to Scheduling Coordinators for CPUC Load Serving Entities will be the total import value by branch group minus import capacity associated with (i) Existing Transmission Contracts, (ii) Encumbrances and Transmission Ownership Rights, and (iii) resource commitments outside the CAISO Control Area of Non-CPUC Load Serving Entities, as of October 27, 2005. The allocation to Scheduling Coordinators for Non-CPUC Load Serving Entities will be the resource commitments outside the CAISO Control Area of Scheduling Coordinators for Non-CPUC Load Serving Entities, as of October 27, 2005. Import capacity associated with (i) Existing Transmission Contracts and (ii) Encumbrances and Transmission Ownership Rights shall be reserved for holders of such commitments as part of the deliverability study and will not be subject to allocation under these rules. Resource commitments outside the CAISO Control Area of any Load Serving Entity entered into after October 27, 2005 will be given

identical allocation priority. This allocation does not guarantee or result in any actual transmission service being allocated and is only used for determining the maximum Resource Adequacy Capacity that can be credited towards satisfying a Scheduling Coordinator's obligations under its Resource Adequacy Plan. Upon the request of the CAISO, Scheduling Coordinators must provide the CAISO with information on existing Energy or capacity import contracts and any trades or sales of their Load share allocation. Such information will be subject to the confidentiality provisions of this CAISO Tariff. The CAISO will inform the CPUC if a Resource Adequacy Plan submitted by a Scheduling Coordinator for a CPUC Load Serving Entity exceeds its allocation of import capacity. The CAISO will inform the Scheduling Coordinator for a Non-CPUC Load Serving Entity if its Resource Adequacy Plan exceeds the Non-CPUC Load Serving Entity's allocation of import capacity and will either: (i) reduce all Resource Adequacy Capacity from imports of that Scheduling Coordinator on a pro rata basis or (ii) reduce a specific Resource Adequacy Capacity from imports as instructed by the Scheduling Coordinator so as to equal the allocated amount of import capacity.

40.4.7 Submission of Supply Plans.

Scheduling Coordinators representing Resource Adequacy Resources supplying Resource Adequacy Capacity shall provide the CAISO with an annual and/or monthly plan, as applicable, on the schedule set forth in the Business Practices Manual verifying their agreement to provide the Resource Adequacy Capacity listed on the annual and/or monthly Resource Adequacy Plan, as applicable, submitted by a Scheduling Coordinator for a Load Serving Entity. The Supply Plan must be in the form of the template provided on the CAISO Website.

40.5 Requirements Applicable to Modified Reserve Sharing LSEs Only.

40.5.1 Day Ahead Scheduling and Bidding Requirements.

Scheduling Coordinators on behalf of Modified Reserve Sharing LSEs serving Load within the CAISO Control Area for whom they submit Demand Bids:

(1) Submit into the IFM, a Self-Schedule or Bid equal to 115% of the hourly Demand Forecasts for each Modified Reserve Sharing LSE it represents for each Trading Hour for the next Trading Day. Subject to Section 40.5.5, the resources included in a Self-Scheduled and/or bid in each Trading Hour to satisfy 115% of the Modified Reserve Sharing LSE's hourly Demand Forecasts will be deemed Resource Adequacy Resources and (i) shall be those resources listed in the Modified Reserve Sharing LSE's monthly Resource Adequacy Plan and (ii) shall include all Local Capacity Area Resources listed in the Modified Reserve Sharing LSE's annual Resource Adequacy Plan, if any, except to the extent the Local Capacity Area Resources, if any, are unavailable due to any outages or reductions in capacity reported to the CAISO in accordance with this CAISO Tariff.

- i. A Local Capacity Area Resource that has not fully submitted a Bid or Self-Schedule for all of its Resource Adequacy capacity of will be subject to the CAISO's optimization for the remainder of its capacity, which must be Bid into the Day-Ahead Market; however, to the extent the Generating Unit providing Local Capacity Area Resource capacity constitutes a Use-Limited Resource under Section 40.6.4, the provisions of Section 40.6.4 will apply.
- ii. If the Resource Adequacy Resource submits a Bid for Ancillary Services, the Energy Bid associated with the Bid for Ancillary Services will be optimized by the CAISO. However, pursuant to Section 8.6.2, to the extent the Local Capacity Area Resource Self-Provides Ancillary Services and local constraints result is a solution in the MPM-RRD that involves Load

reduction, then Self-Provided AS from the Local Capacity Area Resource will be converted into Ancillary Service Bids at the Minimum Bid Price for Ancillary Services as prescribed in Section 39.6.1.5.

- iii. Resource Adequacy Resources must participate in the RUC to the extent that the resource has not submitted a Self-Schedule or already committed to provide Energy or capacity in the IFM. Resource Adequacy Resources will be required to offer into RUC and will be considered based on a \$0 RUC Availability Bid.
- iv. Capacity from Resource Adequacy Resources selected in RUC will not be eligible to receive a RUC Availability Payment.

(2) Resource Adequacy Resources of Modified Reserve Sharing LSEs that do not clear in the IFM or are not committed in RUC shall have no further offer requirements in HASP or Real-Time, except under System Emergencies as provided in this CAISO Tariff.

(3) Resource Adequacy Resources committed by the CAISO must maintain that commitment through Real-Time. In the event of a forced outage on a Resource Adequacy Resource committed in the Day-Ahead Market to provide Energy, the Scheduling Coordinator for the Modified Reserve Sharing LSE will have up to the next HASP bidding opportunity, plus one hour, to replace the lesser of: (i) the committed resource suffering the forced outage, (ii) the quantity of Energy committed in the Day-Ahead Market, or (iii) 107% of the hourly forecast load.

40.5.2 Demand Forecast Accuracy.

On a monthly basis, the CAISO will review meter data to evaluate the accuracy or quality of the hourly Day-Ahead Demand Forecasts submitted by the Scheduling Coordinator on behalf of Modified Reserve Sharing LSEs. If the CAISO determines, based on its review, that one or more Demand Forecasts materially under-forecasts the Load of the Modified Reserve Sharing LSEs for whom the Scheduling Coordinator schedules, after accounting for weather adjustments, the CAISO will notify the Scheduling Coordinator of the deficiency and will cooperate with the Scheduling Coordinator and Modified Reserve Sharing LSE(s) to revise its Demand Forecast protocols or criteria. If the material deficiency persists for three (3) consecutive months with respect to the monthly Demand Forecast or ten (10) hourly

occurrences over a minimum of two (2) non-consecutive week days within a month, the CAISO may: (i) inform State authorities including, but not necessarily limited to the Legislature, and identify the Modified Reserve Sharing LSE(s) represented by the Scheduling Coordinator and (ii) assign to the Scheduling Coordinator responsibility for all Tier 1 RUC charges as specified in Section 11.8.6.5 to address the uncertainty caused by the Scheduling Coordinator's deficient hourly Demand Forecasts until the deficiency is addressed.

40.5.3 Requirement to Make Resources Available During System Emergencies.

Scheduling Coordinators for Modified Reserve Sharing LSEs that are MSS Operators shall make resources available to the CAISO during a System Emergency in accordance with the provisions of Section 4.9 and their Metered Subsystem Agreement. Scheduling Coordinators for all other Modified Reserve Sharing LSEs shall make available to the CAISO upon a warning or emergency notice of an actual or imminent System Emergency all resources that have not submitted a Self-Schedule or Economic Bid in the IFM that were listed in the Modified Reserve Sharing LSEs monthly Resource Adequacy Plan that are physically capable of operating without violation of any applicable law.

40.5.4 Consequence of Failure to Meet Scheduling Obligation.

(1) If the Scheduling Coordinator for the Modified Reserve Sharing LSE fails to submit a Self-Schedule or submit Bids equal to 115% of its hourly Demand Forecasts for each Trading Hour for the next Trading Day in the IFM and RUC, the Scheduling Coordinator will be charged a capacity surcharge of three times the price of the relevant Day-Ahead Hourly LAP LMP in the amount of the shortfall. To the extent the Scheduling Coordinator for the Modified Reserve Sharing LSE schedules imports on one or more Scheduling Points in an aggregate megawatt amount greater than its aggregate import deliverability allocation under Section 40.4.6.2, the quantity of megawatts in excess of its import deliverability allocation will not count toward satisfying the Modified Reserve Sharing LSE's scheduling obligation, unless it clears the Day-Ahead Market.

(2) If the Scheduling Coordinator for the Modified Reserve Sharing LSE cannot fulfill its obligations under Section 40.5.1(3) of this CAISO Tariff, the Scheduling Coordinator for the Modified Reserve Sharing LSE will be charged a capacity surcharge of two times the average of the six (6) Settlement

Interval LAP prices for the hour in the amount of the shortfall. Energy scheduled in the HASP will not net against, or be used as a credit to correct, any failure to fulfill the Day-Ahead IFM hourly scheduling and RUC obligation in Section 40.5.2(1).

(3) Any Energy surcharge received by the CAISO pursuant to Section 40.5.4, shall be allocated to Scheduling Coordinators representing other Load Serving Entities in proportion to metered Demand during the relevant Trading Hour(s).

40.5.5 Substitution of Resources.

Subject to the provisions of this Section 40.5, the Scheduling Coordinator for a Modified Reserve Sharing LSE may substitute for its Resource Adequacy Resources listed in its monthly Resource Adequacy Plan provided:

- 1) Substitutions must occur no later than the close of the IFM; and
- 2) Resources eligible for substitution are either imports or capacity from Non-Resource Adequacy Resources or Resource Adequacy Resources with additional available capacity defined as Net Qualifying Capacity in excess of previously sold Resource Adequacy Capacity; however the Local Capacity Area Resource may be substituted only with capacity from Non-Resource Adequacy Resources located in the same Local Capacity Area.

40.6 Requirements Applicable to Scheduling Coordinators for Reserve Sharing LSEs and Resources Providing Resource Adequacy Capacity to Reserve Sharing LSEs.

This Section 40.6 does not apply to Resource Adequacy Resources of Load-following MSSs and those entities that participate in the Modified Reserve Sharing program in Section 40.5. Scheduling Coordinators supplying Resource Adequacy Capacity shall make the Resource Adequacy Capacity listed in the Scheduling Coordinator's monthly Supply Plans under Section 40.4.7 available to the CAISO each hour of each day of the report-month in accordance with this Section 40.6.

40.6.1 Day-Ahead Availability.

Scheduling Coordinators supplying Resource Adequacy Capacity shall make the Resource Adequacy Capacity, except for that subject to Section 40.6.4, available Day-Ahead to the CAISO as follows:

40.6.4.3.4 Availability of Intermittent Resources

Any Eligible Intermittent Resource that provides Resource Adequacy Capacity may, but is not required to, submit Bids in the Day-Ahead Market.

40.6.5 Additional Availability Requirements for System Resources.

In the IFM, the multi-hour block constraints of the System Resource are honored in the optimization. The CAISO anticipates that multi-hour block System Resources that are Resource Adequacy Resources must be capable of hourly selection by the CAISO in RUC if not fully committed in the IFM. If selected in the RUC, the System Resource must be dispatchable in those hours in the HASP and Real Time Market. For existing System Resources with a call-option that expires prior to the completion of the IFM, such System Resources listed on a Resource Adequacy Plan must be reported to the CAISO for consideration in any CAISO Extremely Long-Start Resource commitment process.

40.6.6 Availability Requirements for Partial Resource Adequacy Resources.

A Partial Resource Adequacy Resource has capacity that is not committed to meet a Resource Adequacy obligation in the CAISO Control Area. Only that output of the resource that is designated by a Scheduling Coordinator as Resource Adequacy Capacity in its monthly or annual Resource Adequacy Plan shall have an availability obligation to the CAISO.

40.6.7 Availability Requirements for Long Start Units.

40.6.7.1 Release of Long-Start Units.

Long-Start Units not committed in the Day-Ahead Market will be released from any further obligation to submit Self-Schedules or Bids for the relevant Operating Day. Scheduling Coordinators for Long-Start Units are not precluded from self-committing the unit after the Day-Ahead Market and submit a Self-Schedule a Wheel-Out in the HASP, unless precluded by terms of its contract.

40.6.7.2 Obligation of Long-Start Units to Offer Remaining Capacity in Real-Time.

Long Start Units that have been committed by the CAISO in the Day-Ahead Market or the RUC for part of their Resource Adequacy Capacity or have submitted a Self-Schedule for part of their Resource Adequacy Capacity must remain available to the CAISO through Real-Time for the full value of their Resource Adequacy Capacity.

Unit-specific contracts with Participating Generators or System Units will qualify as Resource Adequacy Capacity subject to the verification that the total MW quantity of all contracts from a specific unit do not exceed the total Net Qualifying Capacity (MW) consistent with the Net Qualifying Capacity determination for that unit.

40.8.1.5 Contracts with Liquidated Damage Provisions.

Firm energy contracts with liquidated damages provisions, as generally reflected in Service Schedule C of the Western Systems Power Pool Agreement or the Firm LD product of the Edison Electric Institute pro forma agreement, or any other similar firm energy contract that does not require the seller to source the energy from a particular unit, and specifies a delivery point internal to the CAISO Control Area entered into before October 27, 2005 shall be eligible to count as Qualifying Capacity until the end of 2008. A Scheduling Coordinator, however, cannot have more than 75% of its portfolio of Qualifying Capacity met by contracts with liquidated damage provisions for 2006. This percentage will be reduced to 50% for 2007 and 25% for 2008.

40.8.1.6 Wind and Solar.

As used in this Section, wind units are those wind Generating Units without backup sources of generation and solar units are those solar Generating Units without backup sources of generation. Wind and Solar units, other than Qualifying Facilities with effective contracts under the Public Utility Regulatory Policies Act, must be participants in the CAISO's Participating Intermittent Resource Program ("PIRP") or subject to availability provisions of Section 40.6.4.3.4.

The Qualifying Capacity of all wind or solar units, including Qualifying Facilities, will be based on their monthly historic performance during the Standard Offer 1 peak hours of noon to 6:00 p.m., using a three-year rolling average.

40.8.1.7 Geothermal.

Geothermal units, other than Qualifying Facilities addressed in Section 40.8.1.8, must be Participating Generators or System Units. The Qualifying Capacity of geothermal units, other than Qualifying Facilities addressed in Section 40.8.1.8, will be based on NERC GAD net dependable capacity minus a derate for steam field degradation.

Dynamic System Resources shall be treated similar to resources within the CAISO Control Area, except with respect to the deliverability screen under Section 40.4.6.1. However, eligibility as a Resource Adequacy resource is contingent upon a showing by the Scheduling Coordinator that the Dynamic System Resource has secured transmission through any intervening Control Areas for the operating hours that cannot be curtailed for economic reasons or bumped by higher priority transmission and that the Load Serving Entity upon which the Scheduling Coordinator is submitting Demand Bids has an allocation of import capacity at the import Scheduling Point under Section 40.4.6.2 of the CAISO Tariff that is not less than the Resource Adequacy Capacity provided by the Dynamically Scheduled System Resource.

40.8.1.12.2 Non-Dynamic System Resources.

For Non-Dynamic System Resources, the Scheduling Coordinator must demonstrate that the Load Serving Entity upon which the Scheduling Coordinator is scheduling Demand has an allocation of import capacity at the import Scheduling Point under Section 40.4.6.2 of the CAISO Tariff that is not less than the Resource Adequacy Capacity from the Non-Dynamic System Resource. The Scheduling Coordinator must also demonstrate that the Non-Dynamic System Resource is covered by Operating Reserves, unless, unit contingent, in the sending Control Area. Eligibility as Resource Adequacy Capacity would be contingent upon a showing by the Scheduling Coordinator of the System Resource that it has secured transmission through any intervening Control Areas for the operating hours that cannot be curtailed for economic reasons or bumped by higher priority transmission. With respect to Non-Dynamic System Resources, any inter-temporal constraints such as multi-hour run blocks, must be explicitly identified in the monthly Resource Adequacy plan, and no constraints may be imposed beyond those explicitly stated in the plan.

considered as a Market Transaction in accordance with the RMR Contract. RMR Units operating under Condition 2 may not submit Bids until and unless the CAISO issues an RMR Dispatch Notice or issues an RMR Dispatch in the IFM, in which case a Condition 2 RMR Unit shall submit Bids in accordance with the RMR Contract in the next available market for the Trading Hours specified in the RMR Dispatch Notice or Day-Ahead Schedule.

41.5.2 RMR Payments.

RMR Units operating under Condition 1 or Condition 2 that receive a RMR Dispatch Notice will be paid in accordance with the RMR Contract.

41.5.3 RMR and Ancillary Services Requirements.

CAISO may call upon RMR Units in any amounts that the CAISO has determined is necessary at any time after the issuance of Day-Ahead Schedules for the Trading Day if: (i) the CAISO determines that it requires more of an Ancillary Service than it has been able to procure; (ii) all additional Day-Ahead Ancillary Services Bids (including any unused Bids that can be used to satisfy that particular Ancillary Services requirement) have been selected, except that the CAISO shall not be required to accept Ancillary Services Bids that exceed the price caps specified in Section 39 or any other FERC-imposed price caps; (iii) the CAISO has notified Scheduling Coordinators of the circumstances existing in this Section 41.5.3, and after such notice, the CAISO determines that a bid insufficiency condition in accordance with the RMR Contract exists in the HASP and the CAISO requires more of an Ancillary Service. The CAISO must provide the notice specified in sub paragraph (iii) of this Section 41.5.3 as soon as possible after the CAISO determines that additional Ancillary Services are needed for which Bids are not available. The CAISO may only determine that a bid insufficiency exists after the Market Close of the HASP, unless an earlier determination is required in order to accommodate the RMR Unit's operating constraints. For the purposes of this Section 41.5.3, a bid insufficiency exists in HASP if, and only if: (i) Bids in the HASP for the particular Ancillary Service (including any unused Bids that can be used to satisfy that particular Ancillary Services requirement that remain after first procuring the megawatts of the Ancillary Service that the CAISO had notified Scheduling Coordinators it would procure in the HASP ("remaining Ancillary Services requirement") represent, in the aggregate, less than two times such remaining Ancillary Services requirement; or (ii) there are less than two unaffiliated bidders to provide

contracts for Ancillary Services on a Real-Time basis. If the CAISO is unable to obtain such Ancillary Services from within the CAISO Controlled Grid, the CAISO may solicit Ancillary Services from other Control Areas on a Real-Time basis.

42.1.6 The CAISO may, in addition to the required annual forecast, publish a forecast of the peak Demands and Generation resources for two or more additional years. This forecast would be for information purposes to allow Market Participants to take appropriate steps to satisfy the Applicable Reliability Criteria, and would not be used by the CAISO to determine whether additional resources are necessary.

42.1.7 In fulfilling its requirement to ensure that the applicable Generation planning reserve criteria are satisfied, the CAISO shall rely to the maximum extent possible on market forces.

42.1.8 (a) Except where and to the extent that such costs are recovered from Scheduling Coordinators pursuant to Section 8, all costs incurred by the CAISO pursuant to any contract entered into pursuant to Section 42.1 for Local Capacity Area Resources pursuant to Section 40.3.4(i) shall be charged first on a pro rata basis to each Scheduling Coordinator that failed to procure sufficient Local Capacity Area Resources to satisfy its obligation, as determined pursuant to Section 40.3.2, based on each Scheduling Coordinator's relative amount of Local Capacity Area Resource deficiency up to the quantity of the Scheduling Coordinator's Local Capacity Area Resource deficiency. A Scheduling Coordinator's deficiency pursuant to this Section 42.1.8(a) shall be determined as the difference between the Scheduling Coordinator's obligation pursuant to Section 40.3.2 and the quantity of Local Capacity Area Resources included in the annual or monthly Resource Adequacy Plan.

(b) To the extent the capacity of Local Capacity Area Resources procured by the CAISO pursuant to Section 40.3.4(i) exceeds the total quantity of Resource Adequacy Capacity by which all Scheduling Coordinators are deficient in the Local Capacity Area, the costs of such Local Capacity Area Resources will be allocated in accordance with Section 42.1.8(c).

(c) Except where and to the extent that such costs are recovered from Scheduling Coordinators pursuant to Section 8, all costs incurred by the CAISO pursuant to any contract entered into pursuant to Section

42.1 for Local Capacity Area Resources pursuant to Section 40.3.4(ii) or as set forth in Section 42.1.8(b) on a pro rata basis to each Scheduling Coordinator that serves Load in the TAC Area in accordance with the Load Serving Entity's proportionate coincident share, on a gross Load basis, of the previous annual peak Demand in the TAC Area.

(d) Except where and to the extent that such costs are recovered from Scheduling Coordinators pursuant to Section 8, all costs incurred by the CAISO pursuant to any contract entered into pursuant to Section 42.1 for Resource Adequacy Capacity, other than Local Capacity Area Resources, shall be charged on a pro rata basis to each Scheduling Coordinator based on each Scheduling Coordinator's relative amount of deficiency to satisfy the Scheduling Coordinator's applicable Demand Forecast and Reserve Margin pursuant to Section 40 up to the quantity of the Scheduling Coordinator's deficiency as determined as the difference between the Scheduling Coordinator's applicable Demand Forecast and Reserve Margin and Resource Adequacy Resources included in the annual or monthly Resource Adequacy Plan. Second, to the extent Local Capacity Area Resource capacity procured by the CAISO exceeds the amount of total Resource Adequacy Resource deficiency, the costs of such capacity will be allocated on a pro rata basis to each Scheduling Coordinator upon the same proportion as the Scheduling Coordinator's metered hourly Demand (including exports) bears to the total metered hourly Demand (including exports) served in that hour in the CAISO Control Area.

Whether or not the share of the Resource Adequacy Capacity procured by the CAISO under this Section may count towards satisfaction of a Load Serving Entity's Reserve Margin shall be determined by the CPUC, Local Regulatory Authority, or federal agency with jurisdiction of the Load Serving Entity, unless the CPUC, Local Regulatory Authority, or federal agency has failed to establish a Reserve Margin, in which case the CAISO will assign the Load Serving Entity's share of the Resource Adequacy Capacity towards satisfaction of its Reserve Margin.

42.1.9 Costs incurred by the CAISO pursuant to any contract entered into under this Section for resources to meet any portion of the anticipated difference between forward schedules and the real-time deviations from those schedules shall be charged to each Scheduling Coordinator pro rata based upon the same proportion as the Scheduling Coordinator's obligation for RUC Availability Payments. .

Existing High Voltage Facility	A High Voltage Transmission Facility of a Participating TO that was placed in service on or before the Transition Date defined in Section 4.2 of Schedule 3 of Appendix F.
Existing Rights	Those transmission service rights defined in Section 16. of the CAISO Tariff.
Existing Transmission Contract (ETC) or Existing Contracts	The contracts which grant transmission service rights in existence on the CAISO Operations Date (including any contracts entered into pursuant to such contracts) as may be amended in accordance with their terms or by agreement between the parties thereto from time to time.
Existing Zone	Regions formally referred to as NP15, SP15, and ZP26 prior to implementation of the CAISO LMP market design.
Existing Zone Generation Trading Hub	Trading Hubs specifically developed to represent the average price paid to generation resources within Existing Zones.
Expanded System Region	The System Region and Inter-Tie scheduling points with adjacent control areas.
Export Bid	A Demand Bid submitted to a CAISO Market at a Scheduling Point.
Extremely Long-Start Resource	A Generating Unit that has a Start-Up Time greater than 18 hours or a System Resource that is either: 1) a non-Resource-Specific System Resource with contractual limitations that require the energy be transacted (i.e., committed) prior to the publishing time of the Day-Ahead Market results (1300 hours on the day before the Trading Day) or 2) a Resource-Specific System Resource that has a Start-Up Time greater than 18 hours.
Facility Owner	An entity owning transmission, Generation, or distribution facilities connected to the CAISO Controlled Grid.
Facility Study	An engineering study conducted by a Participating TO to determine required modifications to the Participating TO's transmission system, including the cost and scheduled completion date for such modifications that will be required to provide needed services.
Facility Study Agreement	An agreement between a Participating TO and either a Market Participant, Project Sponsor, or identified principal beneficiaries pursuant to which the Market Participants, Project Sponsor, and identified principal beneficiaries agree to reimburse the Participating TO for the cost of a Facility Study.

Fast Start Unit

Generating Units that have a Start Up Time less than two hours and can be committed in the RTUC and STUC.

Feasibility Index

A test used to evaluate whether a supplier or set of suppliers is pivotal in relieving congestion on a transmission path for the

Load Distribution Factor (LDF)	A number that reflects the relative amount of Load at each PNode within a Load Aggregation Point. Load Distribution Factors determine how the aggregated Load at a given LAP is distributed to the associated power system Nodes. The sum of all Load Distribution Factors for a single Load Aggregation Point equals one.
Load-Serving Entity (LSE)	Any entity (or the duly designated agent of such an entity, including, e.g. a Scheduling Coordinator), including a load aggregator or power marketer, that (a) (i) serves End Users within the CAISO Control Area and (ii) has been granted authority or has an obligation pursuant to California state or local law, regulation, or franchise to sell electric energy to End Users located within the CAISO Control Area; (b) is a federal power marketing authority that serves End Users; or (c) is the State Water Resources Development System commonly known as the State Water Project of the California Department of Water Resources.
Load Shedding	The systematic reduction of system Demand by temporarily decreasing the Supply of Energy to Loads in response to transmission system or area capacity shortages, system instability, or voltage control considerations.
Load Zone	A standard set of nodes located within the CAISO Control Area that has been designated by the CAISO to simplify the submission of Demand Bids and Settlement.
Local Capacity Area	Transmission constrained area as defined in the study referenced in Section 40.3.1 of this CAISO Tariff.
Local Capacity Area Resources	Resource Adequacy Capacity from a Generating Unit listed in the technical study or Participating Load that is located within a Local Capacity Area capable of contributing toward the amount of capacity required in a particular Local Capacity Area.
Local Furnishing Bond	Tax-exempt bonds utilized to finance facilities for the local furnishing of electric energy, as described in section 142(f) of the Internal Revenue Code, 26 U.S.C. § 142(f).
Local Furnishing Participating TO	Any Tax-Exempt Participating TO that owns facilities financed by Local Furnishing Bonds.

**Local Market Power
Mitigation (LMPM)**

The mitigation of market power that could be exercised by an entity when it is needed for local reliability services due to its location on the grid and a lack of competitive supply at that location pursuant Section 39.7.

Local Publicly Owned

A municipality or municipal corporation operating as a public utility

Capacity	monthly CRR Allocation and monthly CRR Auctions calculated by using OTC adjusted for outages, derates, and Transmission Ownership Rights for the relevant month.
Monthly CRR Eligible Quantity	The MW quantity of CRRs an LSE is eligible to nominate for the relevant month in a monthly CRR Allocation. .
Monthly CRR Load Metric	The MW level of Load on an Load Serving Entity's load duration curve that is exceeded only 0.5% of the time in the relevant month based on Load forecast data.
Monthly Peak Load	The maximum hourly Demand on a Participating TO's transmission system for a calendar month, multiplied by the Operating Reserve Multiplier.
MSS Demand	CAISO Demand specified in an MSS agreement as being within the MSS.
MSS Operator	An entity that owns an MSS and has executed a MSS Agreement.
MSS Supply	Supply specified in an MSS agreement as supplying an MSS
Multi-Point CRR	A CRR Obligation specified according to one or more CRR Sources and one or more CRR Sinks and a flow from the CRR Source(s) to the CRR Sink(s), provided that at least the CRR Sink or the CRR Source identifies more than one point.
Municipal Tax Exempt Debt	An obligation the interest on which is excluded from gross income for federal tax purposes pursuant to Section 103(a) of the Internal Revenue Code of 1986 or the corresponding provisions of prior law without regard to the identity of the holder thereof. Municipal Tax Exempt Debt does not include Local Furnishing Bonds.
Must-Take/Must-Run Generation	The Bid component that identifies Generating Units that are Regulatory Must-Take Generation or Regulatory Must-Run Generation.
Native Load	Load required to be served by a utility within its Service Area pursuant to applicable law, franchise, or statute.
Negotiated Rate	The rate for a Default Energy Bid arrived at under the Negotiated Rate Option.
Negotiated Rate Option	A method of calculating Default Energy Bids based on a negotiation with the CAISO or the Independent Entity.
NERC	The North American Electric Reliability Council or its successor.

also has capacity that is not committed to meet a Resource Adequacy obligation in the CAISO Control Area.

Participating Buyer

A Direct Access End-User or a wholesale buyer of Energy or Ancillary Services through Scheduling Coordinators.

Participating Intermittent Resource

One or more Eligible Intermittent Resources that meets the requirements of the technical standards for Participating Intermittent Resources adopted by the CAISO and published on the CAISO Website.

Participating Load

An entity, including an entity with Pumping Load, providing Curtailable Demand, which has undertaken in writing to comply with all applicable provisions of the CAISO Tariff, as they may be amended from time to time.

Participating Seller or Participating Generator

A Generator or other seller of Energy or Ancillary Services through a Scheduling Coordinator over the CAISO Controlled Grid from a Generating Unit with a rated capacity of 1 MW or greater, or from a Generating Unit providing Ancillary Services and/or submitting Energy Bids through an aggregation arrangement approved by the CAISO, which has undertaken to be bound by the terms of the CAISO Tariff, in the case of a Generator through a Participating Generator Agreement.

Participating TO

A party to the Transmission Control Agreement whose application under Section 2.2 of the Transmission Control Agreement has been accepted and who has placed its transmission assets and Entitlements under the CAISO's Operational Control in accordance with the Transmission Control Agreement. A Participating TO may be an Original Participating TO or a New Participating TO.

Participating TO Service Territory

The area in which an IOU, a Local Public Owned Electric Utility, or federal power marketing administration that has turned over its transmission facilities and/or Entitlements to CAISO Operational Control is obligated to provide electric service to Load. A PTO Service Territory may be comprised of the Service Areas of more than one Local Public Owned Electric Utility, if they are operating under an agreement with the CAISO for

	CAISO.
Qualifying Facility	A qualifying co-generation or small power production facility recognized by FERC.
Queue Position	The order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests, that is established based upon the date and time of receipt of the valid Interconnection Request by the CAISO.
RA-PIRP	A Participating Intermittent Resource whose output is being used to satisfy a Resource Adequacy Requirement.
Ramp Rate	The Bid component that indicates the operational ramp rate, Regulating ramp rate, and Operating Reserve ramp rate for a Generating Unit, and the Load drop rate and Load pick-up rate for Participating Loads, for which the Scheduling Coordinator is submitting Energy Bids or Ancillary Services Bids.
Ramping	Changing the loading level of a Generating Unit in a constant manner over a fixed time (<u>e.g.</u> , ramping up or ramping down). Such changes may be directed by a computer or manual control.
Ramping Energy Deviation	The portion of Imbalance Energy delivered or consumed as the difference between the Standard Ramp trajectory and the Dispatch Operating Point that is contained between the Day-Ahead Schedules across consecutive hours and spreads across the hourly boundary.
Reactive Power Control	Generation or other equipment needed to maintain acceptable voltage levels on the CAISO Controlled Grid and to meet reactive capacity requirements at points of interconnection on the CAISO Controlled Grid.
Real-Time	The period of time during the Operating Hour. Any time period during the twenty-four Operating Hours of any given day.
Real-Time Congestion Fund	For each Settlement Period of the HASP and RTM, the CAISO shall calculate the Real-Time Congestion Fund as the difference of 1) the sum of the products of the RTM or HASP MCC for Demand and the Demand Imbalance Energy at the relevant Location; and 2) the sum of the products of RTM or HASP MCC for Supply and the Supply Imbalance Energy at the relevant Location; including also the sum of RTM and HASP Congestion Charges for Intertie Ancillary Services Awards.

Real-Time Congestion Offset	The Real-Time Congestion Fund net of the Real-Time Congestion Credit calculated as provided in Section 11.5.7.
Real-Time Contingency Dispatch (RTCD)	The mode of the Real-Time Dispatch that will be invoked when a transmission or generation contingency occurs and will include all Contingency Only Operating Reserves in the optimization.
Real-Time Dispatch (RTD)	The SCED and SCUC software used by the CAISO to determine which Ancillary Service and Imbalance Energy resources to Dispatch and to calculate LMPs.

Real-Time Economic Dispatch (RTED)	The mode of the Real-Time Dispatch that will optimally dispatch resources based on their Energy bids, excluding Contingency Only Operating Reserves except when needed to avoid an imminent system emergency.
Real-Time Export	Energy at Scheduling Points deemed deliverable outside of the CAISO Control Area.
Real-Time Interchange Export Schedule	An agreement to transfer energy from the CAISO Control Area to a interconnected control area at a Scheduling Point based on agreed-upon size (megawatts), start and end time, beginning and ending ramp times and rate, and type required for delivery and receipt of power and Energy between the source and sink control areas involved in the transaction.
Real-Time Market (RTM)	The spot market conducted by the CAISO using SCUC and SCED in the Real-Time, after the HASP is completed, which includes the RTUC, STUC and the RTD for the purpose of unit commitment, Ancillary Service procurement, Congestion Management and Energy procurement based on Supply Bids and CAISO Forecast of CAISO Demand.
Real-Time Manual Dispatch (RTMD)	The mode of the Real-Time Dispatch that will be invoked as a fall-back mechanism only when the RTED or RTCD fails to provide a feasible dispatch.
Real-Time Unit Commitment (RTUC)	An application of the RTM that runs every 15 minutes and commits Fast and Medium-Start Units using the SCUC to adjust Day-Ahead Schedules and HASP Intertie Schedules.
Redispatch	The readjustment of scheduled Generation or Demand side management measures, to relieve Congestion or manage Energy imbalances.
Reference Bus	The Location(s) on the CAISO Controlled Grid relative to which mathematical quantities relating to powerflow solution will be calculated.

Registered Data

Those items of technical data and operating characteristics relating to Generation, transmission or distribution facilities which are identified to the owners of such facilities as being information, supplied in accordance with the CAISO Tariff, to assist the CAISO to maintain reliability of the CAISO Controlled Grid and to carry out its functions.

Regulation

The service provided either by Generating Units certified by the CAISO as equipped and capable of responding to the CAISO's direct digital control signals, or by System Resources that have been certified by the CAISO as capable of delivering such service to the CAISO Control Area, in an upward and downward

	Controlled Grid is located.
Revenue Meter Data Acquisition and Processing System (RMDAPS)	A collective name for the set of CAISO systems used to collect, validate, edit and report on Revenue Quality Meter Data.
Revenue Quality Meter Data	Meter data meeting the standards and requirements established and maintained by the CAISO.
Revenue Requirement	The revenue level required by a utility to cover expenses made on an investment, while earning a specified rate of return on the investment.
Revised Adjusted RMR Invoice	The monthly invoice issued by the Reliability Must Run Owner to the CAISO pursuant to the Reliability Must Run Contract reflecting any appropriate revisions to the Adjusted Reliability Must Run Invoice based on the CAISO's validation and actual data for the billing month.
Revised Estimated RMR Invoice	The monthly invoice issued by the Reliability Must Run Owner to the CAISO pursuant to the Reliability Must Run Contract reflecting appropriate revisions to the Estimated Reliability Must Run Invoice based on the CAISO's validation of the Estimated Reliability Must Run Invoice.
Reliability Must-Run Charge (RMR Charge)	The sum payable by a Responsible Utility to the CAISO pursuant to Section 41 of the CAISO Tariff for the costs, net of all applicable credits, incurred under the Reliability Must Run Contract.
Reliability Must-Run Unit (RMR Unit)	A Participating Generator which is the subject of a Reliability Must-Run Contract.
Reliability Must-Run Contract (RMR Contract)	A Must-Run Service Agreement between the owner of an Reliability Must Run Unit and the CAISO.
Reliability Must-Run Generation (RMR Generation)	Generation that the CAISO determines is required to be on line to meet Applicable Reliability Criteria requirements. This includes i) Generation constrained on line to meet NERC and WECC reliability criteria for interconnected systems operation; ii) Generation needed to meet Load demand in constrained areas; and iii) Generation needed to be operated to provide voltage or security support of the CAISO or a local area.

RMR Owner	The provider of services under a Reliability Must-Run Contract.
RMR Owner Facility Trust Account	The commercial bank account held in trust by the CAISO for the benefit of the owner of an RMR Unit subject to an RMR Contract as required and specified in Section 9.2 of the pro forma RMR Contract.
RMR Proxy Bid	For RMR Condition 1 Units, an amount calculated based on the hourly variable costs as defined in Schedule C of the applicable RMR Contract in the form of a monotonically increasing function consistent

Supply	The Energy delivered from a Generating Unit, System Unit, Physical Scheduling Plant, System Resource or the Curtailable Demand provided by a Participating Load.
System Emergency	Conditions beyond the normal control of the CAISO that affect the ability of the CAISO Control Area to function normally including any abnormal system condition which requires immediate manual or automatic action to prevent loss of Load, equipment damage, or tripping of system elements which might result in cascading Outages or to restore system operation to meet the minimum operating reliability criteria.
System Marginal Energy Cost (SMEC)	The component of the LMP reflects the marginal cost of providing Energy from a designated reference location.
System Planning Studies	Reports summarizing studies performed to assess the adequacy of the CAISO Controlled Grid as regards conformance to Reliability Criteria.
System Region	The CAISO Control Area.
System Reliability	A measure of an electric system's ability to deliver uninterrupted service at the proper voltage and frequency.
System Resource	A group of resources, single resource, or a portion of a resource located outside of the CAISO Control Area, or an allocated portion of a Control Area's portfolio of generating resources that are either a static interchange schedule or directly responsive to that Control Area's Automatic Generation Control (AGC) capable of providing Energy and/or Ancillary Services to the CAISO Control Area, provided that if the System Resource is providing Regulation to the CAISO it is directly responsive to AGC.
System Unit	One or more individual Generating Units and/or Loads within a Metered Subsystem controlled so as to simulate a single resource with specified performance characteristics, as mutually determined and agreed to by the MSS Operator and the CAISO. The Generating Units and/or Loads making up a System Unit must be in close physical proximity to each other such that the operation of the resources comprising the System Unit does not result in significant differences in flows on the CAISO Controlled Grid.
TAC Transition Period	The 10-year transition period for the CAISO's Access Charge

or 2) three percent (3%) of the relevant Generating Unit's, dynamically scheduled System Resource's or System Unit's maximum output (Pmax), as registered in the Master File, divided by number of Settlement Intervals per Settlement Period. The maximum output (Pmax) of a dynamically scheduled System Resource will be established by agreement between the CAISO and the Scheduling Coordinator representing the System Resource on an individual case basis, taking into account the number and size of the generating resources, or allocated portions of generating resources, that comprise the System Resource.

The tolerance band expressed in terms of Energy (MWh) for the performance requirement for Participating Loads for each Settlement Interval will equal the greater of the absolute value of: 1) 5 MW divided by number of Settlement Intervals per Settlement Period or 2) three percent (3%) of the applicable Final HASP Schedule or CAISO Dispatch amount divided by number of Settlement Intervals per Settlement Period.

The Tolerance Band shall not be applied to non-dynamically scheduled System Resources.

Total CAISO Markets Uplift

The sum of the Net IFM Bid Cost Uplift, the Net RUC Bid Cost Uplift, and the Net RTM Bid Cost Uplift, for all Settlement Intervals in the IFM, RUC and RTM.

Total Positive CAISO Markets Uplift

The sum of the positive IFM Bid Cost Uplift, positive RUC Bid Cost Uplift and positive RTM Bid Cost Uplift, for all Settlement Intervals in the IFM, RUC and RTM

Total Transfer Capability (TTC)

The amount of power that can be transferred over an interconnected transmission network in a reliable manner while meeting all of a specific set of defined pre-contingency and post-contingency system conditions.

Trading Day

The twenty-four hour period beginning at the start of the hour ending 0100 and ending at the end of the hour ending 2400 daily, except where there is a change to and from daylight savings time.

Trading Hour

Any hour during which trades are conducted in a CAISO Market.

Trading Hub

An aggregation of network Pricing Nodes, such as Existing Zone Generation Trading Hubs, maintained and calculated by the CAISO for settlement and trading purposes posted by the

Whereas:

- A. Section 10 of the CAISO Tariff requires the CAISO to establish meter service agreements with CAISO Metered Entities for the collection and transfer of Meter Data.
- B. Section 10 of the CAISO Tariff further provides that a CAISO Metered Entity shall certify its revenue quality meters and Section 10 provides that CAISO Metered Entities shall make Meter Data available to RMDAPS.
- C. The Parties are entering into this Agreement in order to establish the terms and conditions upon which the CAISO and the CAISO Metered Entity shall discharge their respective duties and responsibilities pursuant to this Agreement, and the CAISO Tariff.
- D. All obligations and responsibilities included in this Agreement may be set forth in further detail in the CAISO Tariff.

NOW THEREFORE, in consideration of the mutual covenants set forth herein, **THE PARTIES AGREE** as follows:

ARTICLE I

1.1 Master Definitions Supplement. Unless defined in Section 1.2 of this Agreement, all terms and expressions used in this Agreement shall have the same meaning as those contained in the Master Definitions Supplement to the CAISO Tariff.

1.2 Special Definitions for this Agreement. In this Agreement, the following words and expressions shall have the meanings set forth below:

“Authorized Users” means users authorized by the CAISO Metered Entity to access the Meter Data of that CAISO Metered Entity held by the CAISO.

“CAISO Authorized Inspector” has the meaning as defined in Appendix A of the CAISO Tariff.

“CAISO Metered Entity” means:

- (a) any one of the following entities that is directly connected to the CAISO Controlled Grid:
 - i. a Generator other than a Generator that sells all of its Energy (excluding any Energy consumed by auxiliary load equipment electrically connected to that Generator at the same point) and Ancillary Services to the UDC in whose Service Area it is located;

- ii. an Eligible Customer; or
 - iii. an End-User other than an End-User that purchases all of its Energy from the UDC in whose Service Area it is located; and
- (b) any one of the following entities:
- i. a Participating Generator;
 - ii. a Participating TO in relation to its Tie Point Meters with other TOs or Control Areas; or
 - iii. a Participating Load.

“**RMDAPS**” means a collective name for the set of CAISO systems used to collect, validate, edit and report on Revenue Quality Meter Data.

“**Metering Facilities**” means revenue quality meters, instrument transformers, secondary circuitry, secondary devices, meter data servers, related communication facilities and other related local equipment.

“**SC**” means Scheduling Coordinator.

1.3 Rules of Interpretation. The following rules of interpretation and conventions shall apply to this Agreement:

- (a) if there is any inconsistency between this Agreement and the CAISO Tariff, the CAISO Tariff will prevail to the extent of the inconsistency;
- (b) the singular shall include the plural and vice versa;
- (c) the masculine shall include the feminine and neutral and vice versa;
- (d) “includes” or “including” shall mean “including without limitation”;
- (e) references to a section, article or schedule shall mean a section, article or a schedule of this Agreement, as the case may be, unless the context otherwise requires;
- (f) a reference to a given agreement or instrument shall be a reference to that agreement or instrument as modified, amended, supplemented or restated through the date as of which such reference is made;
- (g) unless the context otherwise requires, references to any law shall be deemed references to such law as it may be amended, replaced or restated from time to time;
- (h) unless the context otherwise requires, any reference to a “person” includes any individual, partnership, firm, company, corporation, joint venture, trust, association, organization or other entity, in each case whether or not having separate legal personality;

ARTICLE III

GENERAL TERMS AND CONDITIONS

- 3.1 Agreement Subject to CAISO Tariff.** This Agreement shall be subject to the provisions of the CAISO Tariff which shall be deemed to be incorporated herein, as the same may be changed or superseded from time to time. The Parties agree that they will comply with the provisions of Section 10 and Appendix O of the CAISO Tariff.
- 3.2 Obligations and Rights of the CAISO Metered Entity.**
- 3.2.1 Submission of Meter Data through RMDAPS.** The CAISO Metered Entity agrees to make available to the CAISO through RMDAPS its Meter Data in accordance with the CAISO Tariff. The CAISO's requirements regarding the frequency with which it requires Meter Data to be made available to it through RMDAPS by the CAISO Metered Entity are referred to in the CAISO Tariff.
- 3.2.2 Meter Information.** The CAISO Metered Entity shall provide in the format prescribed by Schedule 1 to this Agreement the required information with respect to all of its meters used to provide Meter Data to the CAISO. The CAISO Metered Entity must immediately notify the CAISO of any changes to the information provided to the CAISO in accordance with this Section 3.2.2 and provide the CAISO with any information in relation to such change as reasonably requested by the CAISO. The CAISO Metered Entity shall have the right to modify Schedule 1, which modification shall not constitute an amendment to this Agreement. Such modification shall be effective upon receipt of notice by the CAISO.
- 3.2.3 Transformer and/or Line Loss Correction Factors.** If the CAISO Metered Entity uses low voltage side metering, it shall use the CAISO approved transformer and/or line loss correction factor referred to in the CAISO Tariff.
- 3.2.4 Rights to Access Metering Facilities.** The CAISO Metered Entity shall use its best efforts to procure any rights necessary for the CAISO to access all Metering Facilities of the CAISO Metered Entity to fulfill its obligations under the CAISO Tariff and its obligations under this Agreement. If, after using its best efforts, the CAISO Metered Entity is unable to provide the CAISO with such access rights, the CAISO Metered Entity shall ensure that one of its employees is a CAISO Authorized Inspector and such employee undertakes, at the CAISO's request, the certification, testing, inspection and/or auditing of those Metering Facilities in accordance with the procedures established pursuant to the CAISO Tariff, including the requirement to complete and provide to the CAISO all necessary documentation. The CAISO acknowledges that it will not be prevented from fulfilling its obligations under the CAISO Tariff or this Agreement by reason of the fact that it is provided with escorted access to the Metering Facilities of the CAISO Metered Entity.
- 3.2.5 Security and Validation Procedures.** The security measures and the validation, editing and estimation procedures that the CAISO will apply to Meter Data made available to the CAISO by the CAISO Metered Entity shall be as referred to in the CAISO Tariff.

3.3 Obligations and Rights of the CAISO.

- 3.3.1 Direct Polling of RMDAPS.** The CAISO shall allow the Scheduling Coordinator representing the CAISO Metered Entity and all Authorized Users to directly poll RMDAPS for the Meter Data relating to the CAISO Metered Entity in accordance with the procedures referred to in the CAISO Tariff.
- 3.3.2 CAISO as Third-Party Beneficiary.** The CAISO shall be a third-party beneficiary to any future agreement between the CAISO Metered Entity and any other party relating to the Metering Facilities of the CAISO Metered Entity for the purpose of granting the CAISO access to any relevant information, records and facilities as needed by the CAISO to fulfill its obligations under the CAISO Tariff and its obligations under this Agreement.
- 3.3.3 Remote and Local Access to Metering Data.** The CAISO shall provide the CAISO Metered Entity any password or other requirements necessary for the CAISO Metered Entity to access its Metered Data remotely or locally at the Meter.
- 3.4 Exemptions Granted by the CAISO.** Any exemptions provided for under the CAISO Tariff that are granted by the CAISO shall be set forth in Schedule 2 of this Agreement. Any amendment or addition to Schedule 2 shall not constitute an amendment to this Agreement.

ARTICLE IV

PENALTIES AND SANCTIONS

- 4.1 Penalties.** If a CAISO Metered Entity provides inaccurate or incorrect Meter Data or fraudulent Meter Data to the CAISO, the CAISO shall be entitled to impose penalties and sanctions, including but not limited to suspension of trading rights following 14 days written notice to the CAISO Metered Entity. Fraudulent Meter Data means any Meter Data provided to the CAISO by the CAISO Metered Entity that it knows to be false, incorrect or incomplete at the time it provided that Meter Data to the CAISO. All penalties and sanctions shall be set forth in Schedule 4 Part A to this Agreement. No penalties or sanctions, including suspension of trading rights, may be imposed under this Agreement unless a Schedule providing for such penalties or sanctions has first been filed with and made effective by FERC. Nothing in the Agreement, with the exception of the provisions relating to ADR, shall be construed as waiving the rights of the CAISO Metered Entity to oppose or protest any penalty proposed by the CAISO to the FERC or the specific imposition by the CAISO of any FERC-approved penalty on the CAISO Metered Entity.
- 4.2 Corrective Measures.** If the CAISO Metered Entity fails to meet or maintain the standards for Metering Facilities or comply with the audit or test procedures as referred to in the CAISO Tariff, the CAISO shall be permitted to take corrective measures. The corrective measures and rights the CAISO may exercise upon any failure by any entity to meet those standards for Metering Facilities or to comply with the audit or test procedures shall be set forth in Schedule 4 Part B.

ARTICLE V

ACCESS TO METERING DATA

- 5.1 Authorized Users.** In addition to the persons referred to in the CAISO Tariff, including the CAISO Metered Entity and the relevant Scheduling Coordinator, as being entitled to access Meter Data on RMDAPS, the CAISO Metered Entity may set forth in Schedule 3 of this Agreement any additional authorized users that shall be entitled to access the CAISO Metered Entity's Settlement Quality Meter Data held by the CAISO. The CAISO Metered Entity shall include in Schedule 3 as authorized users the relevant UDCs and TOs. The CAISO shall provide the authorized users with any password or other information necessary to access the CAISO Metered Entity's Settlement Quality Metered Data held by the CAISO on RMDAPS. Any amendment or addition to Schedule 3 shall not constitute an amendment to this Agreement.

ARTICLE VI

COSTS

- 6.1 Certification, Inspection and Auditing of Meters.** The CAISO Metered Entity shall be responsible for all reasonable costs incurred by the CAISO or a CAISO Authorized Inspector in connection with them carrying out the certification, inspection, testing or auditing of the meters identified in Schedule 1 from which the CAISO Metered Entity provides Meter Data to the CAISO. The CAISO or CAISO Authorized Inspector will furnish the CAISO Metered Entity, upon request, an itemized bill for such costs.

ARTICLE VII

DISPUTE RESOLUTION

- 7.1 Dispute Resolution.** The Parties shall make reasonable efforts to settle all disputes arising out of or in connection with this Agreement. In the event any dispute is not settled, the Parties shall adhere to the CAISO ADR Procedures set forth in Section 13 of the CAISO Tariff, which is incorporated by reference, except that all reference in Section 13 of the CAISO Tariff to Market Participants shall be read as a reference to the CAISO Metered Entities and references to the CAISO Tariff shall be read as references to this Agreement.

ARTICLE VIII

REPRESENTATIONS AND WARRANTIES

- 8.1 Representations and Warranties.** Each Party represents and warrants that the execution, delivery and performance of this Agreement by it has been duly authorized by all necessary corporate and/or governmental actions, to the extent authorized by law.

ARTICLE I

DEFINITIONS AND INTERPRETATION

1.1 Master Definitions Supplement. Unless defined in Section 1.2 of this Agreement, all terms and expressions used in this Agreement shall have the same meaning as those contained in the Master Definitions Supplement to the CAISO Tariff.

1.2 Special Definitions for this Agreement. In this Agreement, the following words and expressions shall have the meanings set forth below:

“CAISO Authorized Inspector” has the meaning as defined in the CAISO Tariff.

“CAISO Metered Entity” means:

- (a) any one of the following entities that is directly connected to the CAISO Controlled Grid:
 - i. a Generator other than a Generator that sells all of its Energy (excluding any Energy consumed by auxiliary load equipment electrically connected to that Generator at the same point) and Ancillary Services to the UDC in whose Service Area it is located;
 - ii. an Eligible Customer; or
 - iii. an End-User other than an End-User that purchases all of its Energy from the UDC in whose Service Area it is located; and
- (b) any one of the following entities:
 - i. a Participating Generator;
 - ii. a Participating TO in relation to its Tie Point Meters with other TOs or Control Areas; or
 - iii. a Participating Load.

“RMDAPS” means a collective name for the set of CAISO systems used to collect, validate, edit and report on Revenue Quality Meter Data.

“Metering Facilities” means revenue quality meters, instrument transformers, secondary circuitry, secondary devices, meter data servers, related communication facilities and other related local equipment.

“SC” means Scheduling Coordinator.

“Scheduling Coordinator Metered Entity” or **“SC Metered Entity”** means a Generator, Eligible Customer or End-User that is not a CAISO Metered Entity.

2.2 Termination

2.2.1 Termination by CAISO. Subject to Section 4.2 the CAISO may terminate this Agreement by giving written notice of termination in the event that the Scheduling Coordinator commits any default under this Agreement and/or the CAISO Tariff which, if capable of being remedied, is not remedied within thirty (30) days after the CAISO has given it written notice of the default, unless excused by reason of Uncontrollable Force in accordance with Section 14 of the CAISO Tariff. With respect to any notice of termination given pursuant to this Section, the CAISO must file a timely notice of termination with FERC. The filing of the notice of termination by the CAISO will be considered timely if: (1) the request to file a notice of termination is made after the preconditions for termination have been met, and (2) the CAISO files the notice of termination within 30 days of receipt of such request. This Agreement shall terminate upon acceptance by FERC of such notice of termination.

2.2.2 Termination by SC. In the event that the Scheduling Coordinator wishes to terminate this Agreement, the Scheduling Coordinator shall give the CAISO ninety (90) days written notice. With respect to any notice of termination given pursuant to this Section, the CAISO must file a timely notice of termination with FERC. The filing of the notice of termination by the CAISO will be considered timely if: (1) the request to file a notice of termination is made after the preconditions for termination have been met, and (2) the CAISO files the notice of termination within 30 days of receipt of such request. This Agreement shall terminate upon acceptance by FERC of such a notice of termination.

ARTICLE III

GENERAL TERMS AND CONDITIONS

3.1 Agreement Subject to CAISO Tariff. This Agreement shall be subject to the provisions of the CAISO Tariff which shall be deemed to be incorporated herein, as the same may be changed or superseded from time to time. The Parties agree that they will comply with the provisions of Section 10 of the CAISO Tariff.

3.2 Requirements and Standards for Metering Facilities. The Scheduling Coordinator shall ensure that the Scheduling Coordinator Metered Entities it represents shall adhere to the requirements and standards for Metering Facilities of its Local Regulatory Authority. If that Scheduling Coordinator Metered Entity's Local Regulatory Authority has not set any requirements or standards in relation to any of its Metering Facilities, the Scheduling Coordinator representing that Scheduling Coordinator Metered Entity must comply with the requirements and standards for those Metering Facilities as set forth in this Agreement and the CAISO Tariff.

3.3 Obligations and Rights of the Scheduling Coordinator.

3.3.1 Meter Information. If the CAISO so requests, the Scheduling Coordinator shall provide in the format prescribed by Schedule 1 to this Agreement the required information with respect to the meters for all Scheduling Coordinator Metered Entities it represents including the reference to specific distribution loss factors or methodology it proposes to use as determined by the relevant UDC and approved by the relevant Local Regulatory Authority. The Scheduling Coordinator must

CAISO TARIFF APPENDIX K
Ancillary Service Requirements Protocol (ASRP)

PART A
CERTIFICATION FOR REGULATION

- A 1** A Generator wishing to provide Regulation as an Ancillary Service from a Generating Unit whether pursuant to a CAISO award or as part of a self-provision arrangement must meet the following operating characteristics and technical requirements in order to be certified by the CAISO to provide Regulation service unless granted a temporary exemption by the CAISO in accordance with criteria which the CAISO shall publish on the CAISO's internet Website;
- A 1.1** **Operating Characteristics**
- A 1.1.1** the rated capacity of the Generating Unit must be 1 MW or greater unless the Generating Unit is participating in an aggregation arrangement approved by the CAISO;
- A 1.1.2** the maximum amount of Regulation to be offered must be reached within a period that may range from a minimum of 10 minutes to a maximum of 30 minutes, as such period may be specified by the CAISO and published on the CAISO's Website;
- A 1.2** **Technical Requirements**
- A 1.2.1** **Control**
- A 1.2.1.1** a direct, digital, unfiltered control signal generated from the CAISO EMS through a standard CAISO direct communication and direct control system, must meet the minimum performance standards for communications and control which will be developed and posted by the CAISO on its Website;
- A 1.2.1.2** the Generating Unit power output response (in MW) to a control signal must meet the minimum performance standards for control and unit response which will be developed and posted by the CAISO on its Website. As indicated by the Generating Unit power output (in MW), the Generating Unit must respond immediately, without manual Generating Unit operator intervention, to control signals and must sustain its specified ramp rate, within specified Regulation limits, for each minute of control response (MW/minute);
- A 1.2.2** **Monitoring:**
- the Generating Unit must have a standard CAISO direct communication and direct control system to send signals to the CAISO EMS to dynamically monitor, at a minimum the following: