

Section 4

4. Roles and Responsibilities

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4.5 Responsibilities of a Scheduling Coordinator

4.5.1 Scheduling Coordinator Certification

Only Scheduling Coordinators that the CAISO has certified as having met the requirements of this Section 4.5.1 may participate in the Day-Ahead Market or Real-Time Market or submit Supply Plans or RA Plans. Scheduling Coordinators offering Ancillary Services shall additionally meet the requirements of Section 8.

Each Scheduling Coordinator shall:

- (a) demonstrate to the CAISO's reasonable satisfaction that it is capable of performing the functions of a Scheduling Coordinator under this CAISO Tariff including (without limitation) the functions specified in Sections 4.5.3 and 4.5.4 as applicable;
- (b) identify each of the Eligible Customers (including itself if it trades for its own account) which it is authorized to represent as Scheduling Coordinator and confirm that the metering requirements under Section 10 are met in relation to each Eligible Customer that it represents under this CAISO Tariff;
- (c) identify each of the Convergence Bidding Entities that it is authorized to represent as Scheduling Coordinator;
- (d) confirm that each of the End-Use Customers it represents is eligible for service as a Direct Access End User;
- (e) confirm that none of the Wholesale Customers it represents is ineligible for wholesale transmission service pursuant to the provisions of FPA Section 212(h);
- (f) demonstrate to the CAISO's reasonable satisfaction that it meets the financial criteria set out in Section 12;
- (g) enter into a Scheduling Coordinator Agreement with the CAISO; and

(h) provide NERC tagging data, as applicable.

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4.5.3 Responsibilities of a Scheduling Coordinator

Each Scheduling Coordinator shall be responsible for:

4.5.3.1 Obligation to Pay

Paying the CAISO's charges in accordance with this CAISO Tariff;

4.5.3.2 Submit Bids and Interchange Schedules

4.5.3.2.1 Submitting Bids, including Self-Schedules, in CAISO Markets that relate to the Market Participants for which it serves as Scheduling Coordinator;

4.5.3.2.2 Submitting Interchange Schedules prepared in accordance with all NERC, WECC and CAISO requirements, including providing E-Tags for all applicable transactions pursuant to WECC practices. The CAISO shall not accept E-Tags for ten-minute recallable reserve transactions (i.e., transactions with a WECC energy product code of "C-RE"). The CAISO is not, and shall not be listed as, the "Purchasing Selling Entity" for purposes of E-Tags. Title to Energy shall pass directly from the entity that holds title when the Energy enters the CAISO Controlled Grid to the entity that removes the Energy from the CAISO Controlled Grid, in each case in accordance with the terms of this CAISO Tariff.

4.5.3.3 Modifications in Demand Supply

Coordinating and allocating modifications in Demand and exports and Generation and imports at the direction of the CAISO in accordance with this CAISO Tariff;

4.5.3.4 Inter-SC Trades

Submitting any applicable Inter-SC Trades that the Market Participants intend to have settled through the CAISO Markets, pursuant to this CAISO Tariff;

4.5.3.5 Tracking and Settling Trades

Tracking and settling all intermediate trades, including bilateral transactions and Inter-SC Trades, among the entities for which it serves as Scheduling Coordinator;

4.5.3.6 Ancillary Services

Providing Ancillary Services in accordance with Section 8;

4.5.3.7 [Not Used]

4.5.3.8 Business Practice Manuals

Complying with all CAISO Business Practice Manuals and ensuring compliance by each of the Market Participants which it represents with all applicable provisions of the Business Practice Manuals;

4.5.3.9 Interruptible Imports

Identifying any Interruptible Imports included in its Bids or Inter-SC Trades;

4.5.3.10 Participating Intermittent Resources

Submitting Bids, including Self-Schedules, for Participating Intermittent Resources consistent with the CAISO Tariff;

4.5.3.11 Day-Ahead Market Published Schedules and Awards

Starting-up units and timely achieving specified operating levels in response to Dispatch Instructions, in accordance with CAISO published Schedules and awards;

4.5.3.12 Financial Responsibility

Assuming financial responsibility for all Schedules, AS Awards and Dispatch Instructions issued in the CAISO Markets, and all Virtual Awards in accordance with the provisions of this CAISO Tariff;

4.5.3.13 Compliance with Environmental Constraints, Operating Permits and Applicable Law

Submitting Bids so that any service provided in accordance with such Bids does not violate environmental constraints, operating permits or applicable law. All submitted Bids must reflect resource limitations and other constraints as such are required to be reported to the CAISO Control Center;

4.5.3.14 Tax Compliance

Providing, as described in the Business Practice Manuals, resale certificates or other proof acceptable to CAISO that its purchases of energy are exempt from any sales and use taxes that otherwise might apply; and

4.5.3.15 SQMD Plan

Complying with the SQMD Plan for eligible entities it serves pursuant to Section 10.3.7.

4.5.3.16 RA Plans and Supply Plans

Providing RA Plans for LSEs or CPEs for which it serves as Scheduling Coordinator and providing Supply Plans for Resource Adequacy Resources for which it serves as Scheduling Coordinator. If a CPE is also a Load Serving Entity and the CPE and Load Serving Entity are represented by the same Scheduling Coordinator, that Scheduling Coordinator must use distinct Scheduling Coordinator ID Codes for its activities related to the CPE and Load Serving Entity functions.

4.5.4 Operations of a Scheduling Coordinator

4.5.4.1 Maintain Twenty-four (24) Hour Scheduling Centers

Each Scheduling Coordinator other than a Scheduling Coordinator that represents only Convergence Bidding Entities shall operate and maintain a twenty-four (24) hour, seven (7) days per week, scheduling center. Each Scheduling Coordinator shall designate a senior member of staff as its scheduling center manager who shall be responsible for operational communications with the CAISO and who shall have sufficient authority to commit and bind the Scheduling Coordinator.

4.5.4.2 [Not Used]

4.5.4.3 Dynamic Scheduling

4.5.4.3.1 Dynamic Scheduling of Imports

Scheduling Coordinators may submit Bids for imports of Energy, Imbalance Reserves, Reliability Capacity, and Ancillary Services for which associated Energy is delivered from Dynamic System Resources located outside of the CAISO Balancing Authority Area, provided that: (a) such dynamic scheduling is technically feasible and consistent with NERC and WECC reliability standards and any requirements of the NRC, (b) all operating, technical, and business requirements for dynamic scheduling functionality, as set forth in the Dynamic Scheduling Protocol in Appendix M or posted in standards on the CAISO Website, are satisfied, (c) the Scheduling Coordinator for the Dynamic System Resource executes a Dynamic Scheduling Agreement for Scheduling Coordinators as provided in Appendix B.5 with the CAISO for the operation of dynamic scheduling functionality, and (d) all affected Balancing Authorities each execute with the CAISO a Dynamic Scheduling Host Balancing Authority Operating Agreement as provided in Appendix B.9, or a special operating agreement particular to the operation of dynamic functionality.

4.5.4.3.2 Dynamic Scheduling of Exports of Energy

Scheduling Coordinators may submit Bids for Dynamic Schedules of exports of Energy from Generating Units located in the CAISO Balancing Authority Area, provided that: (a) such dynamic scheduling is technically feasible and consistent with NERC and WECC reliability standards and any requirements of the NRC, (b) all operating, technical, and business requirements for dynamic scheduling functionality, as set forth in the Dynamic Scheduling Protocol in Appendix M or posted in standards on the CAISO Website, are satisfied, (c) the Scheduling Coordinator for the Generating Unit executes a Dynamic Scheduling Agreement for Scheduling Coordinators as provided in Appendix B.5 with the CAISO for the operation of dynamic scheduling functionality, and (d) all affected Balancing Authorities each execute with the CAISO an operating agreement particular to the operation of dynamic functionality. Scheduling Coordinators may not submit Bids for Dynamic Schedules of exports of Ancillary Services from resources located in the CAISO Balancing Authority Area, nor may Scheduling Coordinators submit Bids for Dynamic Schedules of exports from Loads located in the CAISO Balancing Authority Area.

4.5.4.4 Termination of Scheduling Coordinator Agreement and Suspension of Certification

- (a) A Scheduling Coordinator's Scheduling Coordinator Agreement may be terminated by the CAISO on written notice to the Scheduling Coordinator:
 - (i) if the Scheduling Coordinator no longer meets the requirements for eligibility set out in Section 4.5 and fails to remedy the default within a period of five (5) Business Days after the CAISO has given written notice of the default;
 - (ii) if the Scheduling Coordinator fails to pay any sum under this CAISO Tariff and fails to remedy the default within a period of five (5) Business Days after the CAISO has given written notice of the default;
 - (iii) if the Scheduling Coordinator commits any other default under this CAISO Tariff or any of the CAISO Business Practice Manuals which, if capable of being remedied, is not remedied within thirty (30) days after the CAISO has given it written notice of the default; or
 - (iv) if the Scheduling Coordinator does not participate in the CAISO's markets for Energy, Imbalance Reserves, Reliability Capacity, or Ancillary Services for a

period of twelve (12) consecutive months and fails to comply with the provisions of Section 4.5.4.4.2 within 120 days after the CAISO has given it written notice of the CAISO's intent to terminate its Scheduling Coordinator Agreement.

- (b) A Scheduling Coordinator's Scheduling Coordinator Agreement may be terminated by the Scheduling Coordinator on sixty (60) days written notice to the CAISO, provided that such notice shall not be effective to terminate the Scheduling Coordinator Agreement until the Scheduling Coordinator has complied with all applicable requirements of Section 4.5.2.
- (c) The CAISO shall, following termination of a Scheduling Coordinator Agreement and within thirty (30) days of being satisfied that no sums remain owing by the Scheduling Coordinator under the CAISO Tariff, return or release to the Scheduling Coordinator, as appropriate, any money or credit support provided by such Scheduling Coordinator to the CAISO under Section 12.

4.5.4.4.1 Pending the effective date of termination of service pursuant to Section 4.5.4.5.1, the CAISO will suspend the certification of a Scheduling Coordinator which has received a notice of termination under Section 4.5.4.4(a) and the Scheduling Coordinator will not be eligible to participate in the CAISO's markets for Energy, Imbalance Reserves, Reliability Capacity, and Ancillary Services.

4.5.4.4.2 A Scheduling Coordinator that has received a notice of the CAISO's intent to terminate its Scheduling Coordinator Agreement for failure to participate in the CAISO's markets for Energy, Imbalance Reserves, Reliability Capacity, and Ancillary Services for a period of twelve (12) consecutive months pursuant to Section 4.5.4.4(a)(iv) will avoid having its Scheduling Coordinator Agreement terminated and will have its certification reinstated if it completes the testing and training required for Scheduling Coordinator certification as set forth in the applicable Business Practice Manual within 120 days after the CAISO's issuance of the notice of intent to terminate.

4.5.4.5 Notification of Termination

The CAISO shall, promptly after providing written notice of default to a Scheduling Coordinator as specified in Section 4.5.4.4(a), notify the Scheduling Coordinators that could be required to represent End User Eligible Customers of the Scheduling Coordinator under Section 4.5.4.6.2 if the default is not cured.

The CAISO shall, as soon as reasonably practicable following the occurrence of any of the events specified in Section 4.5.4.4, notify the Scheduling Coordinator and the Scheduling Coordinators that could be required to represent End User Eligible Customers of the defaulting Scheduling Coordinator, and the UDCs, and shall as soon as reasonably practicable after the issuance of such notice of termination post such notice on the CAISO Website. Termination of the Scheduling Coordinator Agreement will automatically remove the Scheduling Coordinator's certification under Section 4.5 and Section 8.4.

4.5.4.5.1 Filing of Notice of Termination

Any notice of termination given pursuant to Section 4.5.4.4 shall also be filed by the CAISO with FERC, if required by FERC rules, if the non-compliance is not remedied within the period specified in Section 4.5.4.4, and it shall be effective in accordance with FERC rules.

4.5.4.6 Continuation of Service on Termination

4.5.4.6.1 Option for Eligible Customers to choose a new Scheduling Coordinator

When the CAISO suspends the certification of a Scheduling Coordinator pending termination, Eligible Customers of the defaulting Scheduling Coordinator shall be entitled to select another Scheduling Coordinator to represent them. The CAISO will post notice of any suspension on the CAISO Website. Until the CAISO is notified by another Scheduling Coordinator that it represents an Eligible Customer of the defaulting Scheduling Coordinator, the Eligible Customer of the defaulting Scheduling Coordinator will receive interim service in accordance with Section 4.5.4.6.2.

4.5.4.6.2 Interim Service

The CAISO shall maintain a list of Scheduling Coordinators willing to represent Eligible Customers of a defaulting Scheduling Coordinator, which list may be differentiated by UDC service area. Scheduling Coordinators who indicate to the CAISO their desire to be on such list shall be placed thereon by the CAISO in random order.

- (a) When the CAISO suspends the certification of a Scheduling Coordinator in accordance with Section 4.5.4.4.1, Eligible Customers of the defaulting Scheduling Coordinators shall be assigned to all Scheduling Coordinators on the list established pursuant to this Section 4.5.4.6.2 in a non-discriminatory manner to be established by the CAISO, and each Eligible Customer shall thereafter be represented by the Scheduling Coordinator to

which it is assigned unless and until it selects another Scheduling Coordinator in accordance with Section 4.5.4.6.1, subject to this Section 4.5.4.6.2 subsection (b).

- (b) Unless the CAISO is notified by another Scheduling Coordinator that it represents an Eligible Customer of a defaulting Scheduling Coordinator within seven (7) days of the notice of termination being posted on the CAISO Website, the Scheduling Coordinator to which that Eligible Customer has been assigned in accordance with subsection (a) may establish a reasonable minimum period for service, not to exceed thirty (30) days.
- (c) In the event no Scheduling Coordinator indicates its willingness to represent Eligible Customers of a defaulting Scheduling Coordinator, the UDC that has the obligation to serve End-Use Customers of the Eligible Customer, if any, shall arrange to serve those End-Use Customers of such Eligible Customers that are located within the service area of the UDC. Such service will be provided in a manner consistent with that which the UDC provides, pursuant to the rules and tariffs of the Local Regulatory Authority, for its bundled End-Use Customers.
- (d) This Section shall not in any way require a UDC to provide or arrange for Scheduling Coordinator service for wholesale Eligible Customers.

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4.6.3 Requirements for Certain Participating Generators

4.6.3.1 Participating Generators Directly Connected to a Distribution System

With regard to any Generating Unit directly connected to a Distribution System, a Participating Generator shall comply with applicable UDC tariffs, requirements of the Local Regulatory Authority, interconnection requirements and generation agreements. With regard to a Participating Generator's Generating Units directly connected to a Distribution System, the CAISO and the UDC or MSS, as applicable, will coordinate to develop procedures to avoid conflicting CAISO and UDC or MSS, as applicable, operational directives.

4.6.3.2 Exemption for Generating Units Less Than One (1) MW

*NOT CURRENT TARIFF LANGUAGE.
This document contains language that is approved by FERC but not yet effective.*

A Generator with a Generating Unit directly connected to a Distribution System will be exempt from compliance with this Section 4.6 and Section 10.1.3 in relation to that Generating Unit provided that (i) the rated capacity of the Generating Unit is less than one (1) MW, and (ii) the Generator does not use the Generating Unit to participate in the CAISO Markets. This exemption in no way affects the calculation of or any obligation to pay the appropriate charges or to comply with all the other applicable Sections of this CAISO Tariff. A Generating Unit with a rated capacity of less than 500 kW, unless the Generating Unit is (a) participating in an aggregation agreement approved by the CAISO or (b) a storage resource with a rated capacity of 100 kW or more, is not eligible to participate in the CAISO Markets and the Generator is not a Participating Generator for that Generating Unit.

With regard to any Generating Unit directly connected to a UDC system, a Participating Generator shall comply with applicable UDC tariffs, interconnection requirements and generation agreements. With regard to a Participating Generator's Generating Units directly connected to a UDC system, the CAISO and the UDC will coordinate to develop procedures to avoid conflicting CAISO and UDC operational directives. With regard to Regulatory Must-Take Generation, the CAISO will honor applicable terms and conditions of existing agreements, including Existing QF Contracts, as specified in Section 4.6.3.2.

Qualifying Facilities that are not Regulatory Must-Take Generation subject to an Existing QF Contract shall comply with the requirements applicable to Participating Generators, as specified in Section 4.6.3.3.

4.6.3.3 Qualifying Facilities and Combined Heat and Power Resources

The owner or operator of (1) a Qualifying Facility, (2) a resource that is subject to an Amended QF Contract, or (3) a Combined Heat and Power Resource may satisfy the requirements of Section 4.6, to the extent applicable, by entering into Net Scheduled Participating Generator Agreement (Net Scheduled PGA) with the CAISO, in which case it shall comply with the provisions of the Net Scheduled PGA and Section 4.6.3.4. In order to be eligible to enter into the Net Scheduled PGA, a Participating Generator must demonstrate to the CAISO (a) that its Generating Unit (1) has established QF status pursuant to PURPA, (2) is a party to an Amended QF Contract; or (3) is a CHP Resource and (b) that the Self-provided Load of the Participating Generator that is served by the resource either (1) has and continues through the term of the Net Scheduled PGA to have, standby service from a UDC or MSS Operator under terms approved by the Local Regulatory Authority or FERC, as applicable, or (2) is curtailed concurrently

with any Outage of the Generation serving that Self-provided Load in an amount sufficient to cover that Outage.

4.6.3.4 Participating Generator with a Net Scheduled PGA

A Participating Generator that is eligible for and has entered into a Net Scheduled Participating Generator Agreement shall be subject to the provisions of this Section 4.6.3.4, as reflected in the terms of the Net Scheduled PGA.

4.6.3.4.1 Revenue Metering for a Net Scheduled Generating Unit

In accordance with the terms of the Net Scheduled PGA and Section 10.1.3.3, a Participating Generator that has entered into a Net Scheduled PGA may net the revenue metering value for the Generation produced by each Net Scheduled Generating Unit listed in the Net Scheduled PGA and the revenue metering value for the Demand of the Self-provided Load that is (i) served by the Net Scheduled Generating Unit and (ii) electrically located on the same side of the Point of Demarcation.

4.6.3.4.2 Telemetry for a Net Scheduled Generating Unit

A Participating Generator that has entered into a Net Scheduled PGA may satisfy the provisions of Section 7.6.1(d) for the installation of telemetry by installing telemetry at the Point of Demarcation for the purpose of recording the net impact of the Net Scheduled Generating Unit upon the CAISO Controlled Grid; provided that the installed telemetry satisfies the technical, functional, and performance requirements for telemetry set forth in the CAISO Tariff and the applicable Business Practice Manual.

4.6.3.4.3 Market and Settlement Processes for a Net Scheduled Generating Unit

For bidding, scheduling, billing, and Settlement purposes regarding the Net Scheduled Generating Unit Self-provided Load of a Participating Generator that has entered into a Net Scheduled PGA, measurements of Generation or Demand of the Net Scheduled Generating Unit shall be made at the Point of Demarcation. In all other respects, the Generation and Load of the Net Scheduled Generating Unit shall be subject to the applicable provisions of the CAISO Tariff regarding bidding, scheduling, billing, and Settlements.

4.6.3.4.4 Operating Requirements for a Net Scheduled Generating Unit

A Participating Generator that has entered into a Net Scheduled PGA shall abide by CAISO Tariff provisions regarding the CAISO's ability to dispatch or curtail Generation from the Net Scheduled

Generating Units listed in its Net Scheduled PGA. The CAISO shall only dispatch or curtail a Net Scheduled Generating Unit of the Participating Generator: (a) to the extent the Participating Generator bids Energy, Imbalance Reserves, Reliability Capacity, or Ancillary Services from the Net Scheduled Generating Unit into the CAISO Markets or the Energy is otherwise available to the CAISO under Section 40, subject to the restrictions on Dispatch Instructions or Operating Instructions set forth below; or (b) if the CAISO must dispatch or curtail the Net Scheduled Generating Unit in order to respond to an existing or imminent System Emergency or condition that would compromise CAISO Balancing Authority Area integrity or reliability as provided in Sections 7 and 7.6.1.

The CAISO will not knowingly issue a Dispatch Instruction or Operating Instruction to a Participating Generator that has entered into a Net Scheduled PGA that: (1) requires a Participating Generator to reduce its Generation below the delineated minimum operating limit, other than in a System Emergency; (2) conflicts with operating limitations provided to the CAISO by the Participating Generator; or (3) results in damage to the Participating Generator's equipment, provided that any such equipment limitation has been provided to the CAISO and incorporated in the Participating Generator's operating limitations. If the Participating Generator: (1) receives a Schedule which requires operation below the minimum operating limit, and (2) deviates from that Schedule to continue to operate at the minimum operating limit, it will not be subject to any penalties or sanctions as a result of operating at the minimum operating limit. The Participating Generator's consequences for deviating from Schedules in Real-Time will be governed by the CAISO Tariff.

The CAISO shall have the authority to coordinate and approve Generation Outage schedules for the Generating Unit(s) listed in a Net Scheduled PGA, in accordance with the provisions of Section 9.

4.6.3.5 [Not Used]

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4.7 Relationship Between CAISO and Participating Loads

The CAISO shall only accept Bids for Supply of Energy, Imbalance Reserves, Reliability Capacity, or Ancillary Services or Submissions to Self-Provide Ancillary Services from Loads if such Loads are those

of a Participating Load that has entered into a Participating Load Agreement with the CAISO and which meet standards adopted by the CAISO and published on the CAISO Website. The CAISO shall not accept submitted Bids for Supply of Energy, Imbalance Reserves, Reliability Capacity, or Ancillary Services from a Participating Load other than through a Scheduling Coordinator. The CAISO shall not accept Bids from Scheduling Coordinators for Participating Loads using the Non-Generator Resource model unless the resource owner or operator undertakes in writing, by entering into a Participating Load Agreement, to comply with all applicable provisions of this CAISO Tariff as they may be amended from time to time.

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4.9.4 MSS Operator Responsibilities

The MSS Operator's MSS Agreement with the CAISO shall obligate the MSS Operator to comply with all provisions of the CAISO Tariff, as amended from time to time, applicable to the UDCs, including, without limitation, the applicable provisions of Section 4.4 and Section 7.7. In addition, recognizing the CAISO's responsibility to promote the efficient use and reliable operation of the CAISO Controlled Grid and the CAISO Balancing Authority Area consistent with the Applicable Reliability Criteria, each MSS Operator shall:

4.9.4.1 operate and maintain its facilities, in accordance with applicable safety and reliability standards, regulatory requirements, applicable operating guidelines, applicable rates, tariffs, statutes and regulations governing their provision of service to their End-Use Customers and Good Utility Practice so as to avoid any material adverse impact on the CAISO Controlled Grid, it being understood that, if the MSS Operator does not so operate and maintain its facilities and the CAISO concludes, after notice is provided to the MSS Operator, that such failure impairs or threatens to impair the reliability of the CAISO Controlled Grid, the CAISO may suspend MSS status, in accordance with this Section 4.9, until the MSS Operator demonstrates the ability and willingness to so operate and maintain its facilities;

4.9.4.2 provide the CAISO each year with a schedule of upcoming maintenance of facilities forming part of the MSS that will affect, or is reasonably likely to affect, the CAISO Controlled Grid in accordance with

Section 9.3.6;

4.9.4.3 coordinate with the CAISO, Participating TOs, and Generators to ensure that the CAISO Controlled Grid Critical Protective Systems, including relay systems, are installed and maintained in order to function on a coordinated and complementary basis with the protective systems of the MSS, Participating TOs, and Generators, and notify the CAISO as soon as is reasonably possible of any condition that it becomes aware of that may compromise the CAISO Controlled Grid Critical Protective Systems;

4.9.4.4 be responsible for any Reliability Must-Run Generation and Voltage Support required for reliability of the MSS, including the responsibility for any costs of such Reliability Must-Run Generation, and Voltage Support and may satisfy this requirement through Generating Units owned by the MSS Operator or under contract to the MSS Operator; and

4.9.4.5 [Not Used]

4.9.4.6 be responsible for Congestion Management and transmission line Outages within or at the boundary of the MSS, and all associated costs of actions the MSS Operator has to take to resolve such Congestion internal to the MSS and not be responsible for Congestion Management elsewhere, except to the extent that a Scheduling Coordinator is delivering Energy, Imbalance Reserves, Reliability Capacity, or Ancillary Services to or from the MSS. An MSS Operator must notify and communicate with the CAISO regarding transmission line Outages to the extent such Outages impact the CAISO Controlled Grid.

4.9.5 Scheduling by or on Behalf of a MSS Operator

All Bids, including but not limited to Self-Schedules, submitted on behalf of an MSS Operator for the delivery of Energy, Imbalance Reserves, Reliability Capacity, and Ancillary Services to Loads connected to the MSS and for the delivery of Energy, Imbalance Reserves, Reliability Capacity, and Ancillary Services from Generating Units forming part of the MSS or System Units shall be submitted by a Scheduling Coordinator that complies with all applicable provisions of the CAISO Tariff, which Scheduling Coordinator may be the MSS Operator, provided that the MSS Operator complies with all applicable requirements for Scheduling Coordinators. A Scheduling Coordinator shall separately identify Bids that it submits on behalf of an MSS Operator.

4.9.5.1 Without limiting the foregoing, the Scheduling Coordinator for the MSS must submit gross generation information for the System Unit, Generating Unit, and information regarding imports, exports and Gross Loads to the CAISO in the format and in accordance with the timelines applicable to other Scheduling Coordinators.

4.9.5.2 The Scheduling Coordinator for the MSS will designate, in discrete quantities and with prices for Energy, Imbalance Reserves, Reliability Capacity, and Ancillary Services: (1) Bids in the Day-Ahead Market and Real-Time Market (including Bids for internal Generation and internal Demand within the MSS), (2) Submissions to Self-Provide Ancillary Services or Bids for Regulation, Spinning Reserve, and Non-Spinning Reserve, capacity and associated Bid for Energy, or (3) any feasible combination thereof.

4.9.5.3 MSS Demand Forecast

The Scheduling Coordinator for the MSS shall provide CAISO with Demand forecasts of the MSS. To the extent that the Scheduling Coordinator does not provide requisite Demand Forecast for the MSS it represents, the CAISO shall produce a Demand Forecast for each MSS Load Take-Out Point.

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4.9.13 MSS Elections and Participation in CAISO Markets

MSS Operators must make an election or choice on three (3) issues that govern the manner in which the MSS participates in the CAISO Markets. The MSS Operator must choose either: (i) net Settlements or gross Settlements, (ii) to Load follow or not Load follow with its generating resources, and (iii) whether or not to charge the CAISO for their Emissions Costs as provided in Section 11.7.4. The MSS Operator shall make annual elections regarding these three (3) sets of options pursuant to the timeline specified for such elections in the Business Practice Manuals.

The MSS Operator's 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 requirements and is no longer eligible for making such elections. If the MSS Operator fails to elect 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 and net or gross Settlement 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 an Ancillary Service from a System Unit or from individual Generating Units, Participating Loads or Proxy Demand Resources within the MSS. An MSS Operator also may purchase Ancillary Services from CAISO or third parties to meet its Ancillary Service Obligations under the 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 elect to operate a System Unit or Generating Units in the MSS to follow its Load, provided that: (a) the Scheduling Coordinator for the MSS Operator shall remain responsible for purchases of Energy in accordance with the CAISO Tariff if the MSS Operator does not operate its System Unit or Generating Units and bid or schedule imports into the MSS, to match the metered Demand in the MSS and exports from the MSS; and (b) if the deviation between Generation and imports into the MSS and metered Demand and exports from the MSS exceeds the MSS Deviation Band, then the Scheduling Coordinator for the MSS Operator shall pay the additional amounts specified in Section 11.7. 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 the Master File which of its generating resources are Load-following resources, (ii) it must comply 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 the 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 generating capacity that is designated or used by an MSS Operator to follow its own Load.

An MSS Operator may designate RMR Resources as Load-following. Load-following RMR Resources must be available to the CAISO for Dispatch up to the RMR Contract Capacity specified in the RMR Contract. Energy shall be accounted for as a delivery from the MSS to the CAISO for the purposes of determining if the MSS Operator followed its metered Demand and exports from the MSS as described in this Section 4.9.13.2 except that Energy from an RMR Resources in a Day-Ahead Schedule can be used for Load-following to satisfy Day-Ahead scheduled Demand like any other non-RMR Resource Load-following resource. If no RMR Dispatch Notice is received for a Load-following RMR Resource, such Load-following RMR Resource may participate in the CAISO Markets as any other non-RMR Load-following resource subject to Section 30.5.2.5.

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4.12 Relationship of CAISO and Resource-Specific System Resources

The CAISO shall not accept Bids for any Resource-Specific System Resource otherwise than through a Scheduling Coordinator. The CAISO shall further not be obligated to provide Bid Cost Recovery to any Resource-Specific System Resource unless the relevant Resource-Specific System Resource owner undertakes in writing, by entering into a Resource-Specific System Resource Agreement, to comply with all applicable provisions of this CAISO Tariff as they may be amended from time to time, including, without limitation, the applicable provisions of this Section 4.12. Except as otherwise provided in this

Section 4.12, Resource-Specific System Resources shall have the same rights and obligations as other System Resources, including the ability to have Bids submitted for either full or partial output from the RSSR, provided that a Bid must be for at least the Minimum Load of the resource in order to be eligible for Bid Cost Recovery.

4.12.1 General Responsibilities

4.12.1.1 Operate Pursuant to Relevant Provisions of CAISO Tariff

Resource-Specific System Resource owners shall operate, or cause their facilities to be operated, in accordance with the relevant provisions of this CAISO Tariff, including but not limited to the following.

- (i) A Resource-Specific System Resource shall only be eligible for Bid Cost Recovery if the Resource-Specific System Resource has complied with a Start-Up Instruction or Dispatch Instruction issued by the CAISO as specified in Section 11.8.
- (ii) In order to be eligible for Bid Cost Recovery, a Resource-Specific System Resource owner shall ensure that its Scheduling Coordinator makes an election for Default Start-Up Bids and Default Minimum Load Bids pursuant to Sections 30.4 and 30.5.2.4.
- (iii) A Resource-Specific System Resource owner shall ensure that any Ancillary Services Bids submitted by its Scheduling Coordinator are submitted in accordance with Section 30.5.2.6.
- (iv) Owners of Dynamic Resource-Specific System Resources that are Resource Adequacy Resources shall comply with additional availability requirements to the extent required by Section 40.6.5.1.
- (v) Each Resource-Specific System Resource owner shall immediately inform the CAISO, through its respective Scheduling Coordinator and using the CAISO's outage management system as described in Section 9, of any change or potential change in the current status of any Resource-Specific System Resource that may affect a submitted Bid. This will include, but not be limited to, any change in status of equipment that could affect the maximum output of a Resource-Specific System Resource, the Minimum Load of a Resource-Specific System Resource, or the ability of a Resource-Specific System Resource to provide Ancillary Services in accordance with its Bid.

- (vi) In the event that a Resource-Specific System Resource owner cannot meet its Day-Ahead Schedule, or comply with a Dispatch Instruction, whether due to a Resource-Specific System Resource trip or the loss of a piece of equipment causing a reduction in capacity or output, the Resource-Specific System Resource owner shall notify the CAISO, through its Scheduling Coordinator, at once. If a Resource-Specific System Resource owner will not be able to meet a time commitment or requires the cancellation of a Resource-Specific System Resource Start-Up, it shall notify the CAISO, through its Scheduling Coordinator, at once.

4.12.1.2 Operate Pursuant to Relevant Operating Procedures

Resource-Specific System Resource owners shall operate, or cause their Resource-Specific System Resources and associated facilities to be operated, in accordance with the relevant Operating Procedures and Business Practice Manuals established by the CAISO.

4.12.2 Identification of Resource-Specific System Resources

Each Resource-Specific System Resource owner shall provide data identifying each of its Resource-Specific System Resources and such information regarding the capacity and the operating characteristics of the Resource-Specific System Resource as may be reasonably requested from time to time by the CAISO. All information provided to the CAISO regarding the operational and technical constraints in the Master File must be an accurate reflection of the design capabilities of the resources and its constituent equipment when operating at maximum sustainable performance over Minimum Run Time, recognizing that resource performance may degrade over time. Information registered in the Master File by a Scheduling Coordinator must also conform to any additional definitional requirements in Appendix A as may exist as to that information. Pursuant to Sections 8.9 and 8.10, the CAISO may verify, inspect and test the capacity and operating characteristics of the resource provided to the CAISO.

4.12.3 Telemetry Data to Demonstrate Compliance

The Resource-Specific System Resource owner shall provide SCADA data by telemetry to the CAISO EMS at the Resource-Specific System Resource owner's expense in order to demonstrate compliance with CAISO Start-Up Instructions in order to be eligible for BCR. Telemetry data from Dynamic Resource-Specific System Resources shall be provided in accordance with the requirements of the CAISO's

Dynamic Scheduling Protocol in Appendix M. For Non-Dynamic Resource-Specific System Resources, the Resource-Specific System Resource owner shall have the option of providing the required telemetry data by transmittal directly to the CAISO EMS in accordance with the CAISO's standards for direct telemetry or by means of transmittal to the CAISO EMS through the EMS of its Host Balancing Authority Area by use of the inter-control center communications protocol (ICCP).

4.12.4 Recordkeeping

Resource-Specific System Resource owners shall provide to the CAISO such information and maintain such records as are reasonably required by the CAISO to implement the provisions of the CAISO Tariff applicable to Resource-Specific System Resources.

4.12.5 Access Rights

A Resource-Specific System Resource owner shall, at the request of the CAISO and upon reasonable notice, provide access to its facilities and records (including those relating to communications and telemetry) as necessary to permit the CAISO to perform such testing as is necessary to test the accuracy of any telemetry equipment upon which the Resource-Specific System Resource owner's performance is measured.

4.13 DRPs, RDRRs, and PDRs

4.13.1 Relationship Between CAISO and DRPs

Consistent with Section 30.6, the CAISO shall only accept Bids from Reliability Demand Response Resources and Proxy Demand Resources if such Reliability Demand Response Resources or Proxy Demand Resources are represented by a Demand Response Provider that has entered into a Demand Response Provider Agreement with the CAISO, has accurately provided the information required in the Demand Response System, has satisfied all Reliability Demand Response Resource or Proxy Demand Resource registration requirements, and has met standards adopted by the CAISO and published on the CAISO Website. Reliability Demand Response Resources and Proxy Demand Resources may not participate in a Distributed Energy Resource Aggregation. The CAISO shall not accept Bids from a Demand Response Provider other than through a Scheduling Coordinator, which Scheduling Coordinator may be the Demand Response Provider itself or another entity. Proxy Demand Response Resources providing Ancillary Services must submit Meter Data for the interval preceding, during, and following the

Trading Interval(s) in which they were awarded Ancillary Services for the purposes of determining settlement pursuant to Section 8.10.8.

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4.17 Distributed Energy Resource Aggregations

4.17.1 Relationship with Distributed Energy Resource Providers

The CAISO will accept Bids from Distributed Energy Resource Aggregations only if such Distributed Energy Resource Aggregations are represented by a Distributed Energy Resource Provider that has entered into a Distributed Energy Resource Provider Agreement with the CAISO to comply with all applicable provisions of the CAISO Tariff as they may be amended from time to time. The CAISO will not accept Bids from a Distributed Energy Resource Aggregation other than through a Scheduling Coordinator. The Scheduling Coordinator may be the Distributed Energy Resource Provider itself or another entity.

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4.17.4 Identification of Distributed Energy Resources

Each Distributed Energy Resource Provider will provide information, as described in the Business Practice Manual, identifying each of its Distributed Energy Resource Aggregations and such information regarding the location, capacity, operating characteristics and applicable Generation Distribution Factors of its Distributed Energy Resource Aggregation(s) as may be reasonably requested from time to time by the CAISO, and when the information changes due to the removal, addition, or modification of a Distributed Energy Resource or Distributed Curtailment Resource within the Distributed Energy Resource Aggregation. All information provided to the CAISO by a Distributed Energy Resource Provider regarding the operational and technical characteristics of its Distributed Energy Resource Aggregation(s) must be an accurate reflection of the design capabilities of the resources and its constituent equipment when operating at maximum sustainable performance over Minimum Run Time, recognizing that resource

performance may degrade over time. Information registered in the Master File by a Scheduling Coordinator must also conform to any additional definitional requirements in Appendix A as may exist as to that information.

As further described in the Business Practice Manual, the CAISO will share any necessary information and data about the Distributed Energy Resources comprising a Distributed Energy Resource Aggregation with the applicable Utility Distribution Company or Metered Subsystem. The Utility Distribution Company or Metered Subsystem will have an opportunity to provide written comments within thirty (30) days regarding the accuracy of the information about Distributed Energy Resources comprising a Distributed Energy Resource Aggregation(s) or raise concerns with respect to whether the Distributed Energy Resources (1) are participating in another Distributed Energy Resource Aggregation; (2) are participating as a Proxy Demand Response resource or a Reliability Demand Response Resource; (3) do not comply with applicable Utility Distribution Company tariffs or requirements of the relevant Local Regulatory Authority; (4) receive compensation from retail programs for capacity, Energy, or other services that would be offered to the CAISO Markets; or (5) may pose a significant threat to the safe and reliable operation of the Distribution System, if operated as part of a Distributed Energy Resource Aggregation. The Utility Distribution Company or Metered Subsystem review of criterion (5) must be limited to those impacts resulting from the aggregation, exclusive of issues previously considered during the interconnection study process for each Distributed Energy Resource. The CAISO will provide the Distributed Energy Resource Provider with the Utility Distribution Company or Metered Subsystem's written comments and any other information regarding the Distributed Energy Resources provided by the Utility Distribution Company or Metered Subsystem to CAISO, and the Distributed Energy Resource Provider will resolve any concerns with the Utility Distribution Company or Metered Subsystem prior to the CAISO allowing the individual Distributed Energy Resource to participate in a Distributed Energy Resource Aggregation. Parties may resolve any disputes regarding any issues related to the distribution utility review process with the applicable Governmental Authority for the Utility Distribution Company or Metered Subsystem or under Section 13 of the CAISO tariff, as applicable to the dispute.

4.17.4.1 Modifications to Distributed Energy Resource Aggregations

The Distributed Energy Resource Provider will notify the CAISO of any changes to the information it

provided during the registration process due to the removal, addition, or modification of a Distributed Energy Resource or Distributed Curtailment Resource within the Distributed Energy Resource Aggregation. The Distributed Energy Resource Provider also will notify the CAISO of any changes to its Distributed Energy Resource Aggregation's physical or operational characteristics. The CAISO will notify the applicable Utility Distribution Company or Metered Subsystem of any changes, and the Utility Distribution Company or Metered Subsystem will have fourteen (14) days to provide the CAISO any written comments raising concerns under Section 4.17.4.

4.17.5 Characteristics of Distributed Energy Resource Aggregations

4.17.5.1 Size Limits

A Distributed Energy Resource Aggregation will be no smaller than 100kW. A Distributed Energy Resource Aggregation that includes Distributed Energy Resources located at different PNodes will be no larger than 20 MW.

4.17.5.2 Metering and Telemetry

Scheduling Coordinators shall submit to the CAISO Actual Settlement Quality Meter Data or Estimated Settlement Quality Meter Data for Distributed Energy Resource Aggregations they represent for each Settlement Period in an Operating Day. Distributed Energy Resources and Distributed Curtailment Resources participating in a Distributed Energy Resource Aggregation will be directly metered pursuant to a meter that complies with any applicable Utility Distribution Company tariff and any standards of the relevant Local Regulatory Authority or, if no such tariff exists or no standards have been set by that Local Regulatory Authority, the metering standards as further detailed in the CAISO's Business Practice Manual. Distributed Energy Resource Providers must make Settlement Quality Meter Data from individual Distributed Energy Resources and Distributed Curtailment Resources comprising a Distributed Energy Resource Aggregation available to the CAISO upon request.

Distributed Energy Resource Providers shall provide information regarding Distributed Energy Resource Aggregation(s) with a rated capacity of 10 MW or greater or, if the Distributed Energy Resource Aggregation(s) provides Ancillary Services, through telemetry to the CAISO's EMS in accordance with the CAISO's standards for direct telemetry and consistent with the requirement for telemetry set forth in Section 7.6.1. Distributed Energy Resource Providers are not required to have their own direct telemetry

on each DER, and may acquire the data required to provide the CAISO with accurate telemetry data for the DERA by any means, including calculation.

4.17.6 Operating Requirements

Distributed Energy Resource Aggregations will respond to (1) CAISO Dispatch Instructions and (2) instructions from the Utility Distribution Company to maintain the safety and reliability of the Distribution System. The CAISO may dispatch a Distributed Energy Resource Aggregation to the extent the Distributed Energy Resource Aggregation bids or schedules into the CAISO Markets and receives an award. The CAISO may also issue an Exceptional Dispatch Instruction for the Distributed Energy Resource Aggregation for reliability pursuant to Section 34.10. Distributed Energy Resource Aggregations shall respond to Dispatch Instructions consistent with Generation Distribution Factors for the Distributed Energy Resource Aggregation.

Each Distributed Energy Resource Provider will operate its Distributed Energy Resource Aggregation(s) in a manner consistent with limitations or operating orders established by the Utility Distribution Company or Metered Subsystem. Scheduling Coordinators for Distributed Energy Resources Providers shall submit Outages to the CAISO as necessary to reflect any distribution constraints impacting Distributed Energy Resources that comprise a Distributed Energy Resource Aggregation under its control. The CAISO shall have the authority to coordinate and approve Outage schedules for the Distributed Energy Resource Aggregation(s) listed in a Distributed Energy Resource Provider Agreement, in accordance with the provisions of Section 9. Where the Utility Distribution Company requires its own direct communication with the Distributed Energy Resource Provider for the safety and reliability of the Distribution System, those communication and data protocols will be established in Schedule 4 to the Distributed Energy Resource Provider Agreement.

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Section 6

6. Communications

6.1 Methods of Communication

6.1.1 Full-Time Communications Facility Requirements

Each Scheduling Coordinator, Utility Distribution Company, Participating TO, Participating Generator, Balancing Authority (to the extent the agreement between the Balancing Authority and the CAISO so provides), and MSS Operator must provide a communications facility manned twenty-four (24) hours a day, seven (7) days a week capable of receiving Dispatch Instructions issued by the CAISO.

6.1.2 Information Transfer from Scheduling Coordinator to CAISO

Unless otherwise agreed by the CAISO, Scheduling Coordinators who wish to submit Bids into CAISO Markets must submit the information to the CAISO's secure communication system. Scheduling Coordinators that wish to submit Dynamic Schedules or Bids for Ancillary Services to the CAISO must also comply with the applicable requirements of Sections 4.5.4.3, 8.3.7, and 8.4.5.

6.1.3 Submitting Information to the Secure Communication System

For Scheduling Coordinators submitting information to the CAISO's secure communication system, each such Scheduling Coordinator shall establish a network connection with the CAISO's secure communication system. Link initialization procedures shall be necessary to establish a connection to the CAISO's secure communication system. In order to log in, each Scheduling Coordinator will be furnished a digital certificate by the CAISO.

6.1.3.1 The CAISO will make available data templates and validation rules information that provides a description of the templates which will be utilized to enter data into the CAISO's secure communication system.

6.1.4 Information Transfer from CAISO to Scheduling Coordinator

Unless otherwise agreed between a Scheduling Coordinator and the CAISO, the CAISO shall furnish scheduling information to Scheduling Coordinators by electronic transfer as described in Section 6. If electronic data transfer is not available, the information may be furnished by facsimile. If it is not possible to communicate with the Scheduling Coordinator using the primary means of communication, an alternate means of communication shall be selected by the CAISO.

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Section 7

7. System Operations Under Normal and Emergency Conditions

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7.6 Normal System Operations

7.6.1 Actions for Maintaining Reliability of CAISO Controlled Grid

The CAISO shall obtain the control over Generating Units that it needs to control the CAISO Controlled Grid and maintain reliability by ensuring that sufficient Energy, Imbalance Reserves, Reliability Capacity, and Ancillary Services are procured through the CAISO Markets. When the CAISO responds to events or circumstances, it shall first use the generation control it is able to obtain from market processes to respond to the operating event and maintain reliability. Only when the CAISO has used the Energy, Imbalance Reserves, Reliability Capacity, and Ancillary Services that are available to it and that are effective in responding to the problem and the CAISO is still in need of additional control over Generating Units, shall the CAISO assume supervisory control over other Generating Units. It is expected that at this point, the operational circumstances will be so severe that a Real-Time system problem or emergency condition could be in existence or imminent.

Each Participating Generator shall take, at the direction of the CAISO, such actions affecting such Generator as the CAISO determines to be necessary to maintain the reliability of the CAISO Controlled Grid. Such actions shall include (but are not limited to):

- (a) compliance with Dispatch Instructions including instructions to deliver Energy and Ancillary Services in Real-Time pursuant to the AS Awards, Day-Ahead Schedules and FMM Schedules, and FMM AS Awards;
- (b) compliance with the system operation requirements set out in this Section 7;
- (c) notification to the CAISO of the persons to whom an instruction of the CAISO should be directed on a 24-hour basis, including their telephone and facsimile numbers; and
- (d) the provision of communications, telemetry and direct control requirements, including the

establishment of a direct communication link from the control room of the Generator to the CAISO in a manner that ensures that the CAISO will have the ability, consistent with this CAISO Tariff, to direct the operations of the Generator as necessary to maintain the reliability of the CAISO Controlled Grid, except that a Participating Generator will be exempt from CAISO requirements imposed in accordance with this subsection (d) with regard to any Generating Unit with a rated capacity of less than ten (10) MW, unless that Generating Unit is certified by the CAISO to provide Ancillary Services.

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7.7.7 Removal of Bids in the Event of a Market Disruption, to Prevent a Market Disruption, or to Minimize the Extent of a Market Disruption

- (a) Types of Bids.** The types of Bids that the CAISO may remove are Bids that are not feasible based on the misalignment of resource-specific conditions and physical constraints represented in the Master File, current outage information, and the Bid itself.
- (b) Removal of a Portion of a Bid.** The CAISO may remove part of a Bid, but retain other parts of the Bid for the applicable CAISO Market run and interval for the same or a different product, and may retain parts of the Bid for subsequent CAISO Market runs or intervals.
- (c) Removal of a Bid Pursuant to Section 7.7.6(a)(2).** If a Bid must be removed pursuant to Section 7.7.6(a)(2), the CAISO will remove the entire Bid for that particular service and market.
- (d) Resubmittal of Bids.** The Scheduling Coordinator may resubmit removed Bids in subsequent CAISO Markets, provided the Scheduling Coordinator complies with any operator instructions regarding the subject Bids.
- (e) RUC Bids.** In the event the CAISO removes a Bid from an IFM run, the RUC Availability Bid associated with the removed IFM Bid may still be accepted for the corresponding RUC run, unless the CAISO determines that the RUC Availability Bid is the cause of the

disruption.

- (f) **RTM Bids.** If the CAISO removes a Bid in the advisory RTUC or RTD runs during the Real-Time Market, the CAISO may still use the removed Bid in the binding runs of the Real-Time Market for the same interval if the problems previously experienced with the Bid do not arise.
- (g) **Energy Component of Ancillary Services Bids.** If the CAISO removes an Ancillary Services Bid submitted to the Real-Time Market, the CAISO may retain the associated Energy Bid for that CAISO Market run.
- (h) **Settlement Consequences of Removal of Bids**
 - (1) **Day-Ahead Market.** In the event that a Bid is removed from the Day-Ahead Market, the Scheduling Coordinator whose Bid is removed will not be subject to Settlement for the Day-Ahead Market for the affected service.
 - (2) **Ancillary Services.** In the case of Ancillary Services Bids, including Submissions to Self-Provide an Ancillary Service, that are removed from the Day-Ahead Market, the Scheduling Coordinator will not receive Settlement for the Ancillary Services in the Day-Ahead Market and will not receive an opportunity cost payment in the Day-Ahead Market for the offered service.
 - (3) **Exceptional Dispatch.** In the event that a Bid is removed from a CAISO Market run or interval, the CAISO may subsequently be required to issue an Exceptional Dispatch for the resource, in which case the Scheduling Coordinator will receive Exceptional Dispatch Settlement as provided in Section 11.5.6.
 - (4) **Demand Bids.** In the event that a Demand Bid is removed from the Day-Ahead Market, because no Demand Bids for load can be submitted in the Real-Time Market, Scheduling Coordinators for the load not cleared in the Day-Ahead Market will be settled as Uninstructed Imbalance Energy as provided in Section 11.5.2.
- (i) **Reporting to Affected Scheduling Coordinators.** To the extent practicable, the CAISO will contact a Scheduling Coordinator's representative before removing a Bid and advise

the representative of the issues encountered with the Bid as soon as practicable, but no later than three (3) Business Days, after the applicable Bid was removed and will provide information specifying when its Bid was removed and the nature of the disruption.

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Section 8

8. Ancillary Services

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8.3 Procurement; Certification and Testing; Contracting Period

8.3.1 Procurement of Ancillary Services

The CAISO shall operate competitive Day-Ahead and Real-Time Markets to procure Ancillary Services. The Security Constrained Unit Commitment (SCUC) and Security Constrained Economic Dispatch (SCED) applications used in the Integrated Forward Market (IFM) and the Real-Time Market (RTM) shall calculate optimal resource commitment, Energy, Imbalance Reserves, Reliability Capacity, and Ancillary Services Awards and Schedules at least cost to End-Use Customers consistent with maintaining System Reliability. Any Scheduling Coordinator representing resources, System Units, Participating Loads, Proxy Demand Resources or imports of System Resources may submit Bids into the CAISO's Ancillary Services markets provided that it is in possession of a current certificate for the resources concerned. Regulation Up, Regulation Down, and Operating Reserves necessary to meet CAISO requirements not met by self-provision will be procured by the CAISO as described in this CAISO Tariff. The amount of Ancillary Services procured in the IFM is net of (i) Self-Provided Ancillary Services from resources internal to the CAISO Balancing Authority Area (which includes Pseudo-Ties of Generating Units to the CAISO Balancing Authority Area) and Dynamic System Resources certified to provide Ancillary Services and (ii) Ancillary Services self-provided pursuant to an ETC, TOR or Converted Right. The amount of Ancillary Services procured in the Real-Time Market is net of (i) available awarded Day-Ahead Ancillary Services,

(ii) Self-Provided Ancillary Services from resources internal to the CAISO Balancing Authority Area (which includes Pseudo-Ties of Generating Units to the CAISO Balancing Authority Area) and Dynamic System Resources certified to provide Ancillary Services, (iii) additional Operating Reserves procured in the FMM, and (iv) Ancillary Services self-provided pursuant to an ETC, TOR or Converted Right. The CAISO may procure incremental Ancillary Services in the Real-Time Market based in part on a determination during the FMM that any Ancillary Services capacity awarded or self-provided in the Day-Ahead Market is not available as a result of a resource constraint or Transmission Constraints. Resource constraints may include but are not limited to an Outage of a resource or Ramp Rate constraints. Incremental procurement in the Real-Time Market will exclude Ancillary Services Capacity the CAISO has determined is not available.

The CAISO will manage the Energy from both CAISO-procured and Self-Provided Ancillary Services as part of the FMM and Real-Time Dispatch. In the Day-Ahead Market, the CAISO procures one-hundred (100) percent of its Ancillary Service requirements based on the Day-Ahead Demand Forecast net of Self-Provided Ancillary Services. After the Day-Ahead Market, the CAISO procures additional Ancillary Services needed to meet system requirements from all resources in the Real-Time Market. The amount of Ancillary Services procured in the Real-Time Market is based on the CAISO Forecast of BAA Demand for the CAISO for the Operating Hour net of Self-Provided Ancillary Services.

Awards of AS in the RTM to Non-Dynamic System Resources are for the entire next Operating Hour. The CAISO procurement of Ancillary Services from all other resources in the Real-Time Market is for a fifteen (15) minute FMM interval. The CAISO's procurement of Ancillary Services from Non-Dynamic System Resources, Dynamic System Resources and internal Generation (which includes Generation from Generating Units that are Pseudo-Ties to the CAISO Balancing Authority Area) in the Real-Time Market is based on the Ancillary Service Bids submitted or generated in the RTM consistent with the requirements in Section 30. The CAISO may also procure Ancillary Services pursuant to the requirements in Section 42.1 and as permitted under the terms and conditions of a Reliability Must-Run Contract.

The CAISO will contract for long-term Voltage Support service with owners of Reliability Must-Run Units under Reliability Must-Run Contracts. These requirements and standards apply to all Ancillary Services whether self-provided or procured by the CAISO.

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8.4 Technical Requirements for Providing Ancillary Services

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8.4.1.1 Regulation

A resource offering Regulation must have the following operating characteristics and technical capabilities:

- (a) it must be capable of being controlled and monitored by the CAISO EMS by means of the installation and use of a standard CAISO direct communication and direct control system, a description of which and criteria for any temporary exemption from which, the CAISO shall publish on the CAISO Website;
- (b) it must be capable of achieving at least the Ramp Rates (increase and decrease in MW/minute) stated in its Bid for the full amount of Regulation capacity offered;
- (c) the Regulation capacity offered must not exceed the maximum Ramp Rate (MW/minute) of that resource times ten (10) minutes;
- (d) the resource to CAISO Control Center telemetry must, in a manner meeting CAISO standards, include indications of whether the resource is on or off CAISO EMS control at the resource terminal equipment;
- (e) the resource must be capable of the full range of movement within the amount of Regulation capability offered without manual resource operator intervention of any kind;
- (f) each Ancillary Service Provider must ensure that its CAISO EMS control and related SCADA equipment for its resource are operational throughout the time period during which Regulation is required to be provided;
- (g) Regulation capacity offered must be dispatchable on a continuous basis for at least sixty (60) minutes in the Day-Ahead Market and at least thirty (30) minutes in the Real-Time

Market after issuance of the Dispatch Instruction. The CAISO will measure continuous Energy from the time a resource reaches its award capacity. In the Real-Time Market, where a storage resource using the Non-Generator Resource model will not have sufficient State of Charge to meet its Ancillary Services Schedule, Imbalance Reserves Award, or RUC Award, the CAISO will dispatch the storage resource to have sufficient State of Charge to meet its Ancillary Services Schedule, Imbalance Reserves Award, or RUC Award. Scheduling Coordinators for Non-Generator Resources located within the CAISO Balancing Authority Area that require Energy from the Real-Time Market to offer their full capacity as Regulation may request the use of Regulation Energy Management as described in Section 8.4.1.2; and

- (h) Regulation capacity offered must meet or exceed the minimum performance threshold of twenty-five (25) percent measured accuracy as specified in Section 8.2.3.1.1.

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Section 11

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11.2 Settlement of Day-Ahead Market Transactions

All transactions in the IFM and RUC as specified in the Day-Ahead Schedule, AS Awards and RUC Awards, respectively, are financially binding and will be settled based on the Day-Ahead LMP, ASMP or RUC Price for the relevant Location for the specific resource or transaction identified for the Bid. The CAISO will settle the costs of Demand, Energy, Imbalance Reserves, Reliability Capacity, or Ancillary Services as separate Settlement charges and payments for each Settlement Period as appropriate.

11.2.1 IFM Settlements

11.2.1.1 IFM Payments for Supply of Energy and Imbalance Reserves

For each Settlement Period for which the CAISO clears Energy transactions in the IFM, the CAISO shall

pay the relevant Scheduling Coordinator for the MWh quantity of Supply of Energy from all Generating Units, Participating Loads, Proxy Demand Resources, Reliability Demand Response Resources, Distributed Energy Resource Aggregations and System Resources in an amount equal to the IFM LMP at the applicable PNode or Aggregated PNode multiplied by the MWh quantity specified in the Day-Ahead Schedule for Supply (which consists of the Day-Ahead Scheduled Energy).

For each Settlement Period for which the CAISO clears Imbalance Reserves transactions in the IFM, the CAISO pays Scheduling Coordinators representing Generating Units, Participating Loads, Proxy Demand Resources, Reliability Demand Response Resources, Distributed Energy Resource Aggregations and System Resources the product of the: (a) Locational IRU Price or Locational IRD Price at the applicable PNode or Aggregated PNode; and (b) MW quantity of the awarded IRU or IRD.

For each Settlement Period for which the CAISO clears Imbalance Reserves transactions in the IFM, the CAISO pays the congestion revenue from Transmission Constraints binding in the up and down deployment scenarios for Imbalance Reserves calculated per Section 31.3.1.6.4 to the EDAM Entity Scheduling Coordinator to distribute per the EDAM Entity's OATT or, for the CAISO BAA, as specified in Section 11.2.4.

11.2.1.1.1 Greenhouse Gas in the IFM

Scheduling coordinators for resources that receive an IFM attribution to serve Demand in a GHG Regulation Area will receive a GHG settlement in the applicable Settlement Period. The GHG settlement is the product of the IFM attribution to serve Demand in a specific GHG Regulation Area and the applicable IFM Marginal GHG Cost for that respective GHG Regulation Area. For a resource within a GHG Regulation Area that does not receive an attribution to served Demand in another GHG Regulation Area, the cost of GHG compliance is embedded in the resource's LMP.

11.2.1.2 IFM Charges for Demand at LAPS

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

Default LAP IFM LMP is as described in Section 27.2.2. For Scheduling Coordinators whose Demand scheduled at the individual LAP is subject to an upward price correction as specified in Section 11.21, the CAISO will use the Price Correction Derived LMP to settle the MWh quantity of Demand scheduled in the Day-Ahead Schedule at the relevant LAP.

11.2.1.3 IFM Charges for Demand by Participating Loads, Including Aggregated Participating Load

For each Settlement Period that the CAISO clears Energy transactions in the IFM for Demand by Participating Loads, the CAISO shall charge the Scheduling Coordinators an amount equal to the MWh quantity of Demand scheduled in the Day-Ahead Schedule for the relevant Participating Load at the PNode (or Custom LAP, in the case of Aggregated Participating Load), multiplied by the IFM LMP at that PNode (or Custom LAP, in the case of Aggregated Participating Load). The Custom LAP Price is determined as described in Section 27.2.2. For Scheduling Coordinators whose Demand scheduled at the individual PNode or Custom LAP is subject to an upward price correction as specified in Section 11.21, the CAISO will use the Price Correction Derived LMP to settle the MWh quantity scheduled in the Day-Ahead Schedule for that Scheduling Coordinator at the relevant PNode or Custom LAP.

11.2.1.4 IFM Charges for Energy Exports at Scheduling Points

For each Settlement Period that the CAISO clears Energy transactions in the IFM, the CAISO shall charge Scheduling Coordinators for the Energy export MWh quantity at individual Scheduling Points scheduled in the Day-Ahead Schedule, an amount equal to the IFM LMP for the applicable Scheduling Point multiplied by the MWh quantity at the individual Scheduling Point scheduled in the Day-Ahead Schedule. For Scheduling Coordinators whose exports scheduled at the individual Scheduling Points is subject to an upward price correction as specified in Section 11.21, the CAISO will use the Price Correction Derived LMP to settle the MWh quantity of Energy exports scheduled in the Day-Ahead Schedule at the relevant Scheduling Point.

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

For all Points of Receipt and Points of Delivery pairs associated with a valid and balanced ETC Self-Schedule, TOR Self-Schedule or Converted Rights Self-Schedule, the CAISO shall not impose any charge or make any payment to the Scheduling Coordinator related to the MCC associated with such

Self-Schedules. For each Scheduling Coordinator, the CAISO shall determine the applicable IFM Congestion Credit, which can be positive or negative, as the sum of the products of the quantity scheduled in the Day-Ahead Schedule and the MCC at each eligible Point of Receipt and Point of Delivery associated with the valid and balanced portions of that Scheduling Coordinator's ETC, TOR, and Converted Rights Self-Schedules.

11.2.1.6 Allocation of IFM Marginal Losses Surplus Credit

On each Settlement Statement, the CAISO shall apply the IFM Marginal Losses Surplus Credit to each Scheduling Coordinator for the period of each Settlement Statement. For each Settlement Period, the IFM Marginal Losses Surplus Credit shall be the product of the IFM Marginal Losses Surplus rate (\$/MWh) and the MWh of Measured Demand for the relevant Scheduling Coordinator net of that Scheduling Coordinator's (1) Measured Demand associated with a TOR Self-Schedule subject to the IFM Marginal Cost of Losses Credit for Eligible TOR Self-Schedules as provided in Section 11.2.1.7; and (2) Measured Demand associated with a TOR Self-Schedule subject to the RTM Marginal Cost of Losses Credit for Eligible TOR Self-Schedules as provided in Section 11.5.7.2.

The IFM Marginal Losses Surplus rate shall be equal to the total IFM Marginal Losses Surplus (\$) divided by the sum of the total MWh of Measured Demand in the CAISO Balancing Authority Area for the relevant Settlement Period net of (1) any Measured Demand associated with a TOR Self-Schedule subject to the IFM Marginal Cost of Losses Credit for Eligible TOR Self-Schedules as provided in Section 11.2.1.7; and (2) any Measured Demand associated with a TOR Self-Schedule subject to the RTM Marginal Cost of Losses Credit for Eligible TOR Self-Schedules as provided in Section 11.5.7.2.

11.2.1.7 IFM Marginal Cost of Losses Credit for Eligible TOR Self-Schedules

For all Points of Receipt and Points of Delivery pairs associated with a valid and balanced TOR Self-Schedule submitted pursuant to an existing agreement between the TOR holder and either the CAISO or a Participating TO as specified in Section 17.3.3, the CAISO shall not impose any charge or make any payment to the Scheduling Coordinator related to the MCL associated with such TOR Self-Schedules and will instead impose any applicable losses charges as specified in the existing agreement between the TOR holder and either the CAISO or a Participating TO applicable to the relevant TOR. In any case in which the TOR holder has an existing agreement regarding its TORs with either the CAISO or a

Participating TO, the provisions of the agreement shall prevail over any conflicting provisions of this Section 11.2.1.7. Where the provisions of this Section 11.2.1.7 do not conflict with the provisions of the agreement, the provisions of this Section 11.2.1.7 shall apply to the subject TORs. For each Scheduling Coordinator, the CAISO shall determine the applicable IFM Marginal Cost of Losses Credit for Eligible TOR Self-Schedules, which can be positive or negative, as the sum of the products of the quantity scheduled in the Day-Ahead Schedule and the MCL at each eligible Point of Receipt and Point of Delivery associated with the valid and balanced portions of that Scheduling Coordinator's TOR Self-Schedules.

11.2.1.8 Charges for Unavailable Imbalance Reserves

As provided in this Section 11.2.1.8, the CAISO charges resources with Imbalance Reserves Awards when some portion of the Imbalance Reserves Award is unavailable to the CAISO. Charges assessed pursuant to this Section 11.2.1.8 for unavailable IRU and IRD awards are subtracted from the separate allocations of IRU and IRD costs, respectively, pursuant to Section 11.2.1.9.

11.2.1.8.1 Charges for Unavailable IRU awards

A resource's unavailable IRU quantity is the amount, if any, by which the resource's Day-Ahead Schedule for Supply plus Ancillary Services Awards other than for Regulation Down plus the IRU award minus the Five-Minute Imbalance Reserve Quantity exceeds the resource's Upper Economic Limit as adjusted by applicable Outages in the FMM. The CAISO charges a resource with an unavailable IRU quantity the product of the unavailable quantity and the higher of the FMM Flexible Ramp Up Price or the resource's Locational IRU Price.

11.2.1.8.2 Charges for Unavailable IRD awards

A resource's unavailable IRD quantity is the amount, if any, by which the resource's Lower Economic Limit as adjusted by applicable Outages in the FMM exceeds the resource's Day-Ahead Schedule for Supply minus the Ancillary Services Awards for Regulation Down minus the IRD award plus the Five-Minute Imbalance Reserve Quantity. The CAISO charges a resource with an unavailable IRD quantity the product of the unavailable quantity and the higher of the FMM Flexible Ramp Down price or the resource's Locational IRD Price.

11.2.1.8.3 Priority of Charges When a Resource is Unavailable for both Imbalance Reserves

and Reliability Capacity

For Settlement Periods in which a resource receives both a RUC Award and Imbalance Reserves Award and is unavailable in the RTM, or only bids a portion of its combined award in the RTM, the CAISO first applies charges per Section 11.2.2.2 to the quantity of unavailable Reliability Capacity and then applies charges per this Section 11.2.1.8 to the remaining unavailable capacity. If a resource has an Ancillary Services Award, RUC Award, and Imbalance Reserves Award in the same Settlement Period and is unavailable in the RTM, then the CAISO first determines any unavailable quantities pursuant to this Section 11.2.1.8.3 and then applies the rescission rules in Section 11.10.9.

11.2.1.9 Allocation of Imbalance Reserves Costs The CAISO allocates the separate costs of IRU and IRD through distinct two-tiered allocations. For IRU, the costs allocated include the direct costs of procuring IRU, as reflected by the summation of the product of each Imbalance Reserves Award for IRU and its Locational IRU Price, and the congestion revenue calculated per Section 31.3.1.6.4 from transmission constraints binding in the up deployment scenario for Imbalance Reserves. For IRD, the costs allocated include both the direct costs, as reflected by the summation of the product of each Imbalance Reserves Award for IRD and its Locational IRD Price, of procuring IRD and the congestion revenue calculated per Section 31.3.1.6.4 from transmission constraints binding in the down deployment scenario for imbalance reserves.

A Scheduling Coordinator's allocation of IRU costs in tier 1 is the product of its IRU tier 1 cost allocation quantity, as specified in Section 11.2.1.9.1, and its IRU tier 1 cost allocation price, as specified in Section 11.2.1.9.3. A Scheduling Coordinator's allocation of IRD costs in tier 1 is the product of its IRD tier 1 cost allocation quantity, as specified in Section 11.2.1.9.2, and its IRD tier 1 cost allocation price, as specified in Section 11.2.1.9.4.

The CAISO allocates the costs of Imbalance Reserves procurement not recovered through the IRU or IRD tier 1 cost allocations to Scheduling Coordinators in Tier 2 in proportion to their metered Demand in the interval for which the CAISO procured the Imbalance Reserves. For ETC and TOR self-schedules, the CAISO treats quantities above the valid and balanced portion as metered Demand subject to cost allocation in Tier 2.

11.2.1.9.1 IRU Tier 1 Cost Allocation Quantity

A Scheduling Coordinator's total IRU tier 1 cost allocation quantity is the sum of the tier 1 quantities for the entities it represents specified as follows.

The IRU tier 1 cost allocation quantity for Generating Units, Participating Loads, Proxy Demand Resources, Reliability Demand Response Resources, Distributed Energy Resource Aggregations and System Resources that are not scheduled as a Wheeling Through transaction is the higher of: (a) zero; and (b) the difference between the Energy portion of the Day-Ahead Schedule and the FMM Upper Economic Limit (as adjusted by Outages, a reduction in VER forecast from the Day-Ahead Market to FMM, or the E-Tag transmission profile used by the Real-Time Market).

For non-Participating Load, the IRU tier 1 cost allocation quantity is its negative Uninstructed Imbalance Energy quantity, if any.

The IRU tier 1 cost allocation quantity for an entity exporting Energy, excluding wheel through transactions, is the higher of: (a) zero; and (b) the difference between the FMM self-schedule and Energy portion of the Day-Ahead Schedule.

11.2.1.9.2 IRD Tier 1 Cost Allocation Quantity

A Scheduling Coordinator's total IRD tier 1 cost allocation quantity is the sum of the tier 1 quantities for the entities it represents, specified as follows.

The IRD tier 1 cost allocation quantity for Generating Units, Participating Loads, Proxy Demand Resources, Reliability Demand Response Resources, Distributed Energy Resource Aggregations and System Resources that are not scheduled as a Wheeling Through transaction is the higher of: (a) zero; and (b) the difference between the FMM Lower Economic Limit (as adjusted by Outages, a reduction in VER forecast from the Day-Ahead Market to FMM, or the E-Tag transmission profile used by the Real-Time Market) and the Energy portion of the Day-Ahead Schedule.

For non-Participating Load, the IRD tier 1 cost allocation quantity is its positive Uninstructed Imbalance Energy quantity, if any.

The IRD tier 1 cost allocation quantity for an entity exporting Energy from the CAISO Balancing Authority Area is the higher of: (a) zero; and (b) the difference between the Energy portion of the Day-Ahead Schedule and the E-Tag transmission profile used by the Real-Time Market).

11.2.1.9.3 IRU Tier 1 Cost Allocation Price

The IRU tier 1 cost allocation price in an interval is the lower of: (a) the total IRU cost, as adjusted by charges assessed per Section 11.2.1.8.1, divided by the total MWs of IRU procured; and (b) the total IRU cost, as adjusted by charges assessed per Section 11.2.1.8.1, divided by the total IRU tier 1 allocation quantity.

11.2.1.9.4 IRD Tier 1 Cost Allocation Price

The IRD tier 1 cost allocation price in an interval is the lower of: (a) the total IRD cost, as adjusted by charges assessed per Section 11.2.1.8.2, divided by the total MWs of IRD procured; and (b) the total IRD cost, as adjusted by charges assessed per Section 11.2.1.8.2, divided by the total IRD tier 1 allocation quantity.

11.2.1.9.5 Imbalance Reserves Cost Allocation to MSSs

The CAISO allocates costs of Imbalance Reserves to a MSS in the same fashion as any other Scheduling Coordinator irrespective of the MSS's election, per Section 4.9.13, of net Settlements or gross Settlements.

The CAISO allocates costs of Imbalance Reserves to a MSS that has elected, per Section 4.9.13, to Load follow with its generating resources based on the MSS's net portfolio Uninstructed Deviations in tier 1 and tier 2 of the IRU and IRD cost allocation based on the MSS's net portfolio Uninstructed Deviations.

11.2.2 Calculation of Hourly RUC Compensation

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

11.2.2.1 Settlement of RUC Availability Payment

Scheduling Coordinators shall receive RUC Availability Payments for all eligible capacity awarded in the RUC process. RMR Capacity is not eligible for RUC Availability Payments in the DAM. The RUC Availability Payment shall be calculated for each resource as the product of the RCU Availability Quantity and the RUC Price for RCU or the product of the RCD Availability Quantity and the RUC Price for RCD. The RUC Availability Payment amounts are allocated through the RUC Compensation Costs allocation in Section 11.8.6.5.

The CAISO provides a RUC Availability Payment to a Scheduling Coordinator for a MSS the same as any

other Scheduling Coordinator irrespective of the MSS's election, per Section 4.9.13, of net Settlements or gross Settlements.

11.2.2.2 Rescission of RUC Availability Payment

Rescission of all or a portion of the RUC Availability Payment for a resource as defined in Section 31.5.7 shall be settled in accordance with this Section 11.2.2.2.

11.2.2.2.1 Undispatchable RUC Capacity

The CAISO rescinds the RUC Availability Payment in a Settlement Interval for Undispatchable Capacity related to Reliability Capacity.

In a settlement interval, a Generating Unit, Participating Load, Proxy Demand Resource, System Unit or System Resource has Undispatchable Capacity for RCU to the extent the Energy portion of the Day-Ahead Schedule plus Ancillary Services Awards other than for Regulation Down plus the IRU award plus the RCU award exceeds the lower of the resource's Upper Economic Limit or upper operating limit.

In a settlement interval, a Generating Unit, Participating Load, Proxy Demand Resource, System Unit or System Resource has Undispatchable Capacity for RCD to the extent the resource's Lower Economic Limit exceeds the Energy portion of the Day-Ahead Schedule minus the Ancillary Services Awards for Regulation Down minus the IRD award minus the RCD award.

The CAISO evaluates a Multi-Stage Generating Resource for Undispatchable Capacity related to Reliability Capacity for the entire Generating Unit and not for the MSG Configuration.

11.2.2.2.2 [Not Used]

11.2.2.2.3 Allocation of Rescinded RUC Availability Payments Due to Non-Performance

RUC Availability Payments rescinded due to Undispatchable Capacity are subtracted from the RUC Compensation Costs allocated per Section 11.8.6.5.3.

11.2.3 IFM Energy Charges and Payments for Metered Subsystems

11.2.3.1 Gross Energy Settlement for Metered Subsystems

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

11.2.3.1.1 IFM Charges for MSS Demand under Gross Energy Settlement

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

11.2.3.1.2 IFM Payments for MSS Supply under Gross Energy Settlement

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

11.2.3.1.3 IFM Payments for MSSs providing Imbalance Reserves

A MSS that receives an Imbalance Reserves Award will be settled per Section 11.2.1.1 irrespective of that MSS's election under Section 4.9.13 of net or gross Settlement.

11.2.3.2 Net Energy Settlement for Metered Subsystems

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

11.2.3.2.1 IFM Charges for MSS Demand under Net Energy Settlement

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

11.2.3.2.2 IFM Payment for MSS Supply under Net Energy Settlement

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

11.2.4 CRR Settlements

The CAISO will pay or charge CRR Holders as further specified in this Section 11.2.4 and its subsections.

11.2.4.1 Calculation of the IFM Congestion Charge

For each Settlement Period of the IFM, the CAISO will calculate the IFM Congestion Charge as the IFM MCC amount for all scheduled Demand and Virtual Demand Awards, minus the IFM MCC amount for all scheduled Supply and Virtual Supply Awards.

The IFM MCC amount for all scheduled Demand and Virtual Demand Awards is the sum of part (a), part (b), and part (c) of this Section 11.2.4.1.

The IFM MCC amount for all scheduled Supply and Virtual Supply Awards is the sum of part (d), part (e) and part (f) of this Section 11.2.4.1.

Part (a) is the sum of the products of the IFM MCC of Energy and the total MWh of Demand scheduled in the Day-Ahead Schedule and Virtual Demand Awards at all the applicable PNodes and Aggregated Pricing Nodes for the Settlement Period.

Part (b) is the sum of the products of the MCC for the Locational IRU Price and the nodally distributed Upward Imbalance Reserves Requirement specified in Section 31.3.1.6.3.2, as adjusted by any procurement relaxation specified in Section 31.3.1.6.2.

Part (c) is the sum of the products of the MCC for the Locational IRD Price and the nodally distributed Downward Imbalance Reserves Requirement specified in Section 31.3.1.6.3.2, as adjusted by any procurement relaxation specified in Section 31.3.1.6.2. Part (d) is the sum of the products of the IFM MCC and the total of the MWh of Supply scheduled in the Day-Ahead Schedule and the Virtual Supply Awards at all the applicable PNodes for the Settlement Period.

Part (e) is the sum of the products of the MCC for the Locational IRU Price and the IRU Awards.

Part (f) is the sum of the products of the MCC for the Locational IRD Price and the IRD Awards.

11.2.4.1.1 [Not Used]

11.2.4.1.2 Calculation of Hourly CRR Congestion Fund

The CAISO calculates an Hourly CRR Congestion Fund for every Transmission Constraint that is congested in the IFM in a Settlement Period. The Hourly CRR Congestion Fund specific to a particular binding Transmission Constraint in a given Settlement Period is the sum of the: (a) portion of the IFM

Congestion Charge in that Settlement Period attributable to congestion on the Transmission Constraint to which the Hourly CRR Congestion Fund corresponds; (b) charges specific to the Transmission Constraint calculated pursuant to Section 11.2.4.4.1; and (c) CRR revenue adjustments the CAISO may make pursuant to Sections 11.2.4.6 or 11.2.4.7 that are associated with the Transmission Constraint. Part (a) does not include funds needed to make a Congestion difference allocation to an EDAM Entity Balancing Authority Area as specified in Section 33.11.1.2.1.

11.2.4.2 Settlement Calculation for the Different CRR Types

For the purposes of settling the various CRR Types, the CAISO will calculate the Settlement of CRRs as described in this Section 11.2.4.2. When a CRR Source or CRR Sink is a LAP, the CAISO will use the Load Distribution Factors used in the IFM to produce the LAP Price at which it will settle the CRR. When a CRR Source or CRR Sink is a Trading Hub, the CAISO will use the weighting factors used in the IFM, and in the CRR Allocation and CRR Auction processes, to produce the Trading Hub prices that it will use to settle the various CRR Types.

11.2.4.2.1 [Not Used]

11.2.4.2.2 [Not Used]

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11.2.6 DAME Transition Period

11.2.6.1 Opting In to DAME Transitional Measures

The CAISO applies DAME Transitional Measures to RA Capacity and Flexible RA Capacity provided from Resource Adequacy Resources if the CAISO receives notice, in the form and manner specified in the Business Practice Manual, from both the resource's Scheduling Coordinator and the LSE's Scheduling Coordinator that they mutually elect for the CAISO to apply DAME Transitional Measures to the RA Capacity and Flexible RA Capacity the resource provides on behalf of the LSE.

An election for DAME Transitional Measures is tied to a specific resource/LSE pair and applies to all RA Capacity and Flexible RA Capacity shown on behalf of the LSE on a monthly Supply Plan for the resource submitted during the DAME Transition Period. The same resource may be part of multiple

resource/LSE pairs subject to DAME Transitional Measures.

The CAISO applies DAME Transitional Measures to a resource/LSE pair retroactive to the effective date of this Section 11.2.6 if the Scheduling Coordinators for the resource and LSE complete the DAME Transitional Measures election process within sixty (60) days of the effective date of this Section 11.2.6. If the Scheduling Coordinators for a resource and LSE complete the DAME Transitional Measures election process for a resource/LSE pair more than sixty (60) days after the effective date of this Section 11.2.6, then the CAISO applies DAME Transitional Measures to the resource/LSE pair prospectively starting with the first Trading Day of the month after the month in which the Scheduling Coordinators completed the election process. Upon mutual consent of the Scheduling Coordinator for both the resource and LSE, a resource/LSE pair may end application of DAME Transitional Measures before the end of the DAME Transition Period. Such early termination of DAME Transitional Measures does not preclude re-electing application of DAME Transitional Measures later within the DAME Transition Period.

11.2.6.2 Calculating Quantity of Overlapping Capacity in a Settlement Period

As specified in this Section 11.2.6.2, the CAISO determines in each Settlement Period how much of the RA Capacity and Flexible RA Capacity subject to DAME Transitional Measures overlaps separately with the subject resource's Imbalance Reserves Award for IRU, RUC Award for RCU, Imbalance Reserves Award for IRD, and RUC Award for RCD.

11.2.6.2.1 Overlapping Capacity for IRU

The quantity of overlapping IRU is the lower of the: (1) Imbalance Reserves Award for IRU; or (2) higher of the RA Capacity or Flexible RA Capacity shown on that resource's monthly Supply Plan minus the Energy Schedule minus the Ancillary Services Awards other than for Regulation Down. Provided, however, that the quantity of overlapping IRU cannot be less than zero.

11.2.6.2.2 Overlapping Capacity for RCU

The quantity of overlapping RCU is the lower of the: (1) RUC Award for RCU; or (2) higher of the RA Capacity or Flexible RA Capacity shown on that resource's monthly Supply Plan minus the Energy Schedule minus the Ancillary Services Awards other than for Regulation Down minus the Imbalance Reserves Award for IRU. Provided, however, that the quantity of overlapping RCU cannot be less than zero.

11.2.6.2.3 Overlapping Capacity for IRD

The quantity of overlapping IRD is the lower of the: (1) Imbalance Reserves Award for IRD; or (2) Energy Schedule minus the award for Regulation Down minus the higher of the RA Capacity or Flexible RA Capacity shown on that resource's monthly Supply Plan. Provided, however, that the quantity of overlapping IRD cannot be less than zero.

11.2.6.2.4 Overlapping Capacity for RCD

The quantity of overlapping RCD is the lower of the: (1) RUC Award for RCD; or (2) Energy Schedule minus the award for Regulation Down minus the Imbalance Reserves Award for IRD minus the higher of the RA Capacity or Flexible RA Capacity shown on that resource's monthly Supply Plan. Provided, however, that the quantity of overlapping RCD cannot be less than zero.

11.2.6.3 Settlement of Overlapping Capacity Subject to DAME Transitional Measures

11.2.6.3.1 Settlement of Overlapping IRU

The CAISO allocates the revenue from the overlapping IRU, calculated as the product of the quantity of overlapping IRU and the applicable Locational IRU Price, partially to the Scheduling Coordinator for the LSE and partially to the Scheduling Coordinator for the resource.

The CAISO allocates the opportunity cost component of that revenue, calculated as the integral of the positive difference between the Energy LMP and the Energy Bid over the capacity range of the overlapping IRU, to the Scheduling Coordinator for the resource.

The CAISO allocates the balance of the revenue from the overlapping IRU to the Scheduling Coordinator for the LSE. If the resource is part of multiple resource/LSE pairs subject to DAME Transitional Measures, then the CAISO allocates that balance of the revenue to the LSEs in proportion to the higher of each LSE's RA Capacity or Flexible RA Capacity obligation met by that resource.

11.2.6.3.2 Settlement of Overlapping RCU

The CAISO allocates the revenue from the overlapping RCU, calculated as the product of the quantity of overlapping RCU and the applicable RUC Price for RCU, to the Scheduling Coordinator for the LSE.

If the resource is part of multiple resource/LSE pairs subject to DAME Transitional Measures, then the CAISO allocates that revenue to the LSEs in proportion to the higher of each LSE's RA Capacity or Flexible RA Capacity obligation met by that resource.

11.2.6.3.3 Settlement of Overlapping IRD

The CAISO allocates the revenue from the overlapping IRD, calculated as the product of the quantity of overlapping IRD and the applicable Locational IRD Price, partially to the Scheduling Coordinator for the LSE and partially to the Scheduling Coordinator for the resource.

The CAISO allocates the opportunity cost component of that revenue, calculated as the integral of the positive difference between the Energy Bid over the capacity range of the overlapping IRD and the Energy LMP, to the Scheduling Coordinator for the resource.

The CAISO allocates the balance of the revenue from the overlapping IRD to the Scheduling Coordinator for the LSE. If the resource is part of multiple resource/LSE pairs subject to DAME Transitional Measures, then the CAISO allocates that balance of the revenue to the LSEs in proportion to the higher of each LSE's RA Capacity or Flexible RA Capacity obligation met by that resource.

11.2.6.3.4 Settlement of Overlapping RCD

The CAISO allocates the revenue from the overlapping RCD, calculated as the product of the quantity of overlapping RCD and the applicable RUC Price for RCD, to the Scheduling Coordinator for the LSE.

If the resource is part of multiple resource/LSE pairs subject to DAME Transitional Measures, then the CAISO allocates that revenue to the LSEs in proportion to the higher of each LSE's RA Capacity or Flexible RA Capacity obligation met by that resource.

11.2.6.4 Information Provision for RA Capacity Not Subject to DAME Transitional Measures

For RA Capacity and Flexible RA Capacity not subject to DAME Transitional Measures either because the capacity is not covered by a valid election under Section 11.2.6.1 or because the DAME Transition Period has expired, the CAISO provides the Scheduling Coordinator for LSEs whose RA and Flexible RA obligations are met with that capacity information regarding the opportunity costs described in Section 11.2.6.3.1 and 11.2.6.3.3 and the Imbalance Reserves and Reliability Capacity revenue from that overlapping capacity.

11.2.7 EDAM Transfer System Resources

For Transfer System Resources associated with the CAISO Balancing Authority Area that support EDAM Transfers, the CAISO will settle such resources through a financially binding settlement in accordance

with Section 11.35.1 and the marginal price described in Appendix C.

11.3 Settlement of Virtual Awards

11.3.1 Virtual Supply Awards

The CAISO will pay each Scheduling Coordinator with Virtual Supply Awards at an Eligible PNode or Eligible Aggregated PNode an amount equal to the Day-Ahead LMP at the Eligible PNode or Eligible Aggregated PNode multiplied by the MWhs of Virtual Supply Awards. Virtual Supply Awards subject to price correction will be settled as specified in Section 11.21.

The CAISO will charge each Scheduling Coordinator with Virtual Supply Awards at an Eligible PNode or Eligible Aggregated PNode an amount equal to the product of the MWhs of Virtual Supply Awards and the simple average of the four FMM LMPs for the applicable Trading Hour at the Eligible PNode or Eligible Aggregated PNode.

The CAISO pays or charges, depending on whether the value is positive or negative, the product of the virtual Forecasted Movement quantity and the difference between the FMM Flexible Ramp Up Price and the FMM Flexible Ramp Down Price.

11.3.2 Virtual Demand Awards

The CAISO will charge each Scheduling Coordinator with Virtual Demand Awards at an Eligible PNode or Eligible Aggregated PNode an amount equal to the Day-Ahead Market LMP at the Eligible PNode or Eligible Aggregated PNode multiplied by the MWhs of Virtual Demand Awards. Virtual Demand Awards subject to price correction will be settled as specified in Section 11.21.

The CAISO will pay each Scheduling Coordinator with Virtual Demand Awards at an Eligible PNode or Eligible Aggregated PNode an amount equal to the product of the MWhs of Virtual Demand Awards and the simple average of the four FMM LMPs for the applicable Trading Hour at the Eligible PNode or Eligible Aggregated PNode.

The CAISO pays or charges, depending on whether the value is positive or negative, the product of the virtual Forecasted Movement quantity and the difference between the FMM Flexible Ramp Up Price and the FMM Flexible Ramp Down Price.

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11.5.2 Uninstructed Imbalance Energy

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11.5.2.2 Hourly Real-Time Demand Settlement

The Default LAP Hourly Real-Time Price will apply to CAISO Demand and MSS Demand under net Settlement of imbalance energy, except for CAISO Demand not settled at the Default LAP as provided in Section 30.5.3.2, and per the methodology as may be further defined in the Business Practice Manuals. For each Settlement Interval, the differences between the Day-Ahead Scheduled CAISO Demand and metered Demand (MWh) is settled at the Default LAP Hourly Real-Time Price or the Custom LAP Hourly Real-Time Price, as appropriate. For each Default LAP, the CAISO calculates the applicable Default LAP Hourly Real-Time Price as the weighted average LMP of the four Default LAP FMM LMPs and the twelve (12) five-minute Default LAP RTD LMPs. The CAISO calculates the weighted average LMP for each Default LAP as the summation of the weighted average MEC, the weighted average MCC, and the weighted average MCL for that Default LAP. The CAISO calculates the weighted average MEC, MCC, and MCL for each applicable Trading Hour based on the four applicable Default LAP FMM MECs, MCCs, and MCLs, respectively, and the twelve (12) applicable Default LAP RTD MECs, MCCs, and MCLs, respectively. For each Custom LAP, the CAISO calculates the applicable Custom LAP Hourly Real-Time Price as the weighted average LMP of the four Custom LAP FMM LMPs and the twelve (12) five-minute Custom LAP RTD LMPs. The CAISO calculates the weighted average LMP for each Custom LAP as the summation of the weighted average MEC, the weighted average MCC, and the weighted average MCL for that Custom LAP. The CAISO calculates the weighted average MEC, MCC, and MCL for each applicable Trading Hour based on the four applicable Custom LAP FMM MECs, MCCs, and MCLs, respectively, and the twelve (12) applicable Custom LAP RTD MECs, MCCs, and MCLs, respectively. In calculating the weighted average MEC, MCC, and MCL for each hour for either the Default LAPs or Custom LAPs, the CAISO determines the weights based on the difference between Day-Ahead Schedules at the applicable LAP and the CAISO Forecast of BAA Demand for the CAISO used in the

FMM multiplied by the relevant FMM LMP at the applicable LAP plus the difference between the CAISO Forecast of BAA Demand for the CAISO used in the FMM and the CAISO Forecast of BAA Demand for the CAISO used in the RTD multiplied by the relevant RTD LMP at the applicable LAP divided by the sum of the difference between Day-Ahead Schedules at the applicable LAP and the CAISO Forecast of BAA Demand for the CAISO used in the FMM plus the difference between the CAISO Forecast of BAA Demand for the CAISO used in the FMM and the CAISO Forecast of BAA Demand for the CAISO used in the RTD. Furthermore, the Default LAP Hourly Real-Time Prices and the Custom LAP Hourly Real-Time Prices will be bounded by the maximum and the lowest LMP and its components, for the applicable Trading Hour from those relevant intervals at the relevant LAP. If the calculated price exceeds the upper boundary or is below the lower boundary, then the Default LAP Hourly Real-Time Price or the Custom LAP Hourly Real-Time Price, as appropriate, instead will be calculated based on a weighted average price with the weightings based on gross deviations (absolute value of each deviation).

The Hourly Real-Time LAP Prices are determined by the requirements in Section 27.2.2.2.

11.5.2.3 Revenue Neutrality Resulting from Changes in LAP Load Distribution Factors

Any resulting revenue from changes in the LAP Load Distribution Factors between the Day-Ahead Market and the Real-Time Dispatch shall be allocated to metered CAISO Demand in the corresponding LAP within the CAISO Balancing Authority Area and metered EDAM Demand in the corresponding LAP within an EDAM Entity Balancing Authority Area.

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11.5.4 Imbalance Energy Pricing; Non-Zero Offset Amount Allocation

11.5.4.1 EIM Transfers and Offset Allocations

EIM Transfer revenue will be collected when one Balancing Authority Area in the EIM Area provides Energy to another Balancing Authority Area in the EIM Area and the associated EIM Transfer System Resource prices differ. Congestion revenue will be collected when a Transmission Constraint or intertie scheduling limit binds at different locations of the transmission system and the LMP varies across a Balancing Authority Area in the EIM Area and across FMM and RTD LMPs from source to sink within and

across the EIM Area. The CAISO will collect neutrality amounts to recover differences between Real-Time Market payments made and Real-Time Market payments received within Balancing Authority Areas in the EIM Area. The CAISO will allocate EIM Transfer revenue, Real-Time Congestion revenue, and offsets to an EIM Entity Balancing Authority Area or the CAISO Balancing Authority Area as provided below.

11.5.4.1.1 Real-Time Imbalance Energy Offset

- (a) **Financial Value of EIM Transfers.** For each Balancing Authority Area in the EIM Area, the CAISO will calculate the Real-Time Market financial value of EIM Transfers as the product of the EIM Transfer MWh, either positive or negative, and the Marginal Energy Cost.
- (b) **Initial Calculation.** The CAISO will initially calculate the Real-Time Imbalance Energy Offset to be recovered on a 5-minute basis for each Balancing Authority Area in the EIM Area as the sum of the financial value of EIM Transfers and the Settlement amounts for FMM Instructed Imbalance Energy and RTD Instructed Imbalance Energy, Uninstructed Imbalance Energy, and Unaccounted For Energy, and for the CAISO and EDAM Entity Balancing Authority Areas with Convergence Bidding, Real-Time Virtual Bid Settlement, plus the Real-Time Ancillary Services Congestion revenues for the CAISO, and Virtual Awards settlements in the Real-Time Market in accordance with Section 11.3, less the Real-Time Congestion Offset and less the Real-Time Marginal Cost of Losses Offset, and excluding the Marginal GHG Cost.
- (c) **Allocation.** The CAISO will allocate the adjusted Real-Time Imbalance Energy Offset:
 - (1) for the CAISO Balancing Authority Area, to Scheduling Coordinators in the CAISO Balancing Authority Area according to Measured Demand; and
 - (2) for EIM Entity Balancing Authority Areas, to the applicable EIM Entity Scheduling Coordinator.
- (d) **Residual Neutrality Amounts.** The CAISO will allocate any residual Real-Time Imbalance Energy Offset amount to Scheduling Coordinators in the EIM Area based upon EIM Measured Demand.

11.5.4.1.2 Real-Time Congestion Offset.

- (a) **Contribution to Marginal Cost of Congestion.** For each Settlement Period of the RTM, the CAISO shall calculate the contribution of each Balancing Authority Area in the EIM Area to the Marginal Cost of Congestion at each resource location and intertie in the EIM Area for each Balancing Authority Area based on the location of the Transmission Constraints in each Balancing Authority Area, EIM Interties, and constraints enforced outside of the EIM Area needed to manage that Balancing Authority Area's responsibilities.
- (b) **Real-Time Congestion Offset.** For each Settlement Period of the RTM, the CAISO shall calculate the Real-Time Congestion Offset for each Balancing Authority Area in the EIM Area as –
- (1) the sum of the product of the contribution of that Balancing Authority Area as determined in subsection (a) of this section, the Marginal Cost of Congestion component of the Locational Marginal Price at each resource location in the EIM Area, and the imbalance energy at that resource location, including Virtual Bids at that resource location;
 - (2) minus any Virtual Bid adjustment as determined in accordance with section 11.5.4.1.1(d); and
 - (3) including any marginal Congestion adjustment to account for schedules associated with EDAM Legacy Contracts, EDAM Transmission Ownership Rights under Section 33.16 and Section 33.17 and registered EDAM Transmission Service Provider transmission customer rights under Section 33.18.
- (c) **Virtual Bid Adjustment.**
- (1) **Individual Constraint Calculation.** For each Transmission Constraint in an EIM Entity Balancing Authority Area, the CAISO will calculate a Virtual Bid adjustment as the product of that Transmission Constraint's FMM Shadow Price and the lesser of –

- (A) the Flow Impact of Virtual Bids and
- (B) the Flow Impacts of all Day-Ahead Scheduled Energy and EIM Base Schedules less the Flow Impacts of FMM Schedules, but not less than zero.

(2) **EIM Entity Balancing Authority Area Calculation.** Each EIM Entity Balancing Authority Area's Virtual Bid adjustment shall be the sum of the individual Transmission Constraint calculation for all Transmission Constraints within that EIM Entity Balancing Authority Area.

(d) **Allocation.** The CAISO will allocate –

- (1) the Real-Time Congestion Offset for each EIM Entity Balancing Authority Area to the applicable EIM Entity Scheduling Coordinator;
- (2) the Real-time Congestion Offset for the CAISO Balancing Authority Area in accordance with Section 11.5.4.2; and
- (3) the Virtual Bid adjustment from each individual constraint calculation to each Scheduling Coordinator who submitted Virtual Bids based on that Scheduling Coordinator's Virtual Award's pro rata share of the gross positive Congestion revenues received by all Virtual Awards from that Transmission Constraint.

11.5.4.1.3 Real-Time Marginal Cost of Losses Offset

(a) **Calculation.** The CAISO will calculate the Real-Time Marginal Cost of Losses Offset for each Balancing Authority Area as the sum of the product of the Marginal Cost of Losses component of the LMP and all positive or negative FMM Instructed Imbalance Energy, RTD Instructed Imbalance Energy, Uninstructed Imbalance Energy, and Unaccounted For Energy in the Balancing Authority Area.

(b) **Allocation.** The CAISO will allocate the amounts determined according to Section 11.5.4.1.3(a) –

- (1) for the CAISO Balancing Authority Area, according to Section 11.5.4.2; and
- (2) for EIM Entity Balancing Authority Areas, to the applicable EIM Entity Scheduling Coordinator.

11.5.4.1.4 Real-Time Marginal Greenhouse Gas Cost Offset.

The CAISO will calculate a five-minute Real-Time Marginal GHG Cost Offset amount in relation to each GHG Regulation Area. The five-minute Real-Time Marginal GHG Cost Offset amount will equal the product of FMM IIE, RTD IIE, UIE and UFE within a GHG Regulation Area, including Schedules for Virtual Awards; GHG attributions associated with the GHG Regulation Area and the applicable Marginal GHG Cost. The CAISO will allocate the Real-Time Marginal GHG Cost Offset amount to a GHG Regulation Area's metered Demand.

11.5.4.1.5 EIM Transfer Revenue.

- (a) **Calculation.** The CAISO will calculate EIM Transfer revenue when the net EIM Transfer scheduling limit is reached in the Real-Time Market as the separation of the Marginal Energy Cost of the binding Balancing Authority Area in the EIM Area from the Marginal Energy Cost of an adjacent Balancing Authority Area in the EIM Area that is attributed to an EIM Transfer System Resource.
- (b) **Allocation.** The CAISO will allocate EIM Transfer revenue by dividing the revenue equally to the Balancing Authorities on each side of the EDAM Internal Intertie as defined by the Balancing Authority Area boundary at that intertie, except when the CAISO has been notified during the implementation of the Real-Time Market within an EIM Entity Balancing Authority Area of an agreement between both EIM Entities on either side of a EIM Transfer that a different allocation for some portion of the transfer revenue is required to give effect to a pre-existing commercial arrangement, which will then be sub-allocated–
 - (1) for the CAISO Balancing Authority Area in accordance with the CAISO Tariff in the CAISO Balancing Authority Area, including allocation to Scheduling Coordinators for Existing Contract rights and Transmission Ownership Rights holders consistent with the terms of the agreements concerning use of the transmission facilities supporting the EIM Transfer;
 - (2) for an EIM Entity Balancing Authority Area that does not participate in the Day-Ahead Market in accordance with the associated EIM Transmission Service

Provider tariff; and

- (3) for an EIM Entity Balancing Authority Area that participates in the Day-Ahead Market depending on whether the transmission across an EIM Intertie is made available by: (a) an EDAM Entity pursuant to Section 33.18.2, 2.1 or Section 33.18.2.2.3, in which case the CAISO will allocate the EIM Transfer revenue to the EIM Entity Scheduling Coordinator for further allocation by the EIM Transmission Service Provider in accordance with its tariff, (b) an EDAM Transmission Service Provider customer pursuant to Section 33.18.2.2, in which case the CAISO will allocate the EIM Transfer revenue directly to the Scheduling Coordinator for the EDAM Transmission Service Provider customer, or (c) an EDAM Legacy Contact or EDAM Transmission Ownership Right pursuant to Section 33.18.2.2.2, in which case the CAISO will allocate the EDAM Transfer revenue to the Scheduling Coordinator for the EDAM Legacy Contact or EDAM Transmission Ownership Right holder, respectively.

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11.5.7 Congestion Credit and Marginal Credit of Losses Credit

11.5.7.1 RTM Congestion Credit for ETCs and TORs

The CAISO shall not apply charges or payments to Scheduling Coordinators related to the MCC associated with all Points of Receipt and Points of Delivery pairs associated with valid and balanced ETC Self-Schedules or TOR Self-Schedules after the Day-Ahead Market. The balanced portion for each ETC or TOR contract for each Settlement Interval will be based on the difference between: (1) the minimum of (a) the total Demand, (b) the total ETC or TOR Supply Self-Schedule submitted in RTM, including changes after twenty (20) minutes before the applicable Trading Hour if such change is permitted by the Existing Contract, or (c) the Existing Contract maximum capacity as specified in the TRTC Instructions; and (2) the valid and balanced portion of the Day-Ahead Schedule. In determining the balanced portions, the CAISO evaluates the amounts based on the following variables: (a) for exports and imports, the

CAISO shall use the schedule quantity specified in the Interchange schedule used for check out between CAISO and other Balancing Authority Areas; (b) for CAISO Demand, the CAISO shall use the Gross Load associated with the applicable ETC or TOR; and (c) for all Generation the CAISO shall use the quantity specified in the Dispatch Instructions. For each Scheduling Coordinator, the CAISO shall determine for each Settlement Interval the applicable RTM Congestion Credit for FMM Instructed Imbalance Energy or RTD Instructed Imbalance Energy, which can be positive or negative, as the sum of the product of the relevant MWh quantity and the applicable weighted average MCC at each Point of Receipt and Point of Delivery associated with the valid and balanced portions of that Scheduling Coordinator's ETC or TOR Self-Schedules. The weights in the two markets will be based on the absolute values of the (a) deviation of the FMM Schedule or the CAISO Forecast of BAA Demand for the CAISO used in the FMM from Day-Ahead Schedules and (b) deviation of the RTD schedule or the CAISO Forecast of BAA Demand for the CAISO used in the RTD from Day-Ahead Schedules.

11.5.7.2 RTM Marginal Cost of Losses Credit for Eligible TOR Self-Schedules

For all Points of Receipt and Points of Delivery pairs associated with a valid and balanced TOR Self-Schedule submitted to the RTM pursuant to an existing agreement between the TOR holder and either the CAISO or a Participating TO as specified in Section 17.3.3, the CAISO shall not impose any charge or make any payment to the Scheduling Coordinator related to the MCL associated with such TOR Self-Schedules and will instead impose any applicable charges for losses as specified in the existing agreement between the TOR holder and either the CAISO or a Participating TO applicable to the relevant TOR. In any case in which the TOR holder has an existing agreement regarding its TORs with either the CAISO or a Participating TO, the provisions of the agreement shall prevail over any conflicting provisions of this Section 11.5.7.2. Where the provisions of this Section 11.5.7.2 do not conflict with the provisions of the agreement, the provisions of this Section 11.5.7.2 shall apply to the subject TORs. The balanced portion of the TOR Self-Schedule after the Day-Ahead Market is the same balanced quantity mentioned in this Section 11.5.7.2 for the TOR Self-Schedule. For each Scheduling Coordinator, the CAISO shall determine for each Settlement Interval the applicable RTM Marginal Cost of Losses Credit for Eligible TOR Self-Schedules for FMM Instructed Imbalance Energy and RTD Instructed Imbalance Energy, which can be positive or negative, as the sum of the product of the relevant MWh quantity and the weighted

average MCL at each of the eligible Points of Receipt and Points of Delivery associated with the valid and balanced portions of that Scheduling Coordinator's TOR Self-Schedules. The weights in the two markets will be based on the absolute values of the: (a) deviation of the FMM Schedule or the CAISO Forecast of BAA Demand for the CAISO used in the FMM from Day-Ahead Schedules; and (b) deviation of the RTD schedule or the CAISO Forecast of BAA Demand for the CAISO used in the RTD from Day-Ahead Schedules. For losses that the CAISO shall charge pursuant to Section 17.3.3, the specific loss charge amount shall be the product of: (a) the specific loss percentage as may be specified in an applicable agreement between the TOR holder and the CAISO or an existing agreement between the TOR holder and a Participating TO; (b) the weighted average MEC price from the FMM and RTD markets with weights based on the absolute values of (1) deviation of FMM schedule or CAISO Forecast of BAA Demand for the CAISO used in the FMM from Day-Ahead Schedules and (2) deviation of RTD schedule or CAISO Forecast of BAA Demand for the CAISO used in the RTD from Day-Ahead Schedules; and (c) the balanced contract quantity mentioned in Section 11.5.7.1.

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, not EIM Assistance Energy Transfer Surcharges. 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.

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11.5.9 Flexible Ramping Product

The CAISO will settle the Flexible Ramping Product as set forth in Section 11.25.

11.5.10 Greenhouse Gas in the RTM

Resources that receive a FMM or RTD attribution to serve Demand in a GHG Regulation Area will receive a GHG settlement. The GHG settlement is the product of the FMM or RTD attribution to serve Demand in

a specific GHG Regulation Area and the applicable FMM or RTD Marginal GHG Cost for that respective GHG Regulation Area. A resource's FMM GHG settlement for a specific GHG Regulation Area reflects any imbalance from the resource's IFM GHG attribution for that GHG Regulation Area. A resource's RTD GHG settlement for a specific GHG Regulation Area reflects any imbalance from the resource's FMM GHG attribution for that GHG Regulation Area. For a resource within a GHG Regulation Area that does not receive an attribution to served Demand in another GHG Regulation Area, the cost of GHG compliance is embedded in the resource's LMP.

11.5.11 EDAM Transfers in EIM

For Transfer System Resources associated with the CAISO Balancing Authority Area that support EIM Transfers, the CAISO will settle such resources through a financially binding settlement in accordance with Section 11.35.1 and the marginal price described in Appendix C.

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11.8.1.2 Real-Time Self-Commitment Period

A Real-Time Market Self-Commitment Period for a Bid Cost Recovery Eligible Resource shall consist of all consecutive Dispatch Intervals not in an IFM Commitment Period or a RUC Commitment Period where the Bid Cost Recovery Eligible Resource has a Self-Schedule or, except for Self-Provided Ancillary Services for Non-Spinning Reserve by a Short Start Unit, has a non-zero amount of Self-Provided Ancillary Services. A Real-Time Market Self-Commitment Period for a Bid Cost Recovery Eligible Resource may not be less than the relevant MUT (rounded up to the next 15-minute Commitment Interval) when considered jointly with any adjacent IFM Self-Commitment Period. For example, if a Bid Cost Recovery Eligible Resource self-commits at time h , the self-commitment will be extended to Commitment Interval $h + \text{MUT}$, unless an IFM or RUC Commitment Period exists starting after hour h , in which case the self-commitment will be extended to Commitment Interval $h + \min(\text{MUT}, t)$, where t represents the time interval between the Real-Time Market Self-Commitment Period and the IFM or RUC Commitment Period. A Real-Time Market Self-Commitment Period for a Bid Cost Recovery Eligible Resource may not be apart from an IFM or RUC Commitment Period by less than the relevant MDT

(rounded up to the next 15-minute Commitment Interval). To determine whether an extension of the RTM Self-Commitment Period applies for Multi-Stage Generating Resources, the CAISO will ensure that the respective Minimum Run Time and Minimum Down Time for both the Generating Unit and MSG Configuration levels are simultaneously respected.

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11.8.2 IFM Bid Cost Recovery Amount

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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, IFM Transition Cost, IFM Minimum Load Cost, IFM Pump Shut-Down Cost, IFM Energy Bid Cost, IFM Pumping Cost, IFM AS Bid Cost, IFM GHG Bid Cost, and IFM Imbalance Reserves Bid Cost. For Multi-Stage Generating Resources, in addition to the specific IFM Bid Cost rules described in Section 11.8.2.1, the CAISO will apply the rules described in Section 11.8.1.3 to further determine the applicable MSG Configuration-based CAISO Market Start-Up Bid Cost, Transition Bid Cost, and Minimum Load Bid Cost in any given Settlement Interval. For Multi-Stage Generating Resources, the incremental IFM Start-Up Costs, IFM Minimum Load Costs, and IFM Transition Costs to provide Energy Scheduled in the Day-Ahead Schedule or awarded RUC or Ancillary Service capacity for an MSG Configuration other than the self-scheduled MSG Configuration are determined by the IFM rules specified in Section 31.3. For RMR Resources, the CAISO shall calculate the IFM Bid Cost as the algebraic sum of the IFM Start-Up Cost adjusted to remove Opportunity Costs, IFM Transition Cost adjusted to remove Opportunity Costs, IFM Minimum Load Costs adjusted to remove Opportunity Costs, IFM Energy Bid Cost adjusted to remove Opportunity Costs, and IFM AS Bid Cost. The CAISO will also adjust the IFM Bid Costs for RMR Resources, to remove any bid adder that includes costs that were recovered under the RMR Contract.

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11.8.2.1.7 IFM Transition Cost

For each Settlement Interval, the IFM Transition Costs shall be based on the MSG Configuration to which the Multi-Stage Generating Resource is transitioning and is allocated to the CAISO Commitment Period of that MSG Configuration.

11.8.2.1.7.1 IFM Transition Cost Applicability

Within any eligible IFM CAISO Commitment Period determined pursuant to the rules specified in Section 11.8.1.3, the CAISO shall apply the IFM Transition Costs for the Settlement Intervals in which the Multi-Stage Generating Resource is actually transitioning from the “from” MSG Configuration and reaches the Minimum Load as registered in the Master File, or if applicable, as modified pursuant to Section 9.3.3, of the “to” MSG Configuration to which the Multi-Stage Generating Resource is transitioning, subject to the Tolerance Band.

11.8.2.1.8 IFM Imbalance Reserves Bid Cost

For any Settlement Interval, the IFM Imbalance Reserves Bid Cost shall be the product of the IRU Bid price and IRU Bid quantity (as reduced by the unavailable IRU quantity calculated per Section 11.2.1.8.1) plus the product of the IRD Bid price and IRD Bid quantity (as reduced by the unavailable IRD quantity calculated per Section 11.2.1.8.2).

11.8.2.1.9 IFM GHG Bid Cost

For each Settlement Interval, the IFM GHG Bid Cost shall be the product of the IFM GHG Award from each accepted IFM GHG Bid Adder for a relevant GHG Regulation Area and the applicable Marginal GHG Cost divided by the number of Settlement Intervals in a Trading Hour.

11.8.2.2 IFM Market Revenue

The CAISO will apply the following rules to calculate a Bid Cost Recovery Eligible Resource’s IFM Market Revenue used for purposes of calculating its IFM Bid Cost Shortfalls and IFM Bid Cost Surpluses calculated pursuant to Section 11.8.2, and for purposes of allocating the Bid Cost Uplift pursuant to Section 11.8.6. The IFM Market Revenue calculations for both CAISO IFM Commitment Periods and

Self-Committed Periods will be subject to the Day-Ahead Metered Energy Adjustment Factor pursuant to the rules specified in Section 11.8.2.5.

11.8.2.2.1 CAISO IFM Commitment

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 the five products specified below. In the case of a Multi-Stage Generating Resource, the CAISO will calculate the market revenue at the Generating Unit or Dynamic Resource-Specific System Resource level.

- (1) The product of the delivered 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.
- (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.
- (3) The product of IFM GHG Award and relevant Marginal GHG Cost, divided by the number of Settlement Intervals in a Trading Hour.
- (4) The product of the IRU award (as reduced by the unavailable IRU quantity calculated per Section 11.2.1.8.1) and the Locational IRU Price.
- (5) The product of the IRD award (as reduced by the unavailable IRD quantity calculated per Section 11.2.1.8.2) and the Locational IRD Price.

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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. The CAISO will include Bid Cost Recovery costs related to Short Start Units committed in Real-Time because of awarded RUC Capacity in RTM Compensation Costs. The CAISO excludes RUC Bid Costs and RUC Market Revenues from calculations under this Section 11.8.3 to the extent the costs or revenues relate to RA Capacity that overlaps with a RUC Award for RCU or RUC Award for RCD as calculated per the methodology identified in Section 11.2.6.2.2 or Section 11.2.6.2.4, respectively.

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 Transition Cost, RUC Minimum Load Cost, and RUC Availability Bid Cost. For Multi-Stage Generating Resources, in addition to the specific RUC Bid Cost rules described in Section 11.8.3.1, the rules described in Section 11.8.1.3 will be applied to further determine the applicable MSG Configuration-based CAISO Market Start-Up Bid Costs, Transition Bid Costs, and Minimum Load Bid Costs. For Multi-Stage Generating Resources, the incremental RUC Start-Up Costs, RUC Minimum Load Costs, and RUC Transition Costs to provide RUC awarded capacity for an MSG Configuration other than the self-scheduled MSG Configuration are determined by the RUC optimization rules in specified in Section 31.5. For each Settlement Interval, the CAISO shall determine the RUC Bid Cost for an RMR Resource as the algebraic sum of the RUC Start-Up Cost adjusted to remove Opportunity Costs and Variable Start-Up Operations and Maintenance Adders, and RUC Transition Cost adjusted to remove Opportunity Costs and Variable Start-Up Operations and Maintenance Adders.

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 Bid Cost of the Bid Cost Recovery Eligible Resource 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-Up Cost in a CAISO RUC Commitment Period is eligible for Bid Cost Recovery. The CAISO will determine the RUC Start-Up Cost for a Multi-Stage Generating Resource based on the MSG Configuration committed by the CAISO in RUC.

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 Commitment Period, RUC Commitment Period, 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. An actual Start-Up is detected when the relevant metered Energy in the applicable Settlement Intervals indicates that the resource is Off before the time the resource is instructed to be On as specified in its Start-Up Instruction and is On in the Settlement Intervals that fall within the CAISO RUC Commitment Period. The CAISO will determine whether the resource is On for this purpose based on whether its metered Energy is at or above the resource's Minimum Load as registered in the Master File, or if applicable, as modified pursuant to Section 9.3.3.
- (g) The RUC Start-Up Cost shall be qualified if an actual Start-Up occurs. An actual Start-Up

is detected when the relevant metered Energy in the applicable Settlement Intervals indicates the unit is Off before the time the resource is instructed to be On as specified in its Start Up Instruction and is On in the Settlement Intervals that fall within the CAISO RUC Commitment Period.

11.8.3.1.2 RUC Minimum Load Cost

The RUC Minimum Load Cost for the applicable Settlement Interval shall be the Minimum Load Bid Cost of the 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 a Legacy 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 committed or Dispatched in the Real-time Market in the applicable Settlement Interval; or (3) the applicable Settlement Interval is included in an IFM Commitment Period. For the purposes of determining RUC Minimum Load Cost for a Bid Cost Recovery Eligible Resource, recovery of the RUC Minimum Load Cost is subject to the Real-Time Performance Metric as specified in Section 11.8.4.4. For Multi-Stage Generating Resources, the commitment period is further determined based on application of section 11.8.1.3. The RUC Minimum Load Cost calculation will be subject to the Shut-Down State Variable and disqualified as specified in Section 11.17.2.

11.8.3.1.3 RUC Availability Bid Cost

The RUC Availability Bid Cost is calculated as 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 CAISO will determine the RUC Availability Bid Cost based on the MSG Configuration. The RUC Availability Cost for a Bid Cost for an RMR Resource for a Settlement Interval is zero.

11.8.3.1.4 RUC Transition Cost

For each Settlement Interval, the RUC Transition Costs shall be based on the MSG Configuration to which the Multi-Stage Generating Resource is transitioning and is allocated to the CAISO commitment period of that MSG Configuration.

11.8.3.1.4.1 RUC Transition Costs Applicability

Within any eligible RUC CAISO Commitment Period determined pursuant to the rules specified in Section 11.8.1.3, the CAISO shall apply the RUC Transition Costs for the Settlement Intervals in which the Multi-Stage Generating Resource is actually transitioning from the “from” MSG Configuration and reaches the Minimum Load as registered in the Master File, or if applicable, as modified pursuant to Section 9.3.3, of the “to” MSG Configuration to which the Multi-Stage Generating Resource is transitioning, subject to the Tolerance Band.

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 divided by the number of Settlement Intervals in a Trading Hour. The CAISO will determine the RUC Market Revenues for Multi-Stage Generating Resources based on the Generating Unit level.

11.8.3.3 RUC Bid Cost Recovery for Metered Subsystem

11.8.3.3.1 MSS Elected Gross Settlement

For an MSS Operator that has elected gross Settlement, regardless of other MSS optional elections (Load following or RUC opt-in or out), the RUC Bid Cost and the RUC Market Revenue are calculated similarly to non-MSS resources on an individual resource basis as described in Sections 11.8.3.1 and 11.8.3.2, respectively.

11.8.3.3.2 MSS Elected Net Settlement

For an MSS Operator that has elected net Settlement, regardless of other MSS optional elections (Load following or RUC opt-in or out), the RUC Bid Costs and RUC Market Revenue are combined with RTM Bid Cost and RTM Market Revenue on an MSS level, consistent with the Energy Settlement as calculated according to Section 11.8.4.3.2.

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11.8.4 RTM Bid Cost Recovery Amount

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11.8.4.1 RTM Bid Cost Calculation

For each Settlement Interval, the CAISO shall calculate RTM Bid Cost for each Bid Cost Recovery Eligible Resource, as the algebraic sum of the RTM Start-Up Cost, RTM Minimum Load Cost, RTM Transition Cost, RTM Pump Shut-Down Cost, RTM Energy Bid Cost, RTM Pumping Cost, RTM AS Bid Cost, and RTM GHG Bid Cost. For each Settlement Interval, the CAISO shall calculate RTM Bid Cost for each RMR Resource as the algebraic sum of the RTM Start-Up Cost adjusted to remove Opportunity Costs and Variable Start-Up Operations and Maintenance Adders, RTM Transition Costs adjusted to remove Opportunity Costs and Variable Start-Up Operations and Maintenance Adders, RTM Energy Bid Cost adjusted to remove Opportunity Costs and Variable Energy Operations and Maintenance Adders, and RTM AS Bid Cost. For Multi-Stage Generating Resources, in addition to the specific RTM Bid Cost rules described in Section 11.8.4.1, the rules described in Section 11.8.1.3 will be applied to further determine the applicable MSG Configuration-based CAISO Market Start-Up Bid Cost, Transition Bid Cost, and Minimum Load Bid Cost, in a given Settlement Interval. For Multi-Stage Generating Resources, the incremental RTM Start-Up Cost, RTM Minimum Load Cost, and RTM Transition Cost to provide RTM committed Energy or awarded Ancillary Services capacity for an MSG Configuration other than the self-scheduled MSG Configuration are determined by the RTM optimization rules in specified in Section 34.

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11.8.4.1.7 RTM Transition Cost

For each Settlement Interval, the RTM Transition Costs shall be based on the MSG Configuration to which the Multi-Stage Generating Resource is transitioning and are allocated to the CAISO commitment period of that MSG Configuration.

11.8.4.1.7.1 RTM Transition Cost Applicability

Within any eligible RTM CAISO Commitment Period determined pursuant to the rules specified in Section 11.8.1.3, the CAISO shall apply the RTM Transition Costs for the Settlement Intervals in which the Multi-Stage Generating Resource is actually transitioning from the “from” MSG Configuration and reaches the

Minimum Load as registered in the Master File, or if applicable, as modified pursuant to Section 9.3.3, of the “to” MSG Configuration to which the Multi-Stage Generating Resource is transitioning, subject to the Tolerance Band.

11.8.4.1.8 RTM GHG Bid Cost

For each Settlement Interval, the RTM GHG Bid Cost shall be the product of the RTM GHG Award from each accepted RTM GHG Bid Adder for a relevant GHG Regulation Area and the applicable Marginal GHG Cost.

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 RTM Market Revenue for a Bid Cost Recovery Eligible Resource is the algebraic sum of the elements listed below in this Section. For Multi-Stage Generating Resources the RTM Market Revenue calculations will be made at the Generating Unit level.

- (a) The sum of the products of the FMM or RTD Instructed Imbalance Energy (including Minimum Load Energy of the Bid Cost Recovery Eligible Resource committed in RUC and where for Pumped-Storage Hydro Units and Participating Load operating in the pumping mode or serving Load, the MWh is negative), except Standard Ramping Energy, Residual Imbalance Energy, Exceptional Dispatch Energy, Derate Energy, MSS Load following Energy, Ramping Energy Deviation and Regulation Energy, with the relevant FMM and RTD LMP, for each Dispatch Interval in the Settlement Interval. These amounts are subject to the Real-Time Performance Metric and the Persistent Deviation Metric as described in Sections 11.8.4.4 and 11.17, respectively.
- (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 fifteen (15)-minute 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.
- (d) The Forecasted Movement and Uncertainty Awards Settlement Amounts as calculated

pursuant to Section 11.25 are included in the RTM Market Revenues calculation, not including:

- (1) the amounts rescinded pursuant to Section 11.25.3;
 - (2) Forecasted Movement revenue when there are changes in Self-Schedules across consecutive Trading Hours; and
 - (3) Forecasted Movement revenue when there are changes in EIM Base Schedules across consecutive Trading Hours without Economic Bids.
- (e) The product of RTM GHG Award from each accepted RTM GHG Bid Adder and relevant Marginal GHG Cost in that Settlement Interval.

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11.8.6.5 Allocation of RUC Compensation Costs

11.8.6.5.1 Calculation of RUC Compensation Costs

For each Trading Hour of the RUC, the CAISO shall calculate the RUC Compensation Costs separately for RCU and RCD as the sum of the RUC Availability Payments for either RCU or RCD. The RUC Compensation Costs for RCU additionally include the hourly Net RUC Bid Cost Uplift.

11.8.6.5.2 Calculation of the Hourly Net RUC Bid Cost Uplift

For each Trading Hour of the RUC, 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 Section 11.8.6.3. Scheduling Coordinators for MSS Operators that are non-Load following and under gross Settlement receive the allocation of hourly Net RUC Bid Cost Uplift like all other Scheduling Coordinators.

11.8.6.5.3 Allocation of the RUC Compensation Costs

The CAISO allocates the sum of the RUC Compensation Costs as specified below. A Scheduling Coordinator's allocation of RCU costs in tier 1 is the product of the RCU tier 1 cost allocation quantity, as

specified in Section 11.8.6.5.3.1, and the RCU tier 1 cost allocation price, as specified in Section 11.8.6.5.3.3.

A Scheduling Coordinator's allocation of RCD costs in tier 1 is the product of the RCD tier 1 cost allocation quantity, as specified in Section 11.8.6.5.3.2, and the RCD tier 1 cost allocation price, as specified in 11.8.6.5.3.4.

The CAISO allocates the costs of Reliability Capacity procurement not recovered through the RCU or RCD tier 1 cost allocations to Scheduling Coordinators in proportion to their metered Demand in the Trading Hour for which the CAISO procured the Imbalance Reserves.

11.8.6.5.3.1 RCU Tier 1 Cost Allocation Quantity

A Scheduling Coordinator's total RCU tier 1 cost allocation quantity is the sum of the tier 1 quantities, specified as follows.

For a Scheduling Coordinator with net Virtual Supply Awards in a Trading Hour, the RCU tier 1 cost allocation quantity associated with its Virtual Supply is the higher of: (a) zero; or (b) the Scheduling Coordinator's net Virtual Awards, if the Balancing Authority Area in which that Scheduling Coordinator is located has net Virtual Supply.

For a Scheduling Coordinator with under-scheduled Load in a Trading Hour, the RCU tier 1 cost allocation quantity associated with its under-scheduled Load is the net negative metered Demand, excluding net negative Demand associated with balanced ETC/TOR rights and negative deviation for Participating Load resulting from a market dispatch.

11.8.6.5.3.2 RCD Tier 1 Cost Allocation Quantity

A Scheduling Coordinator's total RCD tier 1 cost allocation quantity is the sum of the tier 1 quantities, specified as follows.

For a Scheduling Coordinator with net Virtual Demand Awards in a Trading Hour, the RCD tier 1 cost allocation quantity associated with its Virtual Demand is the lower of: (a) zero; or (b) the Scheduling Coordinator's net Virtual Awards, if the Balancing Authority Area in which that Scheduling Coordinator is located has net Virtual Demand.

For a Scheduling Coordinator with over-scheduled Load in a Trading Hour, the RCD tier 1 cost allocation associated with its over-scheduled Load is the net positive metered Demand, excluding net positive

demand associated with balanced ETC/TOR rights and positive deviation for Participating Load resulting from a market dispatch.

11.8.6.5.3.3 RCU Tier 1 Cost Allocation Price

The RCU tier 1 cost allocation price for a Trading Hour is the lower of: (a) the RUC Compensation Costs for RCU, as adjusted by payment rescissions applied per Section 11.2.2.2, divided by the total MWs of RCU awards; and (b) the RUC Compensation Costs for RCU to meet Measured Demand divided by the sum of each Scheduling Coordinator's RCU tier 1 cost allocation quantity in that Trading Hour.

11.8.6.5.3.4 RCD Tier 1 Cost Allocation Price

The RCD tier 1 cost allocation price for a Trading Hour is the lower of: (a) the RUC Compensation Costs for RCD, as adjusted by payment rescissions applied per Section 11.2.2.2, divided by the total MWs of RCD awards; and (b) the RUC Compensation Costs for RCD to meet Measured Demand divided by the sum of each Scheduling Coordinator's RCD tier 1 cost allocation quantity in that Trading Hour

11.8.6.5.3.5 Reliability Capacity Cost Allocation to MSSs

The CAISO allocates costs of Reliability Capacity to a MSS the same as any other Scheduling Coordinator irrespective of the MSS's election, per Section 4.9.13, of net Settlements or gross Settlements.

The CAISO does not allocate costs of Reliability Capacity from either tier 1 or tier 2 to a MSS that has elected, per Section 4.9.13, to Load follow with its generating resources.

11.8.6.5.3.6 Reliability Capacity Cost Allocation to Holders of ETCs or TORs

The CAISO excludes from tier 1 and tier 2 allocations for both RCU and RCD the valid and balanced portion of ETC and TOR self-schedules. The CAISO does not exclude from the Reliability Capacity cost allocations any quantities above the valid and balanced portion of ETC or TOR self-schedules.

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11.10.6 Upward Ancillary Services Neutrality Adjustment

For each Settlement Period the difference between the upwards Ancillary Service cost and the sum of the total Ancillary Services obligation and neutrality adjustments will be allocated to all Scheduling

Coordinators in proportion to their upward Ancillary Service Obligation (before taking into consideration the Inter-SC Trades of Ancillary Services). The CAISO shall exclude EDAM Transfers and EIM Transfers between the CAISO and an EDAM Entity, or an EIM Entity, from the calculation of the upwards Ancillary Service Obligation for this neutrality adjustment. The upwards Ancillary Service cost is the sum of the upward Ancillary Services payments made pursuant to Sections 11.10.1.1, 11.10.1.2, and 11.10.3.1. The total upward Ancillary Services obligation and neutrality adjustments is the sum of the requirements in Sections 11.10.2.2.2, 11.10.2.2.3, 11.10.3.1, 11.10.3.4, 11.10.4.1, and 11.10.4.4.

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11.14 Neutrality

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

- (a) amounts required to reach an accounting trial balance of zero in the course of the Settlement process in the event that the charges calculated as due from CAISO Debtors are lower than payments calculated as due to the CAISO Creditors for the same Trading Day, which includes any amounts required to round up any invoice amount expressed in dollars and cents to the nearest whole dollar amount. These charges will be allocated amongst the Scheduling Coordinators who traded on that Trading Day pro rata to their Measured Demand in MWh of Energy for that Trading Day on a monthly basis. In the event that the charges due from CAISO Debtors are higher than the payments due to CAISO Creditors, the CAISO shall allocate a payment to the Scheduling Coordinators who traded on that Trading Day pro rata to their Measured Demand in MWh of Energy for that Trading Day on a monthly basis; and
- (b) awards payable by or to the CAISO pursuant to good faith negotiations or CAISO ADR Procedures that the CAISO is not able to allocate to or to collect from a Market Participant or Market Participants in accordance with Section 13.5.3. These charges will be allocated among Scheduling Coordinators over an interval determined by the CAISO

and pro rata based on EDAM Measured Demand during that interval, if the dispute concerned the IFM, EIM Measured Demand during that interval, if the dispute concerned the Real-Time Market or RUC, or otherwise Measured Demand during that interval.

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11.25 Settlement of Flexible Ramping Product

11.25.1 Settlement of Forecasted Movement

11.25.1.1 Generally

The CAISO will settle Forecasted Movement for a direction as specified in this Section 11.25.1 by Balancing Authority Area for each Balancing Authority Area that has a distinct Uncertainty Requirement for that direction, as specified in Section 44.2.4.1, and separately will settle Forecasted Movement for a direction as specified in this Section 11.25.1 for the group of Balancing Authority Areas that shares a common Uncertainty Requirement for that direction, as specified in Section 44.2.4.1.

11.25.1.2 FMM.

The CAISO settles FMM Forecasted Movement with Scheduling Coordinators as the product of: (a) the difference between the FMM Forecasted Movement quantity and the DAM Forecasted Movement Quantity or Base Schedule Forecasted Movement quantity; and (b) the difference between the FMM Flexible Ramp Up Price and the FMM Flexible Ramp Down Price.

11.25.1.3 RTD.

The CAISO settles RTD Forecasted Movement with Scheduling Coordinators as the product of: (a) the difference between the RTD Forecasted Movement quantity and the FMM Forecasted Movement Quantity; and (b) the difference between the RTD Flexible Ramp Up Price and the RTD Flexible Ramp Down Price.

11.25.1.4 Allocation of Residual Forecasted Movement Settlements.

For Balancing Authority Areas that share a common Uncertainty Requirement for a direction, as specified in Section 44.2.4.1, the CAISO allocates the algebraic sum of the funds remaining after it settles Forecasted Movement for a direction pursuant to Sections 11.3.1, 11.3.2, and 11.25.1 to each Scheduling

Coordinator's metered CAISO Demand, metered EDAM Demand, or metered EIM Demand in proportion to its share of the sum of metered CAISO Demand, metered EDAM Demand, and metered EIM Demand within that group of Balancing Authority Areas sharing a common Uncertainty Requirement..

For a Balancing Authority Area that has a distinct Uncertainty Requirement for a direction, as specified in Section 44.2.4.1, the CAISO allocates the algebraic sum of the funds remaining after it settles Forecasted Movement for a direction pursuant to Sections 11.3.1, 11.3.2, and 11.25.1 to each Scheduling Coordinator's metered Demand in proportion to its share of the sum of metered Demand within that single Balancing Authority Area.

The allocation to Scheduling Coordinators is a charge if the algebraic sum of funds remaining is negative and a payment if the algebraic sum is positive.

11.25.2 Settlement of Uncertainty Requirement

11.25.2.1 Payment to Resources.

11.25.2.1.1 FMM Uncertainty Awards

For a resource with an IRU Award, the CAISO applies a deviation settlement as the product of the Flexible Ramp Up Price and the difference between the upward Five-minute Imbalance Reserve Quantity and the upward FMM Uncertainty Award.

For a resource with an IRD Award, the CAISO applies a deviation settlement as the product of the Flexible Ramp Down Price and the difference between the downward Five-minute Imbalance Reserve Quantity and downward FMM Uncertainty Award.

If a resource has no Imbalance Reserves Award, then the CAISO settles upward and downward Uncertainty Awards as the product of the Uncertainty Award and the Flexible Ramp Up Price, in the case of an upward Uncertainty Award, or the Flexible Ramp Down Price, in the case of a downward Uncertainty Award.

11.25.2.1.2 RTD Uncertainty Awards

The CAISO settles RTD Uncertainty Awards with Scheduling Coordinators as the algebraic sum of the upward uncertainty awards defined in part (a) of this Section 11.25.2.1.2 and the downward uncertainty awards defined in part (b) of this Section 11.25.2.1.2.

- (a) Upward Uncertainty Awards – the product of the RTD Flexible Ramp Up Price and the difference between the upward RTD Uncertainty Award quantity and the upward FMM Uncertainty Award quantity for the relevant Settlement Interval, both calculated for each resource pursuant to Section 44.2 in MWhs, less any rescission amounts pursuant to section 11.25.3.
- (b) Downward Uncertainty Awards – the product of the RTD Flexible Ramp Down Price and the difference between the downward RTD Uncertainty Award quantity and the downward FMM Uncertainty Award quantity for the relevant Settlement Interval, both calculated for each resource pursuant to Section 44.2 in MWhs, less any rescission amounts pursuant to section 11.25.3.

11.25.2.2 Allocation of Costs of Uncertainty Movement Procured.

11.25.2.2.1 Settlement Process.

- (a) **Generally.** The CAISO will settle Uncertainty Awards for a direction as specified in this Section 11.25.2.2 by Balancing Authority Area for each Balancing Authority Area that has a distinct Uncertainty Requirement for that direction, as specified in Section 44.2.4.1, or separately will settle Uncertainty Awards for a direction as specified in this Section 11.25.2.2 for the group of Balancing Authority Areas that shares a common Uncertainty Requirement for that direction, as specified in Section 44.2.4.1.
- (b) **Daily.** The CAISO will initially—
 - (1) allocate the cost of the Uncertainty Awards for a direction on a daily basis according to the categories as set forth in Sections 11.25.2.2.2 and 11.25.2.2.3 within the group of Balancing Authority Areas that shares a common Uncertainty Requirement for that direction or

within a Balancing Authority Area that has a distinct
Uncertainty Requirement for that direction, as applicable;
and

(2) allocate the daily amounts to Scheduling Coordinators
as set forth in Section 11.25.2.2.4.

(c) **Monthly.** The CAISO will resettle the costs of the Uncertainty
Awards by—

(1) reversing the daily allocation;

(2) assigning the monthly costs of the Uncertainty Awards to
Peak Flexible Ramp Hours and Off-Peak Flexible Ramp
Hours;

(3) separately allocating the monthly Peak Flexible Ramp
Hours amounts and Off-Peak Flexible Ramp Hours
amounts to the categories as set forth in Sections
11.25.2.2.2 and 11.25.2.2.3 within the group of
Balancing Authority Areas that shares a common
Uncertainty Requirement for that direction or within a
Balancing Authority Area that has a distinct Uncertainty
Requirement for that direction, as applicable; and

(4) allocating the monthly amounts in each category to
Scheduling Coordinators as set forth in Section
11.25.2.2.4.

11.25.2.2.2 Allocation of Charges to Categories.

(a) **Determination of Uncertainty Movement for Resources.** For each interval, the CAISO
will calculate the net Uncertainty Movement of each resource according to the following
categories:

(1) for Supply resources other than non-Dynamic System Resources as the
difference between the Dispatch Instruction of the binding interval in the next

RTD run and the first advisory RTD interval in the current run.

- (2) for non-Dynamic System Resources and export schedules as the difference between the schedule used in the RTD (accounting for ramp) for the binding interval in the next RTD run and the schedule used for the first advisory interval in the current RTD run.

(b) **RTD Uncertainty Movement.** The CAISO will determine the total net RTD Uncertainty Movement for each category separately for the group of Balancing Authority Areas that shares a common Uncertainty Requirement for that direction or a Balancing Authority Area that has a distinct Uncertainty Requirement for that direction, as applicable—

- (1) for the category of Supply resources, which shall not include non-Dynamic System Resources, as the net sum of the five-minute Uncertainty Movement determined pursuant to Section 11.25.2.2.2 of all the Supply resources in the category.
- (2) for the category of Intertie resources, which shall comprise non-Dynamic System Resources and exports, as the net sum of the five-minute Uncertainty Movement determined pursuant to Section 11.25.2.2 of all the non-Dynamic System resources and export schedules.
- (3) for the non-Participating Load category, as the difference between –
 - (A) the CAISO Forecast of BAA Demand of the binding interval in the next RTD run; and
 - (B) CAISO Forecast of BAA Demand for the first advisory interval in the current RTD run.

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11.29.5.3 Data Files

Settlement Statements relating to each Scheduling Coordinator, CRR Holder, Black Start Generator or Participating TO will be accompanied by data files of supporting information that includes the following for

each Settlement Period of the Trading Day:

- (a) the aggregate quantity (in MWh) of Energy supplied or withdrawn by the Scheduling Coordinator Metered Entities represented by the Scheduling Coordinator;
- (b) the aggregate quantity (in MW) and type of Ancillary Services capacity provided or purchased;
- (c) the relevant prices that the CAISO has applied in its calculations;
- (d) details of the scheduled quantities of Energy, Imbalance Reserves, Reliability Capacity, and Ancillary Services accepted by the CAISO in the Day-Ahead Market and the RTM;
- (e) details of FMM Instructed Imbalance Energy or RTD Imbalance Energy and penalty payments;
- (f) details of any payments or charges associated with the CRR Auctions; and
- (g) detailed calculations of all fees, charges and payments allocated among Scheduling Coordinators and each Scheduling Coordinator's share.

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11.29.17.2 Payment Default Allocation

11.29.17.2.1 Methodology for Allocating Payment Default Amounts

Each payment default amount allocated to CAISO Creditors through a shortfall allocation pursuant to Section 11.29.17.1 and that remains unpaid by the defaulting CAISO Debtor will be allocated on the next practicable Invoices to the Default-Invoiced SCIDs to which the percentage shares calculated pursuant to Section 11.29.17.2.7 for the current calendar quarter apply, excluding the CAISO Debtor that has not paid the payment default amount, pursuant to the following methodology:

- (a) Twenty (20) percent of the payment default amount will be allocated to the Default-Invoiced SCIDs in proportion to the net amounts that were payable in each applicable calendar quarter (and averaged within such calendar quarter) to the Default-Invoiced SCIDs over the applicable Default Look-Back Periods. For Market Participants subject to Default Election option 1, these net amounts will be calculated on an SCID-by-SCID

basis. For Market Participants that are eligible for and have chosen Default Election option 2, these net amounts will be calculated by consolidating all of the data for the applicable SCIDs, recognizing any offsetting effect of an individual SCID's positive or negative dollar amount in the consolidated total.

- (b) Thirty (30) percent of the payment default amount will be allocated to the Default-Invoiced SCIDs in proportion to the sum of the absolute values of the dollar amounts shown on their Invoices payable or receivable in each applicable calendar quarter (and averaged within such calendar quarter) over the applicable Default Look-Back Periods, after excluding dollar amounts shown on the Invoices for payments and charges for GMC, RMR, and Wheeling Access Charge costs, and after excluding the billing of Access Charges and the payment of Transmission Revenue Requirements to Participating Transmission Owners. For Market Participants subject to Default Election option 1, the sum of the absolute values of the dollar amounts shown on their Invoices payable or receivable in each applicable calendar quarter will be calculated on an SCID-by-SCID basis. For Market Participants that are eligible for and have chosen Default Election option 2, the absolute values of the net sum of the dollar amounts shown on their Invoices payable or receivable in each applicable calendar quarter will be calculated by consolidating all of the data for the applicable SCIDs, recognizing any offsetting effect of an individual SCID's positive or negative dollar amount in the consolidated total.
- (c) Fifty (50) percent of the payment default amount will be allocated to the Default-Invoiced SCIDs in proportion to the largest of the following five (5) amounts calculated in MWh for every month in each applicable calendar quarter (and averaged within such calendar quarter) for each Default-Invoiced SCID over the applicable Default Look-Back Periods:
- (1) Cleared Day-Ahead Schedules to supply Energy, plus Day-Ahead Ancillary Services Awards and qualified Self-Provided Ancillary Services, plus scheduled supply obligation for Ancillary Services (including imports but excluding RUC

- Awards), plus Virtual Supply Awards;
- (2) Metered Generation, plus Real-Time Interchange Import Schedules, plus Real-Time Ancillary Services Awards and qualified Self-Provided Ancillary Services, plus FMM Ancillary Services Awards and qualified Self-Provided Ancillary Services, plus Real-Time supply obligation for Ancillary Services;
 - (3) Cleared Day-Ahead Schedules for Demand (including Demand served by Pumped-Storage Hydro Units and exports) multiplied by one-hundred three (103) percent to reflect Transmission Losses, plus scheduled demand obligation for Ancillary Services, plus Virtual Demand Awards;
 - (4) Metered Load multiplied by one-hundred three (103) percent to reflect Transmission Losses, plus Real-Time Interchange Export Schedules, plus Real-Time demand obligation for Ancillary Services; or
 - (5) The greater of (A) the quantity of CRRs acquired in CRR Auctions or transferred through the Secondary Registration System (excluding CRRs acquired in CRR Allocations) or (B) Inter-SC Trades of Energy.

For Market Participants subject to Default Election option 1, each of the five (5) amounts calculated in MWh for every month in each applicable calendar quarter (and averaged within such calendar quarter) will be calculated on an SCID-by-SCID basis. For Market Participants that are eligible for and have chosen Default Election option 2, each of the five (5) amounts calculated in MWh for every month in each applicable calendar quarter (and averaged within such calendar quarter) will be calculated by consolidating all of the data for the applicable SCIDs.

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11.35 EDAM Related Settlements

Any surcharge or revenue distributed to the CAISO Balancing Authority Area in accordance with Section 33.11 will be allocated to the applicable Scheduling Coordinator pursuant to this Section 11.35, unless allocated directly to a Scheduling Coordinator for a Transmission Ownership Rights holder or

Existing Contract rights holder as provided in Section 33.11.1.1.

11.35.1 Allocation of Revenue and Surcharge associated with EDAM Transfer System Resources for the CAISO Balancing Authority Area

11.35.1.1 Day-Ahead Settlement

11.35.1.1.1 Settlement of Transfer System Resources Associated with Existing Contract Rights and Transmission Ownership Rights Holders

For each hour in which the CAISO Balancing Authority Area is distributed revenue or surcharge associated with the settlement of EDAM Transfer System Resources supporting EDAM Transfers in the day-ahead time horizon as provided in Section 33.11.3, and also associated with Existing Contract rights or Transmission Ownership Rights holders that have been scheduled by such parties in accordance with Section 33.18.2.2.1, the CAISO will directly allocate such revenue or surcharge to the applicable Existing Contract rights or Transmission Ownership Rights holder, subtracting the EDAM Transfer revenue associated with these transactions.

11.35.1.1.2 Settlement of Transfer System Resources associated with the CAISO Balancing Authority Area

For each hour in which the CAISO Balancing Authority Area is distributed revenue or surcharge associated with the settlement of EDAM Transfer System Resources in the CAISO Balancing Authority that support EDAM Transfers in the day-ahead time horizon as provided in Section 33.11.3, and not associated with Existing Contract rights and Transmission Ownership Rights holders that scheduled their rights in accordance with Section 33.18.2.2.1, the CAISO will net all CAISO EDAM Transfer System Resource settlement on an hourly basis to exclude EDAM Transfer System Resources associated with Existing Contract rights or Transmission Ownership Rights holders that self-schedule subtracting the applicable EDAM Transfer revenue, and will allocate all such revenue, or surcharge, to Scheduling Coordinators with the allocation ratio determined as the individual Scheduling Coordinator's metered Demand for that hour divided by the total CAISO metered Demand for that hour excluding balanced ETC/TOR metered demand.

11.35.1.2 Real-Time Settlement

11.35.1.2.1 Settlement of Transfer System Resources Associated with Existing Contract Rights

and Transmission Ownership Rights Holders

For each Settlement Interval in which the CAISO Balancing Authority Area is distributed revenue or surcharge associated with the imbalance energy settlement of EIM Transfer System Resources supporting EIM transfers in the real-time time horizon as provided in Section 29.11(r), and also associated with Existing Contract rights or Transmission Ownership Rights holders that have been scheduled by such parties in accordance with Section 33.18.2.2.1, the CAISO will directly allocate such revenue or surcharge to the applicable Existing Contract rights or Transmission Ownership Rights holder, subtracting the EIM Transfer revenue associated with these transactions.

11.35.1.2.2 Settlement of CAISO Transfer System Resources

For each Settlement Interval in which the CAISO Balancing Authority Area is distributed revenue or surcharge associated with imbalance energy settlement of EIM Transfer System Resources supporting EIM transfers in the real-time time horizon as provided in Section 29.11(r), and not associated with Existing Contract rights or Transmission Ownership Rights holders that scheduled their rights in accordance with Section 33.18.2.2.1, the CAISO will net all CAISO EIM Transfer System Resources on an hourly basis, subtracting the applicable EIM Transfer revenue, and then allocate all such revenue, or surcharge, to Scheduling Coordinators with the allocation ratio determined as the individual Scheduling Coordinator's metered Demand for that hour divided by the total CAISO metered Demand for that hour excluding balanced ETC/TOR metered demand.

11.35.2 Allocation of Revenue and Surcharge associated with EDAM Transfer Revenue and EDAM Congestion Revenue for the CAISO Balancing Authority Area

11.35.2.1 EDAM Transfer Revenue Settlement

For each interval in which the CAISO Balancing Authority Area is distributed EDAM Transfer revenue or surcharge for Energy in accordance with Section 33.11.1.1.1, Imbalance Reserves in accordance with Section 33.11.1.1.2, or Reliability Capacity in accordance with Section 33.11.1.1.3, the CAISO will sum all such revenue, or surcharge, in each hour and allocate such revenue, or surcharge, as follows:

11.35.2.1.1 Existing Rights Released in Support of EDAM Transfers

To Scheduling Coordinators for Existing Contract rights and Transmission Ownership Rights holders in direct proportion to their released rights where transmission associated with such rights was released in

advance as provided for in Section 33.18.2.2.2.

11.35.2.1.2 Remaining Rights in Support of EDAM Transfers

To Scheduling Coordinators for Existing Contract rights and Transmission Ownership Rights holders that exercised their rights based on the individual proportion of scheduled transmission rights supporting the EDAM Transfer, with the remainder, allocated pro rata to Scheduling Coordinators based on Measured Demand excluding Demand associated with balanced ETC/TOR Self-Schedules.

11.35.2.2 EIM Transfer Revenue Settlement

For each interval in which the CAISO Balancing Authority Area is allocated EIM Transfer revenue or surcharge in accordance with Section 11.5.4.1.5, the CAISO will allocate such revenue, or surcharge, as follows:

11.35.2.2.1 Existing Rights Released in Support of EIM Transfers

To Scheduling Coordinators for Existing Contract rights and Transmission Ownership Rights holders in direct proportion to their released rights where transmission associated with such rights was released in advance as provided for in Section 33.18.2.2.2.

11.35.2.2.2 Remainder Rights in Support of EIM Transfers

To Scheduling Coordinators for Existing Contract rights and Transmission Ownership Rights holders that exercised their rights based on the individual proportion of scheduled transmission rights supporting the EIM transfer, with the remainder, allocated pro rata to Scheduling Coordinators based on Measured Demand excluding Demand associated with balanced ETC/TOR Self-Schedules.

11.35.2.3 EDAM Congestion Revenue

For each interval in which the CAISO Balancing Authority Area is distributed EDAM Congestion revenue or surcharge in accordance with Section 33.11.1.2, the CAISO will allocate such revenue, or surcharge as provided in Section 11.2.4.

11.35.3 Allocation of EDAM RSE Failure Revenue and Surcharge for the CAISO Balancing Authority Area

For each hour in which the CAISO Balancing Authority Area is distributed revenue or surcharge arising from the EDAM RSE On-Peak Upward Failure Insufficiency Surcharge, the EDAM RSE Off-Peak Upward Failure Insufficiency Surcharge, or the EDAM RSE Downward Failure Insufficiency Surcharge pursuant to

Section 33.11.2.2, the CAISO will sum all such revenue, or surcharge, in each hour and allocate such revenue, or surcharge, to each Scheduling Coordinator with the allocation ratio determined as the individual Scheduling Coordinator's metered Demand for that hour divided by the total CAISO metered Demand for that hour.

Section 26

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26.2 CAISO Balancing Authority Area EDAM Recoverable Revenue and EDAM Access Charges

EDAM Recoverable Revenue for the CAISO Balancing Authority Area will be calculated as provided in Section 26.2.2 and allocated proportionally to EDAM Entity Balancing Authority Areas through the EDAM Entity EDAM Access Charge consistent with Section 33.26. EDAM Entity EDAM Access Charges assessed in accordance with Section 33.26 will include a proportional share of the EDAM Recoverable Revenue for the CAISO Balancing Authority Area, as provided in Section 26.2.1.1. CAISO EDAM Access Charges assessed in accordance with Section 33.26 will include the CAISO Balancing Authority Area's proportional share of EDAM Recoverable Revenue for EDAM Entity Balancing Authority Areas, as provided in Section 26.2.1.2.

26.2.1 CAISO Participation as a Balancing Authority Area in the EDAM Area

26.2.1.1 When deriving the EDAM Access Charge \$/MWh rates for each EDAM Entity Balancing Authority Area in the manner provided for in Section 33.26.1.1, the CAISO will also include a proportional share of the EDAM Recoverable Revenue for the CAISO Balancing Authority Area, including true-up consistent with Section 33.26.1.2, when assessing EDAM Entity EDAM Access Charges in accordance with Section 33.26.3. Calculation of EDAM Recoverable Revenue for the CAISO Balancing Authority Area is further described in Section 26.2.2.

26.2.1.2 When deriving the EDAM Access Charge \$/MWh rates for the CAISO Balancing Authority Area in the manner provided for in Section 33.26.1.1, the CAISO will include the CAISO Balancing Authority Area's proportional share of EDAM

Recoverable Revenue for each EDAM Entity Balancing Authority Area, including any associated true-ups as provided in Section 33.26.1.2, but will not include the EDAM Recoverable Revenue for the CAISO Balancing Authority Area when assessing the CAISO EDAM Access Charges in accordance with Section 33.26.3. CAISO EDAM Access Charges will be proportionality allocated to Scheduling Coordinators representing Gross Load in the CAISO Balancing Authority Area, as further described in Section 26.2.3.

26.2.2 Calculation of EDAM Recoverable Revenue for the CAISO Balancing Authority Area

The CAISO will determine the EDAM Recoverable Revenue for the CAISO Balancing Authority Area based on the aggregate EDAM Recoverable Revenue requirements of each Participating Transmission Owner in the CAISO Balancing Authority Area, with such aggregate amount included as part of the calculation of the EDAM Entity EDAM Access Charges consistent with Sections 26.2.1.1 and 33.26.1. Following the process and procedures in the Business Practice Manual, each Participating Transmission Owner recovering EDAM Recoverable Revenue must include its associated EDAM Recoverable Revenue requirement within its High Voltage Transmission Revenue Requirement, unless the Participating Transmission Owner demonstrates that a portion of its EDAM Recoverable Revenue requirement is associated with local facilities recoverable through its Low Voltage Transmission Revenue Requirement. The CAISO will distribute amounts received through the EDAM Entity EDAM Access Charges to each individual Participating Transmission Owner based on its individual portion of the EDAM Recoverable Revenue requirement in relation to the EDAM Recoverable Revenue requirements for all Participating Transmission Owners in the CAISO Balancing Authority Area, with each Participating Transmission Owner performing a true-up of its EDAM Recoverable Revenue requirement in the course of calculating the next year's EDAM Access Charges, consistent with Section 33.26.1.2.

26.2.2.1 Participating Transmission Owner EDAM Recoverable Revenue Requirement Component

1

Each Participating Transmission Owner may include the appropriate portion of the historical Wheeling Access Charge revenue foregone only for each Scheduling Point that corresponds with an EDAM Internal Intertie as component 1 of its EDAM Recoverable Revenue requirement in the manner further detailed in Section 33.26.2.1.1 and subsections set forth below.

26.2.2.1.1 Each Participating Transmission Owner will calculate component 1 of its EDAM Recoverable Revenue requirement in the manner set forth in Section 33.26.2.1.1 based on the historical annual average of Wheeling Access Charge revenues for the three years leading up to its EDAM participation. Component 1 will include such Wheeling Access Charge revenues the Participating Transmission Owner reasonably expects to forgo at each Scheduling Point that corresponds with an EDAM Internal Intertie. Each Participating Transmission Owner's component 1 will be fixed for purposes of calculating the EDAM Recoverable Revenue for the CAISO Balancing Authority Area's participation, as provided in Section 33.26.2.1.1.

26.2.2.1.2 Consistent with Section 33.26.2.1.2, component 1 EDAM Recoverable Revenue for the CAISO Balancing Authority Area will be limited to not exceed the product of (a) the Wheeling Access Charge revenue at the Scheduling Points associated with the CAISO-Controlled Grid and (b) the percentage resulting from dividing exports from the CAISO Balancing Authority Area to the EDAM Area by the total exports from the CAISO Balancing Authority Area. If the component 1 EDAM Recoverable Revenue for the CAISO Balancing Authority Area would otherwise exceed this limit, then each Participating Transmission Owner will reduce its individual component 1 EDAM Recoverable Revenue to allow the CAISO Balancing Authority Area to meet the limit. Any such reduction in component 1 EDAM Recoverable Revenue will be calculated in

proportion to the share of an individual Participating Transmission Owner's EDAM Recoverable Revenue requirement in relation to the EDAM Recoverable Revenue requirements for all Participating Transmission Owners in the CAISO Balancing Authority Area, following the processes and procedures in the Business Practice Manual.

26.2.2.2 Participating Transmission Owner EDAM Recoverable Revenue Requirement Component

2

Each Participating Transmission Owner may include the appropriate portion of costs resulting from reduced revenues associated with the release of transmission from Existing Contracts or forgone transmission sales on certain new Upgrades as component 2 of its EDAM Recoverable Revenue requirement in the manner further detailed in Section 33.26.2.2.1 and sub-sections set forth below.

26.2.2.2.1 A Participating Transmission Owner with Existing Contracts will calculate its component 2 EDAM Recoverable Revenue requirement to include those revenue shortfalls associated with the release of transmission capacity resulting from expiring Existing Contracts that were not included in component 1, subject to the limitations set forth in Section 33.26.2.2.1. For each Existing Contract that is expiring, the Participating Transmission Owner will calculate the amounts to be included in component 2 of its EDAM Recoverable Revenue requirement in accordance with Section 33.26.2.2.1.

26.2.2.2.2 A Participating Transmission Owner with new Upgrades will calculate its component 2 EDAM Recoverable Revenue requirement to include those revenue shortfalls associated with the facilities that (a) are energized after the CAISO Balancing Authority Area begins participation in EDAM; (b) increase transfer capability between the CAISO Balancing Authority Area and an EDAM Entity Balancing Authority Area, in the manner described in Section 33.26.2.2.2; and (c) otherwise meet the requirements of Section 33.26.2.2.2. For each new Upgrade, the Participating Transmission Owner will calculate the amounts to be

included in component 2 of its EDAM Recoverable Revenue requirement in accordance with Section 33.26.2.2.2. A Participating Transmission Owner will utilize, as a proxy historical baseline for new Upgrades when establishing component 2 for the first year, the ratio of (a) historical Wheeling Access Charge revenue for the CAISO Balancing Authority Area to (b) total Transmission Revenue Requirements for the CAISO Balancing Authority Area. After the first year the new Upgrade is included in the EDAM Access Charge, the Participating Transmission Owner will true-up actual forgone revenues to projected forgone revenues in the following year's calculations of component 2 EDAM Recoverable Revenue requirement based on the proxy baseline, consistent with Section 33.26.2.2.2.

26.2.2.3 Participating Transmission Owner EDAM Recoverable Revenue Requirement Component 3

As provided in Section 33.26.2.3, in periods where the total volume of EDAM wheeling-through transactions exceeds the total net transfers (imports and exports) of the CAISO Balancing Authority Area, the CAISO will calculate the component 3 EDAM Recoverable Revenue for each Participating Transmission Owner by multiplying (a) its share of the excess volume, based on its individual Transmission Revenue Requirement in relation to the total Transmission Revenue Requirements for the CAISO Balancing Authority Area, by (b) the applicable Wheeling Access Charge rate. Each Participating Transmission Owner may include component 3 revenues as part of its EDAM Recoverable Revenue requirement, consistent with Section 33.26.2.3.

26.2.3 CAISO EDAM Access Charges

Any EDAM Entity Access Charges assessed to the CAISO Balancing Authority Area in accordance with Sections 26.2.1.2 and 33.26.3 will be sub-allocated to Scheduling Coordinators representing Gross Load in the CAISO Balancing Authority Area through the CAISO EDAM Access Charge. Each Scheduling Coordinator's proportional allocation of CAISO EDAM Access Charges will be based on its share of represented Gross Load in relation to the total Gross Load represented in the CAISO Balancing Authority Area during the assessment period. CAISO

EDAM Access Charge revenue will be credited to EDAM Entity Balancing Authority Areas in the manner set forth in Section 33.26.3. Any difference between the amount of CAISO EDAM Access Charges and revenues will be reflected as debits or credits in the annual true-up, as provided in Section 33.26.1.2.

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Section 27

27. CAISO Markets and Processes

In the Day-Ahead and Real-Time time frames the CAISO operates a series of procedures and markets that together comprise the CAISO Markets Processes. In the Day-Ahead time frame, the CAISO conducts the Market Power Mitigation (MPM) process, the Integrated Forward Market (IFM) and the Residual Unit Commitment (RUC) process. In the Real-Time time frame, the CAISO does the following: 1) accepts the Economic Bids and Self-Schedules used in the Real-Time Market procedures, 2) conducts the MPM process for the RTM, 3) accepts and awards HASP Block Intertie Schedules for Energy and Ancillary Services, 4) provides HASP Advisory Schedules for Energy and Ancillary Services for Bids that do not create a HASP Block Intertie Schedule, 5) conducts the Real-Time Unit Commitment (RTUC), 6) conducts the Short-Term Unit Commitment (STUC), 7) conducts the Fifteen Minute Market (FMM), and 8) conducts the five-minute Real-Time Dispatch (RTD). As appropriate, the CAISO Markets Processes utilize transmission and Security Constrained Unit Commitment and dispatch algorithms in conjunction with a Base Market Model adjusted as described in Sections 27.5.1 and 27.5.6 to optimally commit, schedule and Dispatch resources and determine marginal prices for Energy, Ancillary Services and RUC Capacity. Congestion Revenue Rights are available and entitle holders of such instruments to a stream of hourly payments or charges associated with revenue the CAISO collects or pays from the Marginal Cost of Congestion component of hourly Day-Ahead LMPs. Through the operation of the CAISO Markets Processes the CAISO develops Day-Ahead Schedules, Day-Ahead AS Awards and RUC Schedules, HASP Block Intertie Schedules for Energy and AS Awards, HASP Advisory Schedules, FMM Energy Schedules, and FMM Ancillary Services Awards, Real-Time AS Awards and Dispatch Instructions to

ensure that sufficient supply resources are available in Real-Time to balance Supply and Demand and operate in accordance with Reliability Criteria. The CAISO Balancing Authority Area also is a Balancing Authority Area in the Market Area.

27.1 LMPs and Ancillary Services Marginal Prices

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27.1.1 Locational Marginal Prices for Energy

As further described in Appendix C, the LMP for Energy at any PNode is the marginal cost of serving the next increment of Demand at that PNode calculated by the CAISO through the operations of the CAISO Markets considering, as described further in the CAISO Tariff, among other things, modeled Transmission Constraints (including Remedial Action Schemes), transmission losses, the performance characteristics of resources, and Bids submitted by Scheduling Coordinators and as modified through the Locational Market Power Mitigation process. The LMP at any given PNode is comprised of four marginal cost components: the Marginal Energy Cost (MEC); Marginal Cost of Losses (MCL); Marginal Cost of Congestion (MCC); and Marginal Greenhouse Gas Cost. Through the IFM the CAISO calculates LMPs for each Trading Hour of the next Trading Day. Through the FMM the CAISO calculates distinct financially binding fifteen-minute LMPs for each of the four fifteen-minute intervals within a Trading Hour. Through the Real-Time Dispatch, the CAISO calculates five-minute LMPs for each of the twelve (12) five (5) minute Dispatch Intervals of each Trading Hour. The CAISO uses the FMM or RTD LMPs for Settlements of the Real-Time Market.

27.1.1.1 Marginal Energy Cost

The Marginal Energy Cost (MEC) component of the LMP reflects the marginal cost of providing Energy from a designated reference Location. For this designated reference Location the CAISO will utilize a distributed Reference Bus whose constituent PNodes are weighted in proportions referred to as Reference Bus distribution factors. The MEC shall be the same throughout the Balancing Authority Area.

27.1.1.2 Marginal Cost of Losses

For all PNodes and Aggregated PNodes in the CAISO Balancing Authority Area, including Scheduling

Points, the use of the Base Market Model adjusted as described in Sections 27.5.1 and 27.5.6 in the DAM and the RTM processes incorporates Transmission Losses. At each PNode or Aggregated PNode, the Marginal Cost of Losses is the Marginal Energy Cost multiplied by the Marginal Loss factor at that PNode or Aggregated PNode. The Marginal Cost of Losses at a Location (PNode or APNode) may be positive or negative depending on whether an increase in Demand at that Location marginally increases or decreases the cost of Transmission Losses, using the distributed Reference Bus to balance it. The Marginal Loss factors are determined through a process that calculates the sensitivities of Transmission Losses with respect to changes in injection at each Location in the FNM. For CAISO Controlled Grid facilities outside the CAISO Balancing Authority Area, the CAISO shall assess the cost of Transmission Losses to Scheduling Coordinators using each such facility based on the quantity of losses agreed upon with the neighboring Balancing Authority multiplied by the LMP at the PNode of the Transmission Interface with the neighboring Balancing Authority Area. The MCLs calculated for Locations within the CAISO Balancing Authority Area shall not reflect the cost of Transmission Losses on those facilities.

27.1.1.3 Marginal Cost of Congestion

The Marginal Cost of Congestion at a PNode reflects the net contribution of the Shadow Prices of the binding Transmission Constraints (including Remedial Action Schemes) at the optimal solution, weighted by the corresponding Power Transfer Distribution Factors (PTDFs), as described in Appendix C. The Marginal Cost of Congestion for a Transmission Constraint may be positive or negative depending on whether a power injection at that Location marginally increases or decreases Congestion.

27.1.1.3.1 Marginal GHG Cost

The Marginal GHG Cost at a PNode reflects the allocation of a GHG Transfer for a GHG Regulation Area as described in Appendix C. The Marginal GHG Cost for a GHG Regulation Area may be positive or zero depending on the resources receiving an attribution of GHG Transfers for that GHG Regulation Area.

27.1.1.4 Disconnected Pricing Node or Aggregated Pricing Node

In the event that a Pricing Node or Aggregated Pricing Node becomes electrically disconnected from the market model during a CAISO Market run, the LMP, including the Marginal Energy Cost, Marginal Cost of Congestion, Marginal Cost of Losses, and Marginal Greenhouse Gas Cost at the closest electrically connected Pricing Node will be used as the LMP at the affected location. The CAISO will include the

impact of the disconnected Pricing Node on any modeled Remedial Action Scheme in determining the LMP.

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27.1.2 Ancillary Service Prices

27.1.2.1 Ancillary Service Marginal Prices – Sufficient Supply

As provided in Section 8.3, Ancillary Services are procured and awarded through the IFM and the FMM, and the CAISO also accepts and awards HASP Block Intertie Schedules for Ancillary Services in HASP. Ancillary Services awarded through HASP are made financially binding in the FMM. The IFM calculates hourly Day-Ahead Ancillary Service Awards and establishes Ancillary Service Marginal Prices (ASMPs) for the accepted Regulation Up, Regulation Down, Spinning Reserve and Non-Spinning Reserve Bids. The IFM co-optimizes Energy, Imbalance Reserves, and Ancillary Services subject to resource, network and regional constraints. In the HASP, the CAISO accepts and awards Ancillary Services from HASP Block Intertie Schedules for the next Trading Hour as described in Section 34.2. The CAISO calculates the price for the settlement of Ancillary Services accepted and awarded in HASP based on the FMM ASMP as described herein and further described in Section 34.4. The FMM process that is performed every fifteen (15) minutes establishes fifteen (15) minute Ancillary Service Schedules, Awards, and prices for the upcoming quarter of the given Trading Hour. ASMPs are determined by first calculating Shadow Prices of Ancillary Services for each Ancillary Service type and the applicable Ancillary Services Regions. The Ancillary Services Shadow Prices are produced as a result of the co-optimization of Energy and Ancillary Services through the IFM and the Real-Time Market, subject to resource, network, and requirement constraints. The Ancillary Services Shadow Prices represent the marginal cost of the relevant binding regional constraints at the optimal solution, or the reduction of the combined Energy and Ancillary Service procurement cost associated with a marginal relaxation of that constraint. If the constraint for an Ancillary Services Region is not binding, the corresponding Ancillary Services Shadow Price in the Ancillary Services Region is zero (0). During periods in which supply is sufficient, the ASMP for a particular Ancillary Service type and Ancillary Services Region is then the sum of the Ancillary

Services Shadow Prices for the specific type of Ancillary Service and all the other types of Ancillary Services for which the subject Ancillary Service can substitute, as described in Section 8.2.3.5, for the given Ancillary Service Region and all the other Ancillary Service Regions that include that given Ancillary Service Region. During periods in which supply is insufficient, the ASMP for a particular Ancillary Service type and Ancillary Services Region will reflect the Scarcity Reserve Demand Curve Values set forth in Section 27.1.2.3.

27.1.2.2 Opportunity Cost in ASMP

The Ancillary Services Shadow Price, which, as described above, is a result of co-optimizing procurement of Energy, Imbalance Reserves, and Ancillary Services, includes the foregone opportunity cost of the marginal resource, if any, for not providing Energy, Imbalance Reserves, or Ancillary Services the marginal resource is capable of providing in the relevant market. The ASMPs determined by the IFM or FMM optimization process for each resource whose 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 or Imbalance Reserves in the IFM or Energy and FRP in the FMM for that resource. The foregone opportunity cost of Energy or Imbalance Reserves for this purpose is measured as the positive difference between the price in the relevant market for the given product at the resource's Pricing Node and the resource's Bid price in the relevant market for the given product. If the Bid price for the resource is higher than the LMP, the opportunity cost measured for this calculation is \$0. If a resource has submitted an Ancillary Service Bid but no Energy Bid and this Tariff obligates the resource to submit Bids for Energy in the Day-Ahead Market, then the CAISO inserts an Energy Bid at its Default Energy Bid and the CAISO calculates its opportunity cost based on that Default Energy Bid. If a resource has submitted an Ancillary Service Bid but no Energy Bid and is not under an obligation to offer Energy in the Day-Ahead Market, its Energy opportunity cost measured for this calculation is \$0 since it cannot be dispatched for Energy. For Self-Scheduled Hourly Block Bids for Ancillary Services awarded in the Real-Time Market, the opportunity cost measured for this purpose is \$0 because, as provided in Section 34.2.3, the CAISO cannot Schedule Energy in the Real-Time Market from the Energy Bid under the same Resource ID as the submitted Ancillary Service Bid.

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27.1.2.4 Opportunity Cost in LMPs for Energy

In the event that there is insufficient supply to meet an Ancillary Services procurement requirement in a particular Ancillary Service Region or Sub-Region, the Ancillary Services Shadow Prices will rise automatically to the Scarcity Reserve Demand Curve Values in that Ancillary Service Region or Sub-Region. LMPs for Energy will reflect the forgone opportunity cost of the marginal resource, if any, for not providing other products procured in the IFM.

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27.1.4 Locational IRU Price and Locational IRD Price

As further described in Appendix C, the Locational IRU Price or Locational IRD Price at any PNode is the marginal cost of procuring the next increment of IRU or IRD, respectively, at that PNode calculated by the CAISO through the operations of the CAISO Markets considering, as described further in the CAISO Tariff, among other things, modeled Transmission Constraints (including Remedial Action Schemes), the performance characteristics of resources, and Imbalance Reserves Bids submitted by Scheduling Coordinators as modified by the IFM MPM. The Locational IRU Price or Locational IRD Price at a PNode is comprised of two marginal cost components: (1) the Shadow Price of the IRU or IRD procurement constraint for the relevant BAA in the EDAM Area; and (2) the MCC for IRU or IRD.

27.1.5 Locational RCU Price and Locational RCD Price

As further described in Appendix C, the Locational RCU Price or Locational RCD Price at any PNode is the marginal cost of procuring the next increment of RCU or RCD, respectively, at that PNode calculated by the CAISO through the operations of the CAISO Markets considering, as described further in the CAISO Tariff, among other things, modeled Transmission Constraints (including Remedial Action Schemes), the performance characteristics of resources, and RUC Availability Bids submitted by Scheduling Coordinators as modified by the RUC MPM. The Locational RCU Price or Locational RCD

Price at a PNode is comprised of three marginal cost components: (1) the Shadow Price of the RUC power balance constraint for the relevant BAA in the EDAM Area; (2) the Marginal Cost of Losses; and (3) the MCC for RCU or RCD.

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27.4.3.4 Protection of TOR, ETC and Converted Rights Self-Schedules in the IFM

In accordance with the submitted and accepted TRTC Instructions, valid Day-Ahead TOR Self-Schedules, Day-Ahead ETC Self-Schedules and Day-Ahead Converted Rights Self-Schedules shall not be adjusted in the IFM in response to an insufficiency of Effective Economic Bids. The scheduling parameters associated with the TOR, ETC, or Converted Rights Self-Schedules will be set to values higher than the scheduling parameter associated with relaxation of an enforced internal and Intertie Transmission Constraint as specified in Section 27.4.3.2, so that when there is a congested Transmission Constraint that would otherwise subject a Supply or Demand resource submitted in a valid and balanced ETC, TOR or Converted Rights Self-Schedule to adjustment in the IFM, the IFM software will relax the Transmission Constraint rather than curtail the TOR or ETC Self-Schedule. This priority will be adhered to by the operation of the IFM Market Clearing software, and if necessary, by adjustment of Schedules after the IFM has been executed and the results have been reviewed by the CAISO operators.

27.4.3.5 Effectiveness Threshold

The CAISO Markets software includes a lower effectiveness threshold setting that governs whether the software will consider a bid “effective” for managing congestion on a congested Transmission Constraint, which in the case of Nomograms will be applied to the individual flowgates that make up the Nomogram, rather than to the Nomogram itself. For the purposes of applying these thresholds in procuring Imbalance Reserves Awards under Section 31.3.1.6.3, the CAISO considers the product of the shift factor and the Deployment Factor.

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27.13 Aggregate Capability Constraint

At the request of the Interconnection Customer, the CAISO may enforce an Aggregate Capability Constraint for Generating Facilities with Co-located Resources that reflects a Generating Facility's maximum and minimum capability or a portion of that capability for purposes of Day-Ahead Market Awards, Real-Time Market Awards, and Real-Time Dispatch as described in the CAISO's Business Practice Manuals. If the combined PMax of Co-located Resources associated with a single Generating Facility would exceed the Interconnection Service Capacity of that Generating Facility, the Interconnection Customer may request that the CAISO enforce an Aggregate Capability Constraint or multiple Aggregate Capability Constraints at the Generating Facility as described in the CAISO's Business Practice Manuals. If the Interconnection Customer requests that the CAISO enforce multiple Aggregate Capability Constraints, the CAISO will enforce an Aggregate Capability Constraint at the Generating Facility level and subordinate Aggregate Capability Constraints at the level of Resource IDs. If the Interconnection Customer does not elect an Aggregate Capability Constraint(s), the combined PMax of the Co-located Resources registered in the Master File for that Generating Facility may not exceed the Generating Facility's Interconnection Service Capacity. EIM Participating Resource Scheduling Coordinators also may request that the CAISO enforce an Aggregate Capability Constraint or multiple Aggregate Capability Constraints for Co-located Resources, subject to the prior written approval of the applicable EIM Entity Balancing Authority that enforcing an Aggregate Capability Constraint(s) for Co-located Resources does not create a threat to safety or reliability.

As described in the CAISO's Business Practice Manuals the CAISO may relax enforcement of subordinate Aggregate Capability Constraints in its Real-Time Market prior to relaxing enforcement of the system energy-balance constraint specified in Sections 27.4.3.3.4 to ensure there is sufficient Supply to meet the CAISO Forecast of CAISO Demand.

Notwithstanding Section 34.13, a Generating Facility whose Co-located Resources, including Variable Energy Resources, do not comply with Dispatch Instructions such that their output exceeds the Interconnection Service Capacity of the Generating Facility, will be ineligible for the Aggregate Capability Constraint. In such cases, the CAISO will adjust the PMaxes of those Co-located Resources

proportionate to each Generating Unit's capacity such that the sum of the PMax values equals the Interconnection Service Capacity of the Generating Facility, or as requested by the Interconnection Customer so long as the total value does not exceed the Interconnection Service Capacity of the Generating Facility.

Similar to other Generating Facilities with multiple Resource IDs, the CAISO will have no liability with respect to Co-located Resources or their Scheduling Coordinators if Co-located Resources do not comply with Dispatch Instructions and infringe on Interconnection Service Capability used by other Co-located Resources at a Generating Facility.

In the event that Co-located Resources in an EIM Entity Balancing Authority area do not comply with Dispatch Instructions such that their output exceeds the interconnection service capacity for the Co-located Resources, the CAISO will ask the applicable EIM Entity Balancing Authority whether it will revoke its prior approval of enforcing the Aggregate Capability Constraint for such Co-located Resources.

The following resources are not eligible to use the Aggregate Capability Constraint: Multi-Stage Generators, Pseudo-Tie Resources, Proxy Demand Response, Pumped Storage Hydro Units, Metered Subsystems, and Use-Limited Resources.

Scheduling Coordinators may not offer or self-provide Ancillary Services into the CAISO's Markets or receive Uncertainty Awards from Generating Units, EDAM Resources, or EIM Resources that are subject to Aggregate Capability Constraints until the CAISO issues a Market Notice stating this restriction will no longer apply. The Pricing Node for the Generating Units, EDAM Resources or EIM Resources subject to an Aggregate Capability Constraint will be their Point of Interconnection.

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27.14 Participation as a Balancing Authority Area in the EDAM Area

The CAISO will participate as a Balancing Authority Area in the EDAM Area, consistent with requirements of Section 33, subject to the provisions of this Section 27.14.

27.14.1 EDAM Transfer and Congestion Revenue

EDAM Transfer Revenue and EDAM Congestion Revenue distributed to the CAISO Balancing Authority Area in accordance with Section 33.11.1 will be allocated by the CAISO to the applicable Scheduling

Coordinators as provided in Section 11.35.2.

27.14.2 EDAM Resource Sufficiency Evaluation

27.14.2.1 EDAM RSE Surcharge and Revenue Allocation

EDAM RSE surcharges or revenue distributed to the CAISO Balancing Authority in accordance with Section 33.11.2 will be allocated by the CAISO to the applicable Scheduling Coordinators as provided in Section 11.35.3.

27.14.2.2 [Not Used]

27.14.3 Net Export Transfer Constraint

The CAISO Balancing Authority Area may enable the configurable EDAM net export transfer constraint set forth in Section 33.31.3 consistent with the process set forth in the Business Practice Manual utilizing the confidence factor provided for in Section 27.14.3.1 and the additional reliability margin provided for in Section 27.14.3.2.

27.14.3.1 Confidence Factor

If there is observed risk of non-performance or non-delivery by Supply overall or from intertie schedules, or if Good Utility Practice or operator judgement otherwise requires, then the CAISO Balancing Authority Area will utilize a tunable confidence factor of less than 100% configurable by hour, as provided in Section 33.31.3.1, and consistent with the process set forth in the Business Practice Manual.

27.14.3.2 Additional Reliability Margin

If there is an observed risk that additional capacity will be needed to respond to reliability conditions, or if Good Utility Practice or operator judgement otherwise requires, then the CAISO will utilize an additional tuneable reliability margin configurable by hour, as provided in Section 33.31.3.2, and consistent with the process set forth in the Business Practice Manual.

27.14.4 EDAM Recoverable Revenue

EDAM recoverable revenue for the CAISO Balancing Authority Area will be calculated, allocated and distributed to the applicable Scheduling Coordinators, as provided in Section 26.2.

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Section 29

29. Energy Imbalance Market

29.1 General Provisions.

- (a) **Operation of EIM.** Pursuant to Section 29, the CAISO shall expand operation and settlement of the Real-Time Market to provide for the purchase and sale of balancing Energy in any Balancing Authority Area for which the Balancing Authority executes an EIM Entity Agreement with the CAISO. Operation and Settlement of the Real-Time Market in an EIM Entity Balancing Authority Area for which the Balancing Authority executes an EDAM Entity Agreement with the CAISO is supplemented by Section 33.
- (b) **EIM Tariff Obligations.** EIM Market Participants shall comply with –
- (1) the provisions of Section 29; and
 - (2) other provisions of the CAISO Tariff that apply to the extent such provisions –
 - (A) expressly refer to Section 29 or EIM Market Participants;
 - (B) are cross referenced in Section 29; or
 - (C) are not limited in applicability to the CAISO Controlled Grid, the CAISO Balancing Authority Area, or CAISO Markets other than the Real-Time Market.
- (c) **Inconsistency Between Provisions.** If there is an inconsistency between a provision in Section 29 and another provision of the CAISO Tariff regarding the rights or obligations of EIM Market Participants, except in their capacity as EDAM Market Participants under Section 33, the provision in Section 29 shall prevail to the extent of the inconsistency. If there is an inconsistency between a provision in Section 29 and a provision in Section 33, the provisions of Section 33 will prevail with respect to participation in the Day-Ahead Market and the provisions of Section 29 will prevail with respect to participation in the Real-Time Market, provided that the provisions of both Sections 33 and 29 will be given equal consideration such that the provisions applicable as an EIM Market Participant and EDAM Market Participant may be reconciled where provisions apply to participation in both the Real-Time Market and the Day-Ahead Market.

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29.2 EIM Entity and EIM Sub-Entity Access to the Real-Time Market

- (a) **In general.** The CAISO shall –
- (1) provide open and non-discriminatory access to the Real-Time Market, including the Energy Imbalance Market, in accordance with the provisions of the CAISO Tariff; and
 - (2) make available for use in the Real-Time Market the transmission capacity that is available in Real-Time –
 - (A) on the CAISO Controlled Grid; and
 - (B) for which an EIM Entity or EIM Sub-Entity provides EIM Transmission Service Information pursuant to Section 29.17.
- (b) **Implementation of Access as an EIM Entity.**

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- (7) **Readiness Criteria.**
- (A) **Prospective EIM Entity Full Network Model Integration.** The network model data of the prospective EIM Entity is integrated into the Full Network Model such that –
- (i) the Load, EIM Internal Intertie and EIM External Interties and Generating Unit definition in the Full Network Model is consistent with the Load, EIM Internal Intertie and EIM External Interties and Generating Unit definition in the prospective EIM Entity network model file that it delivered to the CAISO;
 - (ii) the SCADA measurements used in the prospective EIM Entity's EMS model match the measurements observed by the CAISO through the CAISO EMS;

- (iii) the State Estimator solution is equivalent or superior to the prospective EIM Entity's state estimator solution for its Balancing Authority Area; and
- (iv) the physical representation of the prospective EIM Entity network matches the Base Market Model that accounts for non-conforming load, behind-the-meter generation, Pseudo-Ties, and Dynamic Schedules, and third party transmission service provider and path operator information that the CAISO agrees is used to support EIM Transfers and Real-Time Dispatch in the Energy Imbalance Market, as applicable.

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(K) **Additional Criteria**

- (i) **Execution of Necessary Agreements.** The prospective EIM Entity has complied with Section 29.4(c)(2) and executed any necessary agreements for operating as an EIM Entity, including any non-disclosure agreements required for the exchange of information.
- (ii) **Operating Procedures.** Prior to the start of parallel operations pursuant to Section 29.2(b)(4)(B), the CAISO and the prospective EIM Entity have defined, completed, and tested operating procedures for the prospective EIM Entity and its Scheduling Coordinator's participation in the Energy Imbalance Market.
- (iii) **Identification of EIM Available Balancing Capacity.** The prospective EIM Entity has identified EIM Resources and non-participating resources that it intends to designate in the EIM

Resource Plan as EIM Available Balancing Capacity.

- (iv) **Flexible Capacity Requirements.** The CAISO has received and stored all historical data from the prospective EIM Entity necessary and sufficient for the CAISO to perform the flexible ramp requirement, and the CAISO has established flexible capacity requirements for the prospective EIM Entity's Balancing Authority Area and for the combined EIM Area including the prospective EIM Entity.
- (v) **Monitoring.** Sufficient and adequate data is available to the CAISO and the Department of Market Monitoring to enable market monitoring as of the Implementation Date.

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29.4 Roles and Responsibilities

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- (b) **EIM Entity.**
 - (1) **Balancing Authority Obligations.**

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- (3) **EIM Entity Obligations.** An EIM Entity shall –
 - (A) perform the obligations of an EIM Entity in accordance with the EIM Entity Agreement, Section 29, and other provisions of the CAISO Tariff that apply to EIM Entities, subject to the limitations specified in Section 29.1(b)(2)(C);

- (B) ensure that each EIM Transmission Service Provider in its Balancing Authority Area has provisions in effect in the EIM Transmission Service Provider's transmission tariff, as necessary or applicable, to enable operation of the Real-Time Market in its Balancing Authority Area;
- (C) qualify as or secure representation by no more than one EIM Entity Scheduling Coordinator;
- (D) review and validate information about available transmission capacity submitted to it by an EIM Transmission Service Provider and transmit such validated information to its EIM Entity Scheduling Coordinator;
- (E) provide the CAISO and its EIM Entity Scheduling Coordinator with information regarding the transmission capacity available to the Real-Time Market, including any information regarding Transmission Constraints of which it is aware;
- (F) define Load Aggregation Points in its Balancing Authority Area;
- (G) determine and inform the CAISO which resource types are eligible to participate in the Real-Time Market as resources and which transmission service providers or holders of transmission rights are EIM Transmission Service Providers; and
- (H) inform the CAISO whether or not the EIM Entity intends to utilize the CAISO's Demand Forecast consistent with Section 29.34(d).

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29.7 EIM Operations Under Normal and Emergency Conditions.

- (a) **CAISO Controlled Grid Operations.** Section 7 shall not apply to EIM Market Participants in their capacities as such.
- (b) **Normal EIM Operations.** The CAISO shall administer the transmission capacity made available to the Real-Time Market to manage Energy imbalances in the EIM Area under

normal operations.

- (c) **Load Curtailment.** The CAISO will not issue Dispatch Instructions to an EIM Entity Scheduling Coordinator or an EIM Sub-Entity Scheduling Coordinator with respect to Load or Demand that has not been bid into the Real-Time Market.
- (d) **Dispatch Instructions for EIM Resources.** The CAISO will not issue Dispatch Instructions to an EIM Participating Resource Scheduling Coordinator with respect to Supply that has not been bid into the Real-Time Market.
- (e) **EIM Transfers.** The CAISO will use Transfer System Resources to manage EIM Transfers as aggregate Dynamic Schedules with each EIM Entity Balancing Authority Area, which –
 - (1) shall not require individual resource E-Tags;
 - (2) shall not constitute inadvertent Energy;
 - (3) shall reflect intra-hour incremental EIM Transfers between the CAISO Balancing Authority Area and each EIM Entity Balancing Authority Area;
 - (4) shall be updated by the CAISO within 60 minutes after the end of each Operating Hour to include the integrated Energy during the hour for the sum of all EIM Transfers between each Balancing Authority Area in the EIM Area in accordance with WECC business practices for purposes of inadvertent Energy accounting; and
 - (5) shall be subsequently updated as necessary consistent with the requirements of WECC, NERC, and North American Energy Standards Board standards and business practices.
- (f) **Dynamic Imbalance Schedule to Net EIM Transfers.** The CAISO will use Transfer System Resources to –
 - (1) model changes in the net five-minute scheduled EIM Transfers that result from Real-Time Dispatch as a Dynamic Schedule between the CAISO and EIM Entity for AGC control accuracy; and
 - (2) calculate the dynamic net scheduled EIM Transfers for the CAISO and each EIM

Entity Balancing Authority Area and derive from these dynamic net scheduled EIM Transfers the Dynamic Schedules on EIM Internal Interties for E-Tag purposes.

(g) **EIM Manual Dispatch.**

- (1) The EIM Entity may issue an EIM Manual Dispatch to an EIM Resource or a non-participating resource in its Balancing Authority Area, outside of the Market Clearing of the Real-Time Market, when necessary to address reliability or operational issues in the EIM Entity Balancing Authority Area that the CAISO is not able to address through normal economic Dispatch and Congestion Management. The EIM Entity may issue an EIM Manual Dispatch to any EIM Resource or a non-participating resource in its Balancing Authority Area regardless of whether an EIM Sub-Entity Scheduling Coordinator has rights to issue an EIM Manual Dispatch to such EIM Resource or non-participating resource.
- (2) If authorized by the EIM Entity, the EIM Sub-Entity may issue an EIM Manual Dispatch to an EIM Resource or a non-participating resource for which it is registered as the EIM Sub-Entity Scheduling Coordinator when necessary to address reliability or operational issues in its service territory that the CAISO is not able to address through normal economic Dispatch and Congestion Management, provided that such ability by the EIM Sub-Entity shall not prevent the EIM Entity from issuing an EIM Manual Dispatch to any EIM Resource or a non-participating resource in its Balancing Authority Area, and the most recent EIM Manual Dispatch shall take precedence over any prior EIM Manual Dispatch issued to the EIM Resource. Any financial or operational impact on an EIM Sub-Entity resulting from an EIM Manual Dispatch issued by the EIM Entity shall be resolved in accordance with the applicable tariff or contractual arrangements between the EIM Entity and the EIM Sub-Entity.

(h) **EIM Entity and EIM Sub-Entity Actions in Response to an EIM Manual Dispatch.** If

the EIM Entity or EIM Sub-Entity issues an EIM Manual Dispatch to address circumstances on its system –

- (1) the EIM Entity shall immediately inform the CAISO, as specified in the Business Practice Manual for the Energy Imbalance Market, if the EIM Entity Balancing Authority Area is under manual operation;
- (2) the EIM Entity or EIM Sub-Entity shall immediately inform the CAISO of the EIM Manual Dispatch issued to any EIM Resource or non-participating resource by submitting the EIM Manual Dispatch instruction for the affected resource to the CAISO as specified in the Business Practice Manual for the Energy Imbalance Market; and
- (3) the EIM Entity or EIM Sub-Entity remains responsible for informing the Reliability Coordinator of the circumstances creating the need for the EIM Manual Dispatch and may enforce Transmission Constraints, as may be required.

(i) **CAISO Actions in Response to Notification of EIM Manual Dispatch.** Upon receipt of notice of an EIM Manual Dispatch, the CAISO shall –

- (1) reflect the EIM Manual Dispatch in the Real-Time Market;
- (2) disregard an EIM Manual Dispatch in the determination of the Locational Marginal Price; and
- (3) treat an EIM Manual Dispatch to an EIM Participating Resource or non-participating resource as FMM or RTD Instructed Imbalance Energy for Settlement.

(j) **EIM Disruption.**

- (1) **Declaration.** The CAISO may declare an interruption of EIM Entity participation in the Real-Time Market when in its judgment –
 - (A) operational circumstances (including a failure of the Real-Time Market operation to produce feasible results in the EIM Area or other CAISO Market Disruption) in the EIM Area have caused or are in danger of causing an abnormal system condition in the CAISO Balancing Authority

- Area or an EIM Balancing Authority Area that requires immediate action to prevent loss of Load, equipment damage, or tripping system elements that might result in cascading Outages, or to restore system operation to meet Applicable Reliability Criteria; or
- (B) communications between the CAISO and EIM Market Participants are disrupted and prevent an EIM Entity, EIM Entity Scheduling Coordinator, EIM Sub-Entity, EIM Sub-Entity Scheduling Coordinator, or EIM Participating Resource Scheduling Coordinator from accessing CAISO systems to submit or receive information.
- (2) **CAISO Response to EIM Disruption.** If the CAISO declares an interruption of EIM Entity participation in the Real-Time Market, the CAISO may in its judgment, among other things-
- (A) separate the affected EIM Entity Balancing Authority Area from the EIM Area and maintain the Real-Time Market for other Balancing Authority Areas in the EIM Area by enforcing a net transfer constraint for the affected Balancing Authority Area to separate it from the remainder of the EIM Area;
- (B) reduce or suspend EIM Transfers between one or more Balancing Authority Areas in the EIM Area including the CAISO Balancing Authority Area and in accordance with Section 33.7.5 as applicable to EDAM Transfers, and communication and coordination with all impacted EIM Entities to assess and mitigate potential issues within the EIM Area;
- (C) instruct one or more EIM Entities to maintain system balance within their Balancing Authority Area without RTM Dispatch; or
- (D) in addition or as an alternative, use market results in the Real-Time Market in accordance with Section 7.7.9 or take any of the actions specified in Section 7.7.6 with respect to the Real-Time Market, except that if Section 7.7.6 calls for the use of Day-Ahead Market results, the

CAISO will use:

- (i) the price specified in the EIM Entity's open access transmission tariff as the LMP;
- (ii) the EIM Entity's or EIM Sub-Entity's EIM Base Schedule as the schedule;
- (iii) the EIM Bid Adder from the most recent corresponding interval that is available as the EIM Bid Adder; and
- (iv) the emissions rate set by the California Air Resources Board for an unspecified source multiplied by the daily Greenhouse Gas Allowance Price.

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29.9 Outages and Critical Contingencies.

- (a) **Applicability of Section 9.** Section 9 shall not apply to EIM Market Participants except as referenced in Section 29.9.

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- (e) **Forced Outages.** An EIM Entity Scheduling Coordinator and an EIM Sub-Entity Scheduling Coordinator shall comply with the reporting provisions of Section 9 with regard to Forced Outages of transmission facilities within the EIM Entity Balancing Authority Area or within the EIM Sub-Entity area they represent and an EIM Participating Resource Scheduling Coordinator shall comply with the reporting provisions of Section 9 with regard to Forced Outages of Generating Units it represents as EIM Resources. The applicable provisions of Section 9 as to Forced Outages on transmission facilities and Generating Units include, but are not limited to, Sections 9.3.6.4.1(b), 9.3.6.4.1(c), 9.3.6.4.1(d), 9.3.6.4.2(2), 9.3.6.4.2(3), and 9.3.10.

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29.11 Settlements and Billing for EIM Market Participants.

- (a) **Applicability.** Section 29.11, rather than Section 11, shall apply to the CAISO Settlement with EIM Entity Scheduling Coordinators, EIM Sub-Entity Scheduling Coordinators, and EIM Participating Resource Scheduling Coordinators, except as otherwise provided, but not to other Scheduling Coordinators. Settlement of the Real-Time Market with EDAM Entity Scheduling Coordinators, EDAM Resource Scheduling Coordinators, and EDAM Load Serving Entity Scheduling Coordinators is also governed by Section 33.11. Settlement under Section 33.11 results in outcomes not produced for EIM Market Participants that are not EDAM Market Participants, including Settlement of Demand within an EDAM Entity Balancing Authority Area, Settlement of Supply from EDAM Resources that would otherwise be settled as non-participating resources in an EIM Entity Balancing Authority Area, sequential netting of Bid Cost Recovery from the RUC to the RTM, and Settlement of transfer revenue associated with an EDAM Transfer limit established in accordance with Section 33.7 and Section 33.18.
- (b) **Imbalance Energy.**
- (1) **FMM Instructed Imbalance Energy.**
- (A) **Calculation.**
- (i) **EIM Participating Resources.** The CAISO will calculate an EIM Participating Resource's FMM Instructed Imbalance Energy in the same manner as it calculates FMM Instructed Imbalance Energy under Section 11.5.1.1, except that references to the Day-Ahead Schedule in the relevant Appendix A definitions shall be deemed references to the EIM Base Schedule, unless the EIM Participating Resource is also an EDAM Resource (in which case the Day-Ahead Schedule will be referenced), and that the

CAISO will include any Energy from an EIM Manual Dispatch of the EIM Participating Resource in the FMM that is identified by the EIM Entity Scheduling Coordinator or EIM Sub-Entity Scheduling Coordinator prior to the start of the FMM.

- (ii) **Non-Participating Resources.** The CAISO will calculate the FMM Instructed Imbalance Energy of non-participating resources in an EIM Entity Balancing Authority Area in the same manner as it calculates FMM Instructed Imbalance Energy under Section 11.5.1.1, except that references to the Day-Ahead Schedule in the relevant Appendix A definitions shall be deemed references to the EIM Base Schedule, and that the CAISO will include any Energy from an EIM Manual Dispatch or EIM Auto-Match of the EIM non-participating resource in the FMM that is identified by the EIM Entity Scheduling Coordinator or EIM Sub-Entity Scheduling Coordinator prior to the start of the FMM.

(B) **Settlement.** The CAISO will settle –

- (i) the FMM Instructed Imbalance Energy with the EIM Participating Resource Scheduling Coordinator for EIM Participating Resources; and
- (ii) with the applicable EIM Entity Scheduling Coordinator or EIM Sub-Entity Scheduling Coordinator for non-participating resources in an EIM Entity Balancing Authority Area.

(2) **RTD Instructed Imbalance Energy.**

(A) **Calculation.**

- (i) **EIM Participating Resources.** The CAISO will calculate an EIM Participating Resource's RTD Instructed Imbalance Energy in the same manner in which it calculates RTD Instructed Imbalance Energy under Sections 11.5.1.2 and 11.5.5, except

that the CAISO will include any Energy from an EIM Manual Dispatch of the EIM Participating Resource in the RTD that is identified by the EIM Entity Scheduling Coordinator or EIM Sub-Entity Scheduling Coordinator.

- (ii) **Non-Participating Resources.** The CAISO will calculate the RTD Instructed Imbalance Energy of non-participating resources in an EIM Entity Balancing Authority Area in the same manner in which it calculates RTD Instructed Imbalance Energy under Section 11.5.1.2 and 11.5.5, except that the CAISO will include any Energy from an EIM Manual Dispatch or EIM Auto-Match of the EIM non-participating resource in the RTD that is identified by the EIM Entity Scheduling Coordinator or EIM Sub-Entity Scheduling Coordinator.

(B) **Settlement.** The CAISO will settle the RTD Instructed Imbalance Energy –

- (i) with the EIM Participating Resource Scheduling Coordinator for EIM Participating Resources; and
- (ii) with the applicable EIM Entity Scheduling Coordinator or EIM Sub-Entity Scheduling Coordinator for non-participating resources in an EIM Entity Balancing Authority Area.

(3) **Uninstructed Imbalance Energy.**

(A) **EIM Participating Resources.**

- (i) **Calculation.** For EIM Participating Resources and an EIM Entity Balancing Authority Area's dynamic import/export schedules with external resources, the CAISO will calculate Uninstructed Imbalance Energy in the same manner in which it calculates Uninstructed Imbalance Energy under Section 11.5.2.1.
- (ii) **Settlement.** The CAISO will settle the Uninstructed Imbalance

Energy with the EIM Participating Resource Scheduling Coordinator, the EIM Entity Scheduling Coordinator, or the EIM Sub-Entity Scheduling Coordinator, as applicable.

(B) **Non-Participating Resources.**

(i) **Calculation.** For non-participating resources in an EIM Entity Balancing Authority Area, the CAISO will calculate Uninstructed Imbalance Energy in accordance with Section 11.5.2, except that the CAISO will treat an EIM Base Schedule as a Day-Ahead Schedule and the CAISO will treat an EIM Manual Dispatch and an EIM Auto-Match as a Dispatch Instruction.

(ii) **Settlement.** The CAISO will settle the Uninstructed Imbalance Energy for non-participating resources in an EIM Entity Balancing Authority Area at the applicable RTD Locational Marginal Price in accordance with Section 11.5.2.1 with the applicable EIM Entity Scheduling Coordinator or EIM Sub-Entity Scheduling Coordinator and will treat EIM Entity Balancing Authority Demand in the same manner as the CAISO treats CAISO Demand under that Section.

(C) **Non-Participating Load.**

(i) **Calculation.** For non-participating Load in an EIM Entity Balancing Authority Area, the CAISO will calculate Uninstructed Imbalance Energy in accordance with Section 11.5.2.2, except that the CAISO will determine deviations based on the EIM Base Load Schedule unless associated with an EDAM Balancing Authority Area (in which case the CAISO will reference the Day-Ahead Schedule).

(ii) **Settlement.** The CAISO will settle Uninstructed Imbalance Energy for non-participating Load in an EIM Entity Balancing

Authority Area at the applicable Default LAP Hourly Real-Time Price in accordance with Section 11.5.2.2 with the applicable EIM Entity Scheduling Coordinator or EIM Sub-Entity Scheduling Coordinator and will treat EIM Entity Balancing Authority Demand in the same manner as the CAISO treats CAISO Demand under that Section.

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(e) **Neutrality Accounts.**

- (1) **In General.** The CAISO will collect neutrality amounts from EIM Market Participants to recover differences in Real-Time Market payments made and Real-Time Market payments received.
- (2) **Real-Time Congestion Offset.** The CAISO will assess EIM Entity Scheduling Coordinators a Real-Time Congestion Offset allocation calculated pursuant to Section 11.5.4.1.2.
- (3) **Real-Time Imbalance Energy Offset Allocation.** The CAISO will assess EIM Entity Scheduling Coordinators a Real-Time Imbalance Energy Offset allocation calculated pursuant to Section 11.5.4.1.1.
- (4) **Real-Time Marginal Cost of Losses Offset.** The CAISO will allocate the Real-Time Marginal Cost of Losses Offset to EIM Entity Scheduling Coordinators pursuant to Section 11.5.4.1.3.
- (5) **Marginal Greenhouse Gas Cost Offset.** The CAISO will allocate the Marginal Greenhouse Gas Cost Offset to a GHG Regulation Area's metered Demand pursuant to Section 11.5.4.1.4.
- (6) **EIM Transfer Revenue.** The CAISO will allocate EIM Transfer revenue to EIM Entity Scheduling Coordinators pursuant to Section 11.5.4.1.5.
- (7) **Other Neutrality Adjustments.** The CAISO will levy additional charges on or

make additional payments to EIM Market Participants as adjustments in accordance with Section 11.14.

(f) **Real-Time Bid Cost Recovery.**

- (1) **In General.** The CAISO will provide EIM Participating Resources RTM Bid Cost Recovery. The CAISO will net RUC Bid Cost Shortfalls and RUC Bid Cost Surpluses in accordance with Section 11.8.5 for EIM Participating Resources that are also EDAM Resources.
- (2) **Calculation of Real-Time Bid Cost Recovery.** The CAISO will calculate Real-Time Bid Cost Recovery in accordance with Section 11.8.4, except that the CAISO will treat a non-zero EIM Base Schedule of an EIM Participating Resource as an IFM Self-Schedule and the corresponding intervals as IFM self-commitment intervals.
- (3) **Application of Real-Time Performance Metric.**

The CAISO will adjust the RTM Energy Bid Cost, the RTM Market Revenues, and RTM Minimum Load Costs determined pursuant to Section 29.11(f)(2) by multiplying the Real-Time Performance Metric with those amounts for the applicable Settlement Interval pursuant to the rules specified in Section 11.8.4.4 and its subsections, except that the CAISO will treat an EIM Base Schedule as a Day-Ahead Schedule.
- (4) **Allocation of EIM Entity RTM Bid Cost Uplift.**
 - (A) **Calculation of Charge.** The Net RTM Bid Cost Uplift will be determined for each EIM Entity Balancing Authority Area in accordance with the methodology set forth in Section 11.8.6.
 - (B) **Settlement.** The CAISO will assess the Net RTM Bid Cost Uplift calculated for each EIM Entity Balancing Authority Area to the applicable EIM Entity Scheduling Coordinator in accordance with Section 11.8.6.6.(ii).

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(i) **EIM Administrative Charge.**

- (1) **In General.** The CAISO will charge EIM Market Participants an EIM Administrative Charge consisting of the real-portion of the Market Services Charge and the System Operations Charge.
- (2) **Market Services Charge.** The Market Services Charge shall be the product of the Market Services Charge for each Scheduling Coordinator as calculated according to the formula in Appendix F, Schedule 1, Part A, the real-time market percentage as calculated in the cost of service study according to Appendix F, Schedule 1, Part A, and the sum of Gross FMM Instructed Imbalance Energy (excluding FMM Manual Dispatch Energy) and Gross RTD Instructed Imbalance Energy (excluding RTD Manual Dispatch Energy Standard Ramping Deviation, Ramping Energy Deviation, Residual Imbalance Energy, and Operational Adjustments).
- (3) **System Operations Charge.** The System Operations Charge shall be the product of the System Operations Charge for each Scheduling Coordinator, as calculated according to the formula in Appendix F, Schedule 1, Part A, the real-time market percentage as calculated in the cost of service study conducted according to Appendix F, Schedule 1, Part A, and the absolute difference between metered energy and the EIM Base Schedules.
- (4) **Minimum EIM Administrative Charge.** The CAISO will calculate the minimum EIM Administrative Charge as the product of the sum of the real-time activities associated with market services charge and the real-time activities chart associated with system operations, as well as –
 - (A) five percent of the total gross absolute value of Supply of all EIM Market Participants; plus
 - (B) five percent of the total gross absolute value of Demand of all EIM Market Participants.

- (5) **Withdrawing EIM Entity.** If the EIM Entity notifies the CAISO of its intent to terminate participation in the Energy Imbalance Market and requests suspension of the Energy Imbalance Market in its Balancing Authority Area under Section 29.4(b)(4), the CAISO will charge the EIM Entity the minimum EIM Administrative Charge calculated under Section 29.11(i)(4) during the notice period.
- (6) **Application of Revenues.** The CAISO will apply revenues received from the EIM Administrative Charge against the costs to be recovered through the Grid Management Charge as described in Appendix F, Schedule 1, Part A.
- (7) **EDAM Administrative Charge.** An EIM Market Participant that is also an EDAM Market Participant will pay the EDAM Administrative Charge and will not pay the EIM Administrative Charge.

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(r) **EIM Transfer System Resource Settlement.**

- (1) **EIM Transfer System Resource Registration.** The CAISO will provide each EIM Entity with financially binding Settlement of Energy transfer schedule changes from its respective base schedules between EIM Entity Balancing Authority Areas, unless the EIM Entity Balancing Authority Areas are also EDAM Entity Balancing Authority Areas in which case transfer schedule changes will be referenced from the Day-Ahead Schedule for the EDAM Transfer, and will –
- (A) establish for each EIM Entity that shares an EIM Internal Intertie a to/from EIM Transfer System Resource pricing location in their respective EIM Entity Balancing Authority Area;
- (B) associate with each to/from EIM Transfer System Resource pricing location, a unique base EIM Transfer System Resource that accounts for Energy transfer schedule changes between EIM Entity Balancing Authority Areas;
- (C) require each EIM Entity Scheduling Coordinator to submit EIM Base

Schedules and E-Tags that identifies Energy transfer schedule changes at the registered base EIM Transfer System Resource; and

- (D) reject EIM Base Schedule changes at the to/from EIM Transfer System Resource pricing location not associated with the registered base EIM Transfer System Resource.

(2) **Settlement for EIM Transfer System Resource Changes.** The CAISO will settle EIM Transfer System Resource changes established pursuant to Section 29.11(r)(1) as –

- (A) FMM Instructed Imbalance Energy or RTD Instructed Energy based on the Settlement Interval in which the E-Tag is received, without regard for other Energy types identified in Sections 11.5.1.1 or 11.5.2.2, or as an Operational Adjustment if the E-Tag is received after the end of the Operating Hour for purposes of Energy accounting in accordance with the applicable WECC business practices;
- (B) based on the difference between the E-Tag and the EIM Transfer System Resource base schedule;
- (C) at the relevant FMM or RTD Locational Marginal Price at each unique EIM Transfer System Resource pricing location associated with the base EIM Transfer System Resource; and
- (D) including any contribution that the base EIM Transfer System Resource might have on the RTM Bid Cost Recovery pursuant to Section 29.11(f).

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29.17 EIM Transmission System

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- (f) **EIM Transfer Availability.**

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- (6) **EIM Transfer Limit Constraints.** The CAISO's Security Constrained Economic Dispatch in the Real-Time Unit Commitment and Real-Time Dispatch shall enforce the EIM Transfer limit and the associated physical limit at each EIM Internal Intertie.
- (7) **EIM Transfer Limits at EDAM Interties.** The CAISO will not re-optimize EDAM Transfer limits established in accordance with Section 33.16, Section 33.17, and Section 33.18 in the Real-Time Market, and will establish separate EIM Transfer limits to represent other transmission capacity from the Day-Ahead Market at each EDAM Internal Intertie.

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29.29 EIM Relationship to EDAM

The provisions of this Section 29 apply to EIM Market Participants and EDAM Market Participants, in addition to Section 33, which includes requirements applicable to EDAM Market Participants that are not applicable to EIM Market Participants.

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29.31 Day-Ahead.

EIM Entity Scheduling Coordinators, EIM Sub-Entity Scheduling Coordinators and EIM Participating Resource Scheduling Coordinators may not submit Bids in the CAISO's Day-Ahead Market on behalf of EIM Market Participants that they represent in their capacity as an EIM Entity Scheduling Coordinator, EIM Sub-Entity Scheduling Coordinator, or EIM Participating Resource Scheduling Coordinator, unless participation in the Day-Ahead Market is enabled within an EIM Entity Balancing Authority Area in

accordance with Section 33, in which case participation in the Day-Ahead Market by EDAM Market Participants is governed by Section 33 and execution of the associated agreement in Appendix B is required to support participation in the Day-Ahead Market.

29.32 Greenhouse Gas Regulation and GHG Bid Adders.

(a) GHG Bid Adders.

(1) In General. EDAM Resource Scheduling Coordinators, EIM Participating Resource Scheduling Coordinators, and Scheduling Coordinators for resources within the CAISO Balancing Authority Area will have an opportunity to recover costs of compliance with GHG regulations adopted by a state jurisdiction that has priced GHG emissions as part of a state GHG reporting and reduction program.

(2) Bid Adders. The Fifteen-Minute Market and Real-Time Dispatch will use GHG Bid Adders submitted by EDAM Resource Scheduling Coordinators and EIM Participating Resource Scheduling Coordinators for resources located outside of a specific GHG Regulation Area to optimize the attribution of GHG Transfers into that GHG Regulation Area.

The Fifteen-Minute Market and Real-Time Dispatch will use GHG Bid Adders submitted by EDAM Resource Scheduling Coordinators and EIM Participating Resource Scheduling Coordinators for resources located within the GHG Regulation Area of the State of Washington to optimize the attribution of GHG Transfers into GHG Regulation Areas outside of the State of Washington.

The Fifteen-Minute Market and Real-Time Dispatch will use GHG Bid Adders submitted by EDAM Resource Scheduling Coordinators, EIM Participating Resource Scheduling Coordinators, and Scheduling Coordinators for resources located within the GHG Regulation Area of the State of California to optimize the attribution of GHG Transfers into GHG Regulation Areas outside of the State of California.

For purposes of this Section 29.32, GHG Regulation Areas will reflect the Pricing Nodes of the CAISO Balancing Authority Area, an EDAM Entity Balancing Authority Area or an EIM Entity Balancing Authority Area within the GHG boundary as defined by a state jurisdiction that has priced GHG emissions as part of a state GHG reporting and reduction program. GHG Regulation Areas modeled in the Fifteen-Minute Market and Real-Time Dispatch may include Pricing Nodes in addition to Pricing Nodes for GHG Regulation Areas modeled in the Day Ahead Market, because the EIM Area may include EIM Entity Balancing Authority Areas located within the GHG boundary area as defined by a state jurisdiction that has priced GHG emissions as part of a state GHG reporting and reduction program that are not participating in the Day-Ahead Market.

Scheduling Coordinators, EDAM Resource Scheduling Coordinators and EIM Participating Resource Scheduling Coordinators for resources located inside a specific GHG Regulation Area will not submit GHG Bid Adders to serve Demand within that GHG Regulation Area.

Scheduling Coordinators for resources with Pseudo-Tie arrangements or Dynamic Schedules into the CAISO Balancing Authority Area that register in the Master File that their resources' capacity is associated with serving Demand in the GHG Regulation Area within the State of California will not submit GHG Bid Adders.

EDAM Resource Scheduling Coordinators for resources with Pseudo-Tie arrangements or Dynamic Schedules into an EDAM Entity Balancing Authority Area with Demand in the State of California that register in the Master File that their resources' capacity is associated with serving Demand in the GHG Regulation Area within the State of California will not submit GHG Bid Adders.

EDAM Resource Scheduling Coordinators for resources with Pseudo-Tie arrangements or Dynamic Schedules into an EDAM Balancing Authority Area

with Demand in the State of Washington that register in the Master File that their resources' capacity is associated with serving Demand in the GHG Regulation Area within the State of Washington will not submit GHG Bid Adders.

EIM Participating Resource Scheduling Coordinators for resources with Pseudo-Tie arrangements or Dynamic Schedules into an EIM Balancing Authority Area with Demand in the State of California that register in the Master File that their resources' capacity is associated with serving Demand in the GHG Regulation Area within the State of California will not submit GHG Bid Adders.

EIM Participating Resource Scheduling Coordinators for resources with Pseudo-Tie arrangements or Dynamic Schedules into an EIM Balancing Authority Area with Demand in the State of Washington that register in the Master File that their resources' capacity is associated with serving Demand in the GHG Regulation Area within the State of Washington will not submit GHG Bid Adders.

(A) Bid Submission.

EDAM Resource Scheduling Coordinators for resources located outside of a GHG Regulation Area may submit a separate GHG Bid Adder as an hourly Bid component specific to each GHG Regulation Area.

EIM Participating Resource Scheduling Coordinators for resources located outside of a GHG Regulation Area may submit a separate GHG Bid Adder as an hourly Bid component specific to each GHG Regulation Area.

Scheduling Coordinators for resources located within the GHG Regulation Area of the State of California may submit a GHG Bid Adder as an hourly Bid component for the GHG Regulation Area outside of the State of California.

Scheduling Coordinators for resources located within the GHG Regulation Area of the State of Washington may submit a GHG Bid

Adder as an hourly Bid component for the GHG Regulation Area outside of the State of Washington.

GHG Bid Adders will consist of a price and MW quantity. The price included in the EIM Bid Adder will not be less than \$0/MWh and not greater than 110% of the resource's GHG maximum compliance cost as determined in accordance with Section 29.32(a)(3).

(B) Default Treatment. If a resource located outside of a specific GHG Regulation Area does not have a GHG Bid Adder, the Fifteen-Minute Market and Real-Time Dispatch will not select the resource for attribution into that GHG Regulation Area.

(3) Determination of EIM Maximum GHG Bid Adder.

The CAISO will calculate maximum daily GHG Bid Adders for each EDAM Resource, each EIM Resource, and each resource located within the CAISO Balancing Authority Area in relation to GHG Regulation Areas, as applicable, based on the resource's highest average heat rate on its heat rate curve, the applicable Greenhouse Gas Allowance Price, and the resource's applicable emission rate. The CAISO will perform this calculation in accordance with the provisions of the applicable Business Practice Manual. The CAISO will also provide for an option to negotiate a maximum daily GHG Bid Adder for each GHG Regulation Area in accordance with the provisions of the applicable Business Practice Manual.

(4) GHG Bid Adder Price. The price included in the GHG Bid Adder will not be less than \$0/MWh. The sum of the GHG Bid Adder price and the Energy Bid price may not exceed the Soft Energy Bid Cap unless the sum of a resource's relevant maximum daily GHG Bid Adder and Default Energy Bid as adjusted pursuant to Section 30.11 exceeds the Soft Energy Bid Cap. In this case, the sum of a resource's GHG Bid Adder and Energy Bid price may not exceed the sum of the

relevant maximum daily GHG Bid Adder and the resource's Default Energy Bid or the Hard Energy Bid Cap, whichever is lower.

(b) Consideration of GHG Bid Adders in Market Clearing.

(1) Dispatch of Resources with Nonzero GHG Bid Adders.

The CAISO's Security Constrained Economic Dispatch in the Fifteen-Minute Market and Real-Time Dispatch will take into account GHG Bid Adders in selecting Energy produced by EDAM Resources located outside of a specific GHG Regulation Area up to the associated MW quantity included in the GHG Bid Adder to serve Demand within that GHG Regulation Area.

The CAISO's Security Constrained Economic Dispatch in the Fifteen-Minute Market and Real-Time Dispatch will take into account GHG Bid Adders in selecting Energy produced by resources located within the GHG Regulation Area of the State of California up to the associated MW quantity included in the GHG Bid Adder to serve Demand in the GHG Regulation Area outside the State of California.

The CAISO's Security Constrained Economic Dispatch in the Fifteen-Minute Market and Real-Time Dispatch will take into account GHG Bid Adders in selecting Energy produced by resources located within the GHG Regulation Area of the State of Washington up to the associated MW quantity included in the GHG Bid Adder to serve Demand in the GHG Regulation Area outside the State of Washington.

The CAISO's Security Constrained Economic Dispatch in the Fifteen-Minute Market and Real-Time Dispatch will not consider GHG Bid Adders when selecting EDAM Resource Facilities, EIM Resources, or resources located within the CAISO Balancing Authority Area to serve Demand outside of GHG Regulation Areas.

(2) Maximum GHG MW Attribution Quantity. The Fifteen-Minute Market and Real-Time Dispatch will limit the total GHG attribution to an EDAM Resource Facility located outside GHG Regulation Areas to serve Demand in GHG Regulation Areas to a value equal to the lower of (i) the MW value in the EDAM Resource's GHG Bid Adder, (ii) the EDAM Resource's upper Economic Bid minus the EDAM Resource Facility's Day-Ahead Energy Schedule plus the EDAM Resource Facility's total Day-Ahead Market GHG attribution, considering any applicable derates and Ancillary Services capacity reservations, for the relevant Operating Hour, or (iii) the EDAM Resource Facility's Real-Time Market Energy Schedule.

The Fifteen-Minute Market and Real-Time Dispatch will limit the maximum GHG Bid Adder MW quantity of an EIM Participating Resource located outside GHG Regulation Areas to a value equal to the lower of (i) the MW value in the EIM Participating Resource's GHG Bid Adder; (ii) the EIM Participating Resource's dispatchable Bid range between the EIM Participating Resource's EIM Base Schedule and the EIM Participating Resource's effective upper Economic Bid, considering any applicable derates and Ancillary Services capacity reservations, for the relevant Operating Hour, or (iii) the EIM Participating Resource's Real-Time Market Energy Schedule.

The Fifteen-Minute Market and Real-Time Dispatch will limit the maximum GHG Bid Adder MW quantity of a resource located within the CAISO Balancing Authority Area to serve Demand in a GHG Regulation Area outside of the State of California to a value equal to the lower of (i) the MW value in the resource's GHG Bid Adder; (ii) the resource's upper Economic Bid minus the resource's Day-Ahead Energy Schedule plus the EDAM Resource's total Day-Ahead Market GHG attribution, considering any applicable derates and Ancillary Services capacity reservations, for the relevant Operating Hour, or (iii) the resource's Real-Time Market Energy Schedule.

(3) Dispatch of EIM Participating Resources Bid Adders of Zero. The CAISO's Security Constrained Economic Dispatch in the Fifteen-Minute Market and Real-Time Dispatch will not dispatch resources located outside a GHG Regulation Area for delivery into that GHG Regulation Area if the MW quantity included in the GHG Bid Adder is zero.

(c) GHG Marginal Cost.

The CAISO's Security Constrained Economic Dispatch in the Fifteen-Minute Market and Real-Time Dispatch will take into account Energy Bids and GHG Bids, optimally select resources located outside of a GHG Regulation Area to support GHG Transfers into a GHG Regulation Area until the total MW of GHG Transfers into the respective GHG Regulation Area is fully allocated. The Shadow Price of this allocation constraint is the Marginal GHG Cost for the respective GHG Regulation Area.

(d) Compensation.

EIM Resource Scheduling Coordinators and EDAM Resource Scheduling Coordinators will receive GHG settlements pursuant to Section 11. When the Real-Time Market attributes a resource located outside of a GHG Regulation Area to support a GHG Transfer to serve Demand in a GHG Regulation Area, the applicable Scheduling Coordinator for the resource will receive a payment equaling the product of the GHG Transfer to the GHG Regulation Area attributed to the resource in the Real-Time Market at the applicable Real-Time Market Marginal GHG Cost for that GHG Regulation Area.

29.32.1 GHG Net Export Constraint

The CAISO's Security Constrained Economic Dispatch in the Fifteen-Minute Market and Real-Time Dispatch will apply a net export constraint for EDAM Entity and EIM Entity Balancing Authority Areas that do not overlap with a GHG Regulation Area. This constraint will limit the aggregate attribution of EDAM Resource Facilities within a specific EDAM Entity Balancing Authority Area or EIM Participating Resources within an EIM Entity Balancing Authority Area such that the aggregate attribution does not exceed the net exports from that Balancing Authority Area. This constraint will also limit the

aggregate attribution of resources within a specific GHG Regulation Area to serve Demand in another GHG Regulation Area such that the attribution may not exceed the net exports from these resources' native Balancing Authority Areas. This constraint will not restrict the Real-Time Market from attributing capacity located outside of a specific GHG Regulation Area obligated to serve Demand within that GHG Regulation Area that is registered with the CAISO in accordance with the applicable Business Practice Manual. The CAISO will not enforce this constraint for any Balancing Authority Area in the EIM Area and during any Real-Time Market interval in which the CAISO Balancing Authority Area, an EDAM Entity Balancing Authority Area, or an EIM Entity Balancing Authority Area with Demand in a GHG Regulation Area is deficient in the upward direction for purposes of the capacity or flexibility tests described Section 29.34.

29.32.2 Data Availability

(a) Notification. The CAISO will notify an EDAM Resource Scheduling Coordinator of the portion of the FMM Energy Schedule and the portion of the RTD Energy Dispatch that support a GHG Transfer to serve Demand in a GHG Regulation Area as part of the Real-Time Market results publication.

The CAISO will notify an EIM Participating Resource Scheduling Coordinator of the portion of the FMM Energy Schedule and the portion of the RTD Energy Dispatch that support a GHG Transfer to serve Demand in a GHG Regulation Area as part of the Real-Time Market results publication.

The CAISO will notify the Scheduling Coordinator for a resource located in the CAISO Balancing Authority Area of the portion of the resource's FMM Energy Schedule and the portion of the RTD Energy Dispatch that support a GHG Transfer to serve Demand in a GHG Regulation Area as part of the Real-Time Market results publication.

(b) Disclosure. The CAISO may disclose information related to GHG Transfers to a Government Authority, so long as such information does not disclose confidential information of any individual Market Participant.

29.33 [Not Used]

29.34 EIM Operations

- (a) **In General.** Section 34, as supplemented by provisions in Section 29.34, will govern the operation of the Real-Time Market within the EIM Area. Operation of the Real-Time Market within the EDAM Area is further supplemented by Section 33, which produces outcomes that satisfy or modify certain requirements otherwise applicable to EIM Market Participants, including a Day-Ahead Schedule instead of a submitted EIM Base Schedule and an initial EIM Base Load Schedule, pools of Balancing Authority Areas for purposes of the EIM Resource Sufficiency Evaluation, and Energy transfers between Balancing Authority Areas with equal scheduling priority to Demand.
- (b) **Applicability.** EIM Entity Scheduling Coordinators, EIM Sub-Entity Scheduling Coordinators, and EIM Participating Resource Scheduling Coordinators will submit EIM Base Schedules and other necessary information to the CAISO for use in the Real-Time Market pursuant to Section 29.34 and not pursuant to Section 34.
- (c) **Submission Deadlines.** If an EIM Entity Scheduling Coordinator, EIM Sub-Entity Scheduling Coordinator, or EIM Participating Resource Scheduling Coordinator fails to submit an EIM Base Schedule according to the timelines established in this Section 29.34, the CAISO will not accept the EIM Base Schedule or use it in the Real-Time Market.
- (d) **Demand Forecast.**
- (1) **In General.** In accordance with procedures set forth in the Business Practice Manual for the Energy Imbalance Market, the CAISO shall develop short-term and mid-term Demand Forecasts by Demand Forecast zone within each EIM Entity Balancing Authority Area, separately from the CAISO Balancing Authority Area, and, as needed for the EDAM Upward Pool or EDAM Downward Pool.
- (2) **Short Term Forecast.** The CAISO's short-term Demand Forecast for an EIM Entity Balancing Authority Area shall produce a value every five minutes for the duration of the CAISO's Dispatch horizon, which has five-minute granularity and extends several Dispatch Intervals.

* * * * *

(l) **EIM Resource Sufficiency Evaluation – Capacity Test.**

(1) **Requirement.**

The Supply, as applicable and as detailed in Business Practice Manuals, included in—

- (A) the EIM Resource Plan must meet the Demand Forecast for each EIM Entity Balancing Authority Area, and
- (B) the RUC Schedules, the HASP Advisory Schedules and HASP Intertie Block Schedules or the FMM Schedules must meet the Demand Forecast for the CAISO Balancing Authority Area.

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(m) **EIM Resource Sufficiency Evaluation – Flexibility Test.**

(1) **Review.**

- (A) **Individual EIM Entity Balancing Authority Areas.** The CAISO will review the EIM Resource Plan for an EIM Entity Balancing Authority Area pursuant to the process set forth in the Business Practice Manual for the Energy Imbalance Market and verify that it has sufficient Bids for Ramping capability, accounting for Sections 29.34(l)(2)(A)(iii), 29.34(l)(2)(A)(iv), 29.34(l)(2)(B)(iv) and 29.34(l)(2)(D), to meet the EIM Entity Balancing Authority Area upward and downward Ramping requirements within a one percent or one MW tolerance, as adjusted pursuant to Sections 29.34(m)(2), (3), and (7).
- (B) **CAISO Balancing Authority Area.** The CAISO will review the RUC Schedules, the HASP Advisory Schedules and HASP Intertie Block

Schedules or the FMM Schedules in the CAISO Balancing Authority Area pursuant to the process set forth in the Business Practice Manual for the Energy Imbalance Market and verify that it has sufficient Bids for Ramping capability, accounting for Sections 29.34(l)(2)(A)(iii), 29.34(l)(2)(A)(iv) and 29.34(l)(2)(B)(iv), to meet the CAISO Balancing Authority Area upward and downward Ramping requirements within a one percent or one MW tolerance, as adjusted pursuant to Sections 29.34(m)(2), (3), and (7), provided that the benefit of the exclusion of the export schedules which may be curtailed in accordance with Section 34.12.4(a) or 34.12.4(b) will be reflected in the upward capacity test results for the CAISO Balancing Authority Area.

- (C) **EIM Resource Sufficiency Evaluation for the Balancing Authority Areas in the EDAM Area.** Consistent with Section 33.31.1.4, the CAISO will evaluate resource sufficiency of the Balancing Authority Areas in the EDAM Area solely pursuant to this Section 29.34(m). The CAISO will consider all Day-Ahead Market awards for Energy, Imbalance Reserves, and Reliability Capacity as supply prior to testing an individual Balancing Authority Area in the EDAM Area for EIM resource sufficiency. The CAISO will evaluate the EDAM Upward Pool to verify that it has sufficient Bids and Ramping capability to meet the Upward Uncertainty Requirement for the EDAM Upward Pool within a one percent or one MW tolerance, as adjusted pursuant to Sections 29.34(m)(2)-(5). The CAISO will evaluate the EDAM Downward Pool to verify that it has sufficient Bids and Ramping capability to meet the Downward Uncertainty Requirement for the EDAM Downward Pool within a one percent or one MW tolerance, as adjusted pursuant to Sections 29.34(m)(2)-(5). A Balancing Authority in the EDAM Area not included in the EDAM Upward Pool or EDAM Downward Pool will be evaluated in

the same manner as an individual EIM Balancing Authority Area.

(D) **Power Balance Constraint and Load Conformance Considerations.**

The CAISO, pursuant to the process set forth in the Business Practice Manual for the Energy Imbalance Market, will consider the quantity of any power balance constraint relaxation in the Real-Time Market solution, while excluding from consideration any constraint relaxation due to Load conformance in the Real-Time Market solution, in the determination of whether sufficient Bids for Ramping capability are available to meet the upward and downward Ramping requirements in accordance with this Section 29.34(m)(1).

(2) **Determination of Diversity Benefits.** The CAISO will calculate separately the upward and downward EIM Diversity Benefits as the difference between the sum of the upward and downward Uncertainty Requirements for all Balancing Authority Areas in the EIM Area, and the Uncertainty Requirement for the EIM Area. The Diversity Benefits for a Balancing Authority Area in the EDAM Area is its proportional amount of the difference between the sum of each Balancing Authority Area's individual Imbalance Reserve requirement and the EDAM Area Imbalance Reserve requirements, with the CAISO calculating the Imbalance Reserve requirements for each Balancing Authority Area independently and for the EDAM Area as a whole.

(3) **Effects of Diversity Benefits for EIM Entities that Are Not Balancing Authorities in the EDAM Area.** For each Balancing Authority Area in the EIM Area that is not a Balancing Authority Area in the EDAM Area, the CAISO will reduce the upward and downward Uncertainty Requirements by the Balancing Authority Area's pro rata share of the upward and downward EIM Diversity Benefit in the EIM Area as may be limited by –

(A) the available net import EIM Transfer capability into that Balancing Authority Area in the case of an upward Uncertainty Requirement; and

- (B) the available net export EIM Transfer capability from that Balancing Authority Area in the case of a downward Uncertainty Requirement.
- (4) **Effect of Diversity Benefit for Balancing Authority Areas that Are Within the Pool of EDAM Balancing Authority Areas.** For each Balancing Authority Area that is included in the pool of Balancing Authority Areas in the EDAM Area as provided in Section 33.31.1.4, the EIM RSE will hold a portion of the Diversity Benefit from allocation and reflect this quantity as additional global procurement of Imbalance Reserves for the EDAM Area as provided in the Business Practice Manuals for purposes of the EIM RSE. If the pool of Balancing Authority Areas in the EDAM Area is subdivided for purposes of accepting the assistance Energy transfer product as provided in Section 29.34(n)(3)(C), each sub-pool will carry with it and leverage the Diversity Benefit of the entities within the sub-pool.
- (5) **Effect of Diversity Benefit for Balancing Authority Areas in the EDAM Area that Are not Within the Pool of EDAM Balancing Authority Areas.** The EIM RSE will consider the effects of dynamic transfers from the members of the EDAM Upward Pool and EDAM Downward Pool to the Balancing Authority Area not included in the pool as provided in Section 33.31.1.4, pursuant to the procedures the Business Practice Manuals.
- (6) **Determination of Flexible Ramping Sufficiency Credit.** The CAISO will calculate for each Balancing Authority Area in the EIM Area, the upward flexible Ramping sufficiency credit as the outgoing EIM Transfer from that area and the downward flexible Ramping sufficiency credit as the incoming EIM transfer into that area.
- (7) **Effect of Flexible Ramping Sufficiency Credit.** The CAISO will reduce the upward Uncertainty Requirement of a Balancing Authority Area in the EIM Area by its upward flexible Ramping sufficiency credit, and will reduce the downward Uncertainty Requirement of a Balancing Authority Area in the EIM Area by its downward flexible Ramping sufficiency credit.

(n) **Effect of EIM Resource Capacity or Flexibility Insufficiency.**

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(3) **Assistance Energy Transfers.**

(A) **In General.** A Balancing Authority Area in the EIM Area may obtain assistance Energy transfers into its Balancing Authority Area prior to December 31, 2025 if its Scheduling Coordinator has submitted to the Master File a designation to accept automatically incremental EIM Transfer imports and pay the associated EIM Assistance Energy Transfer Surcharge following the failure of the upward capacity test in Section 29.34(l) or the upward flexibility test in Section 29.34(m) in accordance with the timelines and procedures included in the Business Practice Manual for the Energy Imbalance Market. Consistent with the requirements in the Business Practice Manual, the CAISO will issue a market notice prior to the CAISO Balancing Authority Area accepting assistance Energy transfers as provided in this section, with such election to remain in effect unless the CAISO issues a market notice at least 5 Business Days prior to withdrawing or resuming its participation.

(B) **Assistance Energy Transfer Product.** If a participating Balancing Authority Area in the EIM Area has opted-in to receive assistance Energy transfers consistent with the process requirements set forth in the Business Practice Manuals and the participating Balancing Authority Area fails the upward capacity test in Section 29.34(l) or the upward flexibility test in Section 29.34(m) then—

- (i) the Balancing Authority Area will not be subject to the capacity test or flexibility test failure consequences in Section 29.34(n);
- (ii) the Balancing Authority Area will pay the EIM Assistance Energy

Transfer Surcharge according to Section 29.11(t).

- (C) **Access to the Assistance Energy Transfer Product for pooled Balancing Authority Areas within the EDAM Area.** A Balancing Authority Area in the EDAM Area that is pooled together with other Balancing Authority Areas within the EDAM Area as part of the EDAM Upward Pool or EDAM Downward Pool pursuant to Section 33.31.1.4 may elect to receive assistance Energy transfers. If the Balancing Authority Areas in the EDAM Area that are pooled together for purposes of the EIM RSE do not uniformly elect to receive assistance Energy transfers, then the EDAM Upward Pool will be subdivided into two sub-pools: those Balancing Authority Areas in the EDAM Area that elect to receive assistance Energy transfers and those Balancing Authority Areas in the EDAM Area that do not elect to receive assistance Energy transfers. If the EDAM Upward Pool, or its sub-pool as applicable, elects to receive assistance Energy transfers and fails the upward flexibility test in Section 29.34(m) then:
- (i) The EDAM Upward Pool, or its sub-pool as applicable, will not be subject to the failure consequences of Section 29.34(n)(1)(B) or Section 29.34(n)(2)(B); and
 - (ii) the EDAM Upward Pool, or sub-pool as applicable, will receive an assistance Energy transfer and will be assessed the EIM Assistance Energy Transfer Surcharge according to Section 29.11(t), with any revenue or Surcharges distributed to the EDAM Upward Pool to be allocated *pro-rata* to the members of the EDAM Upward Pool, or sub-pool as applicable, that received the assistance Energy transfers.
- (D) **Sunset Period.** This Section 29.34(n), together with Section 29.11(t), will terminate on December 31, 2025.

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(r) **Use of EIM Available Balancing Capacity.**

- (1) **In General.** The CAISO will use EIM Available Balancing Capacity identified in the EIM Resource Plan to address power balance constraint infeasibilities in the EIM Balancing Authority Area for which the EIM Available Balancing Capacity is designated by the responsible EIM Entity Scheduling Coordinator, while simultaneously participating in Congestion Management.
- (2) **EIM Resource Sufficiency Evaluations.** The CAISO will not apply the EIM Available Balancing Capacity towards its evaluation of the resource sufficiency tests specified in Section 29.34(k), (l), and (m).

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29.39 EIM Market Power Mitigation.

- (a) **EIM Market Power Mitigation Procedure.** The CAISO shall apply the Real-Time Local Market Power Mitigation procedure in Section 39.7 to the Energy Imbalance Market, including EIM Transfer constraints into an EIM Entity Balancing Authority Area on an EIM Internal Intertie, except as provided in Section 29.39. In relation to power balance constraints within the EDAM Area and EIM Area, the Marginal Energy Cost in the CAISO Balancing Authority Area will reflect a competitive marginal energy price. For this purpose, when an EDAM Balancing Authority Area's or EIM Balancing Authority Area's Marginal Energy Cost is greater than CAISO Balancing Authority Area's Marginal Energy Cost, then Real-Time Local Market Power Mitigation process will apply the competitive path assessment. If non-competitive conditions exist, the Real-Time Local Market Power Mitigation process will treat the differential between the Marginal Energy Cost in the CAISO Balancing Authority Area and the Marginal Energy Cost in the EDAM Balancing Authority Area or EIM Balancing Authority Area similar to the non-competitive component of the Marginal Cost of Congestion in CAISO's Local Market Power Mitigation process

and will subject resources' Bids to mitigation procedures. **(b) Competitive Path**

Assessment. The CAISO shall conduct the competitive path assessment to determine for each EDAM Balancing Authority Area and EIM Entity Balancing Authority Area whether a path is competitive or non-competitive, consistent with Section 39.7.2, except that –

- (1) EDAM Resource Scheduling Coordinators and EIM Participating Resource Scheduling Coordinators shall submit information required by the CAISO to perform the competitive path assessment;
- (2) the competitive path assessment shall not exclude EDAM Resources or EIM Participating Resources from the test used to determine the competitiveness of Transmission Constraints on the basis that they may be net buyers of Energy in the Real-Time Market; and
- (3) the CAISO may establish different Reference Buses for each Balancing Authority Area, which need not be within the Balancing Authority Area, for calculating the LMP decomposition which is used to trigger Bid mitigation, based on the topology of each Balancing Authority Area and consideration of the bus at which the Marginal Cost of Congestion component of Locational Marginal Prices is least influenced by market power.

(c) Locational Marginal Price Decomposition. The CAISO shall perform the Locational Marginal Price decomposition within each EDAM Entity Balancing Authority Area and EIM Entity Balancing Authority Area using the results of the competitive path assessment and the Congestion pricing results of the premarket run to determine which resources may have local market power due to Congestion on a non-competitive Transmission Constraint, consistent with Section 34.2.3 and 39.7.

(d) Default Energy Bids. The CAISO shall use the methods and standards set forth in Section 39.7 to determine Default Energy Bids for EDAM Resources and EIM Participating Resources, except that the CAISO will use the Market Services Charge and system operations charges described in Section 33.11.6 reflected in the EDAM

Administrative Charge or Section 11.22.2 reflected in the EIM Administrative Charge, as applicable.

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Section 30

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-Provided Ancillary Services. 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.

30.1.1 Day-Ahead Market

Bids submitted in the DAM apply to the twenty-four (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. Bids for the Regulation Up, Regulation Down, Spinning Reserve, and Non-Spinning Reserve service in the Day-Ahead Market must be received by Market Close for the Day-Ahead Market. The Bids shall include information for each of the twenty-four (24) Settlement Periods of the Trading Day. Failure to provide the information within the stated time frame shall result in the Bids being declared invalid by the CAISO. Scheduling Coordinators may submit Bids for the DAM as early as seven (7) days ahead of the targeted Trading Day.

30.1.2 Real-Time Market

Economic Bids and Self-Schedules submitted in the RTM apply to a single Trading Hour and are used for all market processes of the RTM. The CAISO will require Scheduling Coordinators to honor their Day-Ahead Ancillary Services Awards when submitting Ancillary Services Bids in the RTM. Bids for Regulation Up, Regulation Down, Spinning Reserve, and Non-Spinning Reserve service for each Settlement Period must be received at least seventy-five minutes prior to the commencement of that

Settlement Period. The Bids shall include information for only the relevant Settlement Period. Failure to provide the information within the stated timeframe shall result in the Bids being declared invalid and rejected by the CAISO.

30.2 Bid Types

There are four types of Bids: Energy Bids (which include Virtual Bids), Ancillary Services Bids, Imbalance Reserves Bids, and RUC Availability Bids. Energy Bids that are not Virtual Bids, and Ancillary Services Bids can be submitted as either an Economic Bid or a Self-Schedule. All other bid types must be submitted as Economic Bids. 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 (where Self-Schedules are otherwise permitted), may be either Supply Bids, Demand Bids, Virtual Supply Bids, or Virtual Demand Bids. Ancillary Services Bids, RUC Availability Bids, and Imbalance Reserves 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 four 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.

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30.5 Bidding Rules

30.5.1 General Bidding Rules

- (a) All Bids submitted by Scheduling Coordinators to the DAM 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 seven (7) days prior to the Trading Day. All Energy and Ancillary Services Bids of each Scheduling Coordinator submitted to the RTM for the following Trading Day shall be submitted starting from the time of publication of DAM results for the Trading Day, and ending seventy-five (75) minutes prior to each applicable Trading Hour in the

- RTM. Scheduling Coordinators may submit only one set of Bids to the RTM for a given Trading Hour, which the CAISO uses for all Real-Time Market processes. ;
- (b) Bid prices submitted by a Scheduling Coordinator for Energy accepted and cleared in the IFM and scheduled in the Day-Ahead Schedule may be increased or decreased in the RTM . Bid prices for Energy submitted but not scheduled in the Day-Ahead Schedule may be increased or decreased in the RTM. Incremental Bid prices for Energy associated with Day-Ahead AS or RUC Awards in Bids submitted to the RTM may be revised.
 - (c) A Scheduling Coordinator may submit in the Real-Time Market new daily Start-Up Bids, Minimum Load Bids, and Transition Bids for resources and MSG Configurations for which the Scheduling Coordinator previously submitted such Bids in the Day-Ahead Market, except for: (1) Trading Hours in which a resource or MSG Configuration has received a Day-Ahead Schedule or has received a Start-Up Instruction in RUC; and (2) Trading Hours that span the Minimum Run Time of the resource or MSG Configuration after the CAISO has committed the resource or the Scheduling Coordinator has self-committed the resource in the RTM.
 - (d) Scheduling Coordinators may revise ETC Self-Schedules for Supply in the RTM to the extent such a change is consistent with TRTC Instructions provided to the CAISO by the Participating TO in accordance with Section 16.
 - (e) Scheduling Coordinators may revise TOR 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 Non-Participating TO in accordance with Section 17. Energy associated with awarded Ancillary Services capacity cannot be offered in the Real-Time Market separate and apart from the awarded Ancillary Services capacity.
 - (f) Scheduling Coordinators may submit Energy Bids, AS Bids and RUC Bids in the DAM that are different for each Trading Hour of the Trading Day.
 - (g) 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.

- (h) 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 and the accuracy of information submitted to the CAISO pursuant to this Section 30.
- (i) In order to retain the priorities specified in Section 31.4 and 34.12 for scheduled amounts in the Day-Ahead Schedule associated with ETC and TOR Self-Schedules or Self-Schedules associated with Regulatory Must-Take Generation, a Scheduling Coordinator must submit to the Real-Time Market ETC or TOR Self-Schedules, or Self-Schedules associated with Regulatory Must-Take Generation, at or below the Day-Ahead Schedule quantities associated with the scheduled ETC, TOR, or Regulatory Must-Take Generation Self-Schedules. If the Scheduling Coordinator fails to submit such Real-Time Market ETC, TOR, or Regulatory Must-Take Generation Self-Schedules, the defined scheduling priorities of the ETC, TOR, or Regulatory Must-Take Generation Day-Ahead Schedule quantities may be subject to adjustment in the HASP and the Real-Time Market as further provided in Sections 31.4 and 34.12 in order to meet operating conditions.
- (j) For Multi-Stage Generating Resources that receive a Day-Ahead Schedule, RUC Award, or Ancillary Services Award, the Scheduling Coordinator must submit an Energy Bid in the Real-Time Market for the same Trading Hour(s). If the Scheduling Coordinator submits an Economic Bid for such Trading Hour(s), the Economic Bid must be for either: the same MSG Configuration scheduled or awarded in the Integrated Forward Market, or the MSG Configuration committed in RUC. If the Scheduling Coordinator submits a Self-Schedule in the Real-Time Market for such Trading Hour(s), then the Energy Self-Schedule may be submitted in any registered MSG Configuration, including the MSG Configuration awarded in the Day-Ahead Market, that can support the awarded Ancillary Services (as further required by Section 8).
- (k) Scheduling Coordinators for Multi-Stage Generating Resources may submit into the Real-Time Market bids from up to six (6) MSG Configurations in addition to the MSG Configuration scheduled or awarded in the Integrated Forward Market and Residual Unit

Commitment, provided that the MSG Transitions between the MSG Configurations bid into the Real-Time Market are feasible and the transition from the previous Trading Hour are also feasible.

- (l) For the Trading Hours that Multi-Stage Generating Resources do not have a CAISO Schedule or award from a prior CAISO Market run, the Scheduling Coordinator can submit up to six (6) MSG Configurations into the RTM.
- (m) A Scheduling Coordinator cannot submit a Bid to the CAISO Markets for a MSG Configuration into which the Multi-Stage Generating Resource cannot transition due to lack of Bids for the specific Multi-Stage Generating Resource in other MSG Configurations that are required for the requisite MSG Transition.
- (n) In order for Multi-Stage Generating Resource to meet any Resource Adequacy must-offer obligations, the responsible Scheduling Coordinator must submit either an Economic Bid or Self-Schedule for at least one MSG Configuration into the Day-Ahead Market and Real-Time Market that is capable of fulfilling that Resource Adequacy obligation, as feasible. The Economic Bid shall cover the entire capacity range between the maximum bid-in Energy MW and the higher of Self-Scheduled Energy MW and the Multi-Stage Generating Resource plant-level PMin as registered in the Master File.
- (o) For any given Trading Hour, a Scheduling Coordinator may submit Self-Schedules and/or Submissions to Self-Provide Ancillary Services in only one MSG Configuration for each Generating Unit.
- (p) In any given Trading Hour in which a Scheduling Coordinator has submitted a Self-Schedule for a Multi-Stage Generating Resource, the Scheduling Coordinator may also submit Bids for other MSG Configurations provided that they concurrently submit Bids that enable the applicable CAISO Market to transition the Multi-Stage Generating Resource to other MSG Configurations.
- (q) If in any given Trading Hour the Multi-Stage Generating Resource was awarded Regulation or Operating Reserves in the IFM, any Self-Schedules or Submissions to Self-Provide Ancillary Services the Scheduling Coordinator submits for that Multi-Stage

Generating Resource in the RTM must be for the same MSG Configuration for which Regulation or Operating Reserve is Awarded in IFM for that Multi-Stage Generating Resource in that given Trading Hour.

- (r) If a Multi-Stage Generating Resource has received a binding RUC Start-Up Instruction as provided in Section 31, any Self-Schedule or Submission to Self-Provide Ancillary Services in the RTM must be in the same MSG Configuration committed in RUC.
- (s) If in any given Trading Hour the Multi-Stage Generating Resource is scheduled for Energy in the IFM, any Self-Schedules the Scheduling Coordinator submits for that Multi-Stage Generating Resource in the RTM must be for the same MSG Configuration for which Energy is scheduled in IFM for that Multi-Stage Generating Resource in that given Trading Hour.
- (t) For a Multi-Stage Generating Resource, the Bid(s) submitted for the resource's configuration(s) shall collectively cover the entire capacity range between the maximum bid-in Energy MW and the higher of the Self-Scheduled Energy MW and the Multi-Stage Generating Resource plant-level PMin as registered in the Master File. This rule shall apply separately to the Day-Ahead Market and the Real-Time Market.
- (u) A Scheduling Coordinator may submit a Self-Schedule Hourly Block for the RTM as an import to or an export from the CAISO Balancing Authority Area and may also submit Self-Scheduled Hourly Blocks for Ancillary Services imports. Such a Bid shall be for the same MWh quantity for each of the four (4) fifteen (15)-minute intervals that make up the applicable Trading Hour.
- (v) A Scheduling Coordinator may submit a Variable Energy Resource Self-Schedule for the RTM can be submitted from a Variable Energy Resource. A Scheduling Coordinator can use either the CAISO forecast for Expected Energy in the RTM or can provide its own forecast for Expected Energy pursuant to the requirements specified in Section 4.8.2. The Scheduling Coordinator must indicate in the Master File whether it is using its own forecast or the CAISO forecast for its resource in support of the Variable Energy Self-Schedule. The Scheduling Coordinator is not required to include the same MWh quantity

for each of the four (4) fifteen (15)-minute intervals that make up the applicable Trading Hour for the Variable Energy Resource Self-Schedule include. If an external Variable Energy Resource that is not using a forecast of its output provided by the CAISO submits a Variable Energy Resource Self-Schedule and the Expected Energy is not delivered in the FMM, the Scheduling Coordinator for the Variable Energy Resource will be subject to the Under/Over Delivery Charge as described in Section 11.31. Scheduling Coordinators for Dynamically Scheduled Variable Energy Resources that provide the CAISO with a two (2)-hour rolling forecast with five (5)-minute granularity can submit Variable Energy Resource Self-Schedules.

- (w) Scheduling Coordinators can submit Economic Hourly Block Bids to be considered in the HASP and to be accepted as binding Schedules with the same MWh award for each of the four (4) FMM intervals. Scheduling Coordinator can also submit Economic Hourly Block Bids for Ancillary Services. As specified in Section 11, a cleared Economic Hourly Block Bid is not eligible for Bid Cost Recovery.
- (x) Scheduling Coordinators can submit Economic Hourly Block Bids with Intra-Hour Option. If accepted in the HASP, such a Bid creates a binding schedule with same MWh awards for each of the four (4) FMM intervals. After that, the RTM can optimize such schedules for economic reasons once through an FMM during the Trading Hour. As specified in Section 11, a cleared Economic Hourly Block Bid with Intra-Hour Option is not eligible for Bid Cost Recovery.
- (y) A Scheduling Coordinator submitting Bids to the RTM is not required to submit a Self-Schedule Hourly Block, a Variable Energy Resource Self-Schedule, an Economic Hourly Block Bid, or an Economic Hourly Block Bid with Intra-Hour Option, and may instead choose to participate in the RTM through Economic Bids or Self-Schedules.
- (z) For a Wheeling Through Self Schedule to be eligible as a Priority Wheeling Through for a given month, the Scheduling Coordinator must notify the CAISO of the MW quantity of the power supply contract MW supporting the export Self-Schedule of the Priority Wheeling Through transaction and confirm it meets the eligibility requirements to support

a Priority Wheeling Through. The Scheduling Coordinator must provide such information to the CAISO by 45 days prior to the applicable month.

- (aa) A Scheduling Coordinator for a CAISO Balancing Authority Area resource will indicate through a resource parameter as prescribed in the Business Practice Manual that it has sold capacity to an out-of-balancing authority area Load Serving Entity, and no CAISO Load Serving Entity has a right to such capacity. If the Scheduling Coordinator does not indicate this status, the resource cannot be a designated resource for an export Self-Schedule at Scheduling Points backed by non-Resource Adequacy Capacity. The CAISO will notify a Scheduling Coordinator hourly, to the extent practicable, that its resource, which is flagged to support an export, is designated by another entity to support export Self-Schedules at Scheduling Points backed by non-Resource Adequacy Capacity. Upon receiving the notice, the Scheduling Coordinator for the designated resource shall notify the CAISO if it does not have a contractual commitment to support such export Self-Schedule or does not have a reasonable expectation to be available to support the export Self Schedule. The Scheduling Coordinator for the designated resource and the Scheduling Coordinator for the export Self-Schedule shall designate a resource to support such export only if the resource is expected to have sufficient available capacity to support the export quantity throughout the entire hour. For Variable Energy Resources, this requirement can only be satisfied if the resource's forecasted output for each of the applicable four (4) fifteen (15) minute intervals in the applicable hour for which a bid has been submitted, based on the most recent forecast for that hour, is for Generation that is equal to or greater than the Self Schedule export quantity. The designated capacity must be the deliverable capacity of a resource with Full Capacity Deliverability Status, Partial Capacity Deliverability Status, or Interim Deliverability Status that is shown on the CAISO's NQC list.
- (bb) In addition to meeting any obligations applicable to Resource Adequacy Resources, a Scheduling Coordinator for a resource supporting Self-Schedules of exports at Scheduling Points backed by non-Resource Adequacy Capacity shall submit a RUC

- Availability Bid for RCU for a quantity equal to or greater than the quantity of the export.
- (cc) The Scheduling Coordinator for the resource shall offer Energy Bids into the Real-Time Market to support Self-Schedules of exports at Scheduling Points backed by non-Resource Adequacy Capacity.
 - (dd) The positive difference in quantity between the higher of a designated resource's Day-Ahead Schedule or a designated resource's RUC Schedule and the Day-Ahead Schedule of the corresponding Self-Schedule at a Scheduling Point backed by non-Resource Adequacy Capacity cannot back additional exports at a Scheduling Point backed by non-Resource Adequacy Capacity scheduled in the Real-Time Market.
 - (ee) A Scheduling Coordinator shall not schedule an import Self-Schedule to support an export Self-Schedule of exports at Scheduling Points explicitly sourced by non-Resource Adequacy Capacity. The transaction is properly scheduled as a Wheeling Through transaction as described in section 30.5.4.

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 Location or Resource ID, as appropriate; MSG Configuration ID, as applicable; PNode or Aggregated Pricing Node as applicable; Energy Bid Curve, as applicable; Self-Schedule component; Ancillary Services Bid; RUC Availability Bid as applicable; Imbalance Reserves Bid as applicable; the CAISO Market to which the Bid applies; Trading Day to which the Bid applies; Priority Type (if any), and a Transaction ID as created by the CAISO.

Supply Bids offered in the CAISO Markets must be monotonically increasing. Energy Bids in the RTM must also contain a Bid for Ancillary Services to the extent the resource is certified and capable of providing Ancillary Service in the RTM up to the registered certified capacity for that Ancillary Service less any Day-Ahead Ancillary Services Awards.

Scheduling Coordinators must submit the applicable Supply Bid components, including Self-Schedules, for the submitted MSG Configuration.

Scheduling Coordinators submitting Bids for Scheduling Points must adhere to the E-Tagging

requirements outlined in Section 30.5.7.

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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, 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. 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 4.9.13.2, 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 RTM.

If the Load following resource is also an RMR Unit, the MSS Operator must not specify the RMR Contract Capacity specified in the RMR Contract as Load following up or down capacity to allow the CAISO to access such capacity for RMR Dispatch.

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30.5.2.8 RUC Availability Bids

Scheduling Coordinators may submit RUC Availability Bids to seek a RUC Award. Scheduling Coordinators submit separate RUC Availability Bids for RCU and RCD. For Multi-Stage Generating Resources, the RUC Availability Bids shall be submitted at the MSG Configuration. The RUC Availability Bid is a MW quantity in \$/MW per hour. The value for the \$/MW per hour component of the Bid must be between 0 and 250.

Resources offering Energy Bids, other than Virtual Bids, to the IFM must submit a RUC Availability Bid for RCU at a quantity no less than the quantity of the Energy Bid.

30.5.2.9 Imbalance Reserves Bids

Scheduling Coordinators may submit Imbalance Reserves Bids to seek an Imbalance Reserves Award. Scheduling Coordinators submit separate Imbalance Reserves Bids for IRU and IRD. For Multi-Stage Generating Resources, the Imbalance Reserves Bids shall be submitted at the MSG Configuration level. The Imbalance Reserves component is MW-quantity in \$/MW per hour. The value for the \$/MW per hour component of the Bid must be between 0 and 55.

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30.5.8.2 Real-Time Market.

Scheduling Coordinators may submit Demand Bids, Export Bids, Virtual Bids, and Bids for Non-Resource-Specific System Resources above the Soft Energy Bid Cap, not to exceed the Hard Energy Bid Cap, for any Trading Hour of the Real-Time Market in which

- (a) The conditions in Section 30.5.8.1 applied to the same Trading Hour of the Day-Ahead Market; or
- (b) (1) The CAISO has accepted a Bid for the applicable Trading Hour of the Real-Time Market with an Energy Bid price that exceeds the Soft Energy Bid Cap pursuant to Section 30.7.12, not including Bids from Reliability Demand Response Resources, or (2)

the Maximum Import Bid Price exceeds the Soft Energy Bid Cap

30.5.9 GHG Bid Adders

Scheduling Coordinators for resources located within a GHG Regulation Area may submit GHG Bid Adders to serve Demand within another GHG Regulation Area in accordance with Sections 29.32 and 33.32.

30.6 Bidding and Scheduling of PDRs and RDRRs

30.6.1 Bidding and Scheduling of PDRs

Unless otherwise specified in the CAISO Tariff and applicable Business Practice Manuals, and subject to Section 30.6.3, the CAISO will treat Bids for Energy and Ancillary Services on behalf of Proxy Demand Resources like Bids for Energy and Ancillary Services on behalf of other types of supply resources. The CAISO will only accept the following types of Bids from Proxy Demand Resources:

- (i) Economic Bids for Energy or Ancillary Services;
- (ii) submissions to Self-Provide Ancillary Services;
- (iii) submissions of Energy Self-Schedules from Proxy Demand Resources that have provided Submissions to Self-Provide Ancillary Services;
- (iv) submissions of Energy Self-Schedules in the Real-Time Market up to the Proxy Demand Resource's Day-Ahead Market Schedule in the same Trading Hour;
- (v) RUC Availability Bids; and
- (vi) Imbalance Reserves Bids.

A Scheduling Coordinator for a Demand Response Provider representing a Proxy Demand Resource may Self-Provide Ancillary Services for which it is certified. The Demand Response Provider's Demand Response Services for Proxy Demand Resources will be bid separately and independently from the LSE's underlying Demand Bid.

30.6.1.1 Bidding and Scheduling of PDRs in the Real-Time Market

Pursuant to Section 4.13.3, Scheduling Coordinators for Proxy Demand Resources may submit Economic Bids for Energy and Ancillary Services in the Real-Time Markets. Pursuant to Section 30.5.1(s), Scheduling Coordinators for Proxy Demand Resources may submit Economic Hourly Block Bids to be considered in the HASP, and to be accepted as binding Schedules with the same MWh award for each of

the four FMM intervals. A cleared Economic Hourly Block Bid is not eligible for Bid Cost Recovery. Scheduling Coordinators for Proxy Demand Resources may not submit Economic Hourly Block Bids with an Intra-Hour Option.

30.6.1.2 Bidding and Scheduling of Proxy Demand Resources using the Load-Shift

Methodology

Scheduling Coordinators for Proxy Demand Resources using the load-shift methodology described in Section 4.13.4.7 will submit separate Economic Bids for the curtailment Resource ID and the consumption Resource ID that comprise the Proxy Demand Resource. The CAISO will use reasonable efforts to optimize both Resource IDs to avoid sending conflicting Schedules.

The CAISO will only accept the following types of Bids for the curtailment Resource ID:

- (i) Economic Bids for Energy or Ancillary Services;
- (ii) submissions to Self-Provide Ancillary Services;
- (iii) submissions of Energy Self-Schedules where the curtailment Resource ID has provided Submissions to Self-Provide Ancillary Services;
- (iv) submissions of Energy Self-Schedules in the Real-Time Market up to curtailment Resource ID's Day-Ahead Market Schedule in the same Trading Hour; and
- (v) RUC Availability Bids; and
- (vi) Imbalance Reserves Bids.

All Economic Bids for Energy for the curtailment Resource ID must be above the Market Clearing Prices established in Section 30.6.3. For the consumption Resource ID, the CAISO will only accept Economic Bids for Energy and submissions of Energy Self-Schedules in the Real-Time Market up to its Day-Ahead Market Schedule in the same Trading Hour. All Economic Bids for the consumption Resources must be below \$0/MWh.

30.6.2 Bidding and Scheduling of RDRRs

Unless otherwise specified in the CAISO Tariff and applicable Business Practice Manuals, and subject to Section 30.6.3, the CAISO will treat Bids for Energy on behalf of Reliability Demand Response Resources like Bids for Energy on behalf of other types of supply resources. The CAISO will only accept Economic Bids for Energy from Reliability Demand Response Resources. A Scheduling Coordinator for a Demand

Response Provider representing a Reliability Demand Response Resource may submit Economic Energy Bids for the Reliability Demand Response Resource only in the Day-Ahead Market and in the Real-Time Market, but may not submit Energy Self-Schedules for the Reliability Demand Response Resource, may not Self-Provide Ancillary Services from the Reliability Demand Response Resource, and may not submit RUC Availability Bids, Ancillary Service Bids for the Reliability Demand Response Resource, or Imbalance Reserves Bids. The Demand Response Provider's Demand Response Services for Reliability Demand Response Resources will be bid separately and independently from the LSE's underlying Demand Bid.

30.6.2.1 Bidding and Scheduling of RDRRs in the Real-Time Market

Pursuant to Section 4.13.3, Scheduling Coordinators for Reliability Demand Response Resources may submit Economic Bids for Energy in the Real-Time Markets. Scheduling Coordinators for Reliability Demand Response Resources may submit Economic Hourly Block Bids to be considered in the HASP, and to be accepted as binding Schedules with the same MWh award for each of the four FMM intervals. A cleared Economic Hourly Block Bid is not eligible for Bid Cost Recovery. Scheduling Coordinators for Reliability Demand Response Resources may not submit Economic Hourly Block Bids with an Intra-Hour Option.

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30.7 Bid Validation

The CAISO shall validate submitted Bids pursuant to the procedures set forth in this Section 30.7 and the rules set forth in the Business Practice Manuals.

30.7.1 Scheduling Coordinator Access

Each Scheduling Coordinator will be provided access to the CAISO's secure communication system to submit, modify and cancel Bids prior to the close of both the DAM and RTM, as specified in Section 30.5.1. The CAISO shall provide information regarding submitted Bids including, but not be limited to, the following: (i) notification of acceptance; (ii) notification of validation; (iii) notification of rejection; (iv) notification of status; (v) notification of submission error(s); and (vi) default modification or generation of

Bids, including as further provided below, if any, on behalf of Scheduling Coordinators.

30.7.2 Timing of CAISO Validation

Once a Bid is submitted to the CAISO Markets, the Bid is available for validation, which is conducted in multiple steps. Clean Bids will be generated after Market Close.

30.7.3 Day-Ahead Market Validation

30.7.3.1 Validation Prior to Market Close and Master File Update

The CAISO conducts Bid validation in three steps:

Step 1: The CAISO will validate all Bids after submission of the Bid for content validation which determines that the Bid adheres to the structural rules required of all Bids as further described in the Business Practices Manuals. If the Bid fails any of the content level rules the CAISO shall assign it a rejected status and the Scheduling Coordinator must correct and resubmit the Bid.

Step 2: After the Bids are successfully validated for content, but prior to the Market Close of the DAM, the Bids will continue through the second level of validation rules to verify that the Bid adheres to the applicable CAISO Market rules and if applicable, limits based on Master File data. If the Bid fails any level two validation rules, the CAISO shall assign the Bid as invalid and the Scheduling Coordinator must either correct or resubmit the Bid.

Step 3: If the Bid successfully passes validation in Step 2, it will continue through the third level of validation where the Bid will be analyzed based on its contents to identify any missing Bid components that must be present for the Bid to be valid consistent with the market rules contained in Article III of this CAISO Tariff and as reflected in the Business Practice Manuals. At this stage the Bid will either be automatically modified for correctness and assigned a status of conditionally modified or modified, or if it can be accepted as is, the Bid will be assigned a status of conditionally valid, or valid. A Bid will be automatically modified and assigned a status of modified or conditionally modified Bid, whenever the CAISO inserts or modifies a Bid component. The CAISO will insert or modify a Bid component whenever (1) a Self-Schedule quantity is less than the lowest quantity specified as an Economic Bid for either an Energy Bid or Demand Bid, in which case the CAISO extends the Self-Schedule to cover the gap; and (2) for a Resource Adequacy Resource that is not a Use-Limited Resource, the CAISO will submit Generated Bids

for Reliability Capacity as specified in Section 40.6.8.

To the extent the Scheduling Coordinator for an Eligible Intermittent Resource fails to submit a Bid for RCU up to the quantity of its forecasted output based on the forecast referenced in Section 34.1.6 the CAISO generates a bid for RCU up to the forecasted output. The price of the generated bid is at the price included in the RUC Availability Bid for RCU, or at the Default Availability Bid if the Scheduling Coordinator did not submit any such Bid.

To the extent an RMR Resource fails to submit a Bid for RCU up to the quantity required in Section 31.5.1.2 the CAISO generates a bid for RCU up to the required quantity. The price of the generated bid is at the price included in the RUC Availability Bid for RCU, or at the Default Availability Bid if the Scheduling Coordinator did not submit any such Bid.

Throughout the Bid evaluation process, the Scheduling Coordinator shall have the ability to view the Bid and may choose to cancel the Bid, modify and re-submit the Bid, or leave the modified, conditionally modified or valid, conditionally valid Bid as is to be processed in the designated CAISO Market. These validation rules apply to Bids submitted on behalf of Use Limited Resources. The purpose of the validation rules is not to increase the amount of capacity that a Use Limited Resource has offered into the CAISO Markets.

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30.7.3.5 Bid Validation Rules for Multi-Stage Generating Resources

If a Scheduling Coordinator does not submit a Bid in the Day-Ahead Market or Real-Time Market for a Multi-Stage Generating Resource with a Resource Adequacy must-offer obligation at a MSG Configuration that can meet the applicable Resource Adequacy must-offer obligation, the CAISO will create a Generated Bid for the default Resource Adequacy MSG Configuration. If the Multi-Stage Generating Resource is not capable of Start-Up in the default Resource Adequacy MSG Configuration, then the ISO will, based on feasibility of transitions, create a Generated Bid for every MSG Configuration that has a minimum output below the MW level of the Resource Adequacy must-offer obligation, which will cover the operating range from its minimum output to the minimum of its maximum output and the

MW level of the Resource Adequacy must-offer obligation. In the event that the Scheduling Coordinator does not submit a Bid in compliance with section 30.5.1(p), the CAISO will create a Generated Bid for all of the capacity not bid into the CAISO Market between the maximum bid-in Energy MW and the higher of Self-Scheduled Energy MW and the Multi-Stage Generating Resource plant-level PMin. If the Scheduling Coordinator submits a Bid for the Multi-Stage Generating Resource, the CAISO will create this Generated Bid for the registered MSG Configurations before the Market Close, and if it does not submit such a Bid the CAISO will create this Generated Bid after the Market Close. Any Generated Bid created by the CAISO for the default Resource Adequacy MSG Configuration will be in addition to the MSG Configurations bid into the Real-Time Market by the responsible Scheduling Coordinator. If the Scheduling Coordinator submits a Bid in the Day-Ahead Market or Real-Time Market for a MSG Configuration that is not the default Resource Adequacy MSG Configuration and that does not cover the full amount of the resource's Resource Adequacy requirements, the CAISO will create a Generated Bid for the full Resource Adequacy Capacity. Before the market closes, if a Scheduling Coordinator submits a Bid in the Day-Ahead Market or Real-Time Market for the default Resource Adequacy MSG Configuration of a Multi-Stage Generating Resource that only meets part of the resource's Resource Adequacy must-offer obligation, the CAISO will extend the last segment of the Energy Bid curve in the submitted Bid for the Multi-Stage Generating Resource up to the Multi-Stage Generating Resource's Resource Adequacy must-offer obligation. After the market closes, to the extent that no Bid is submitted into the Real-Time Market for a Multi-Stage Generating Resource scheduled in the Integrated Forward Market as required in Section 30.5 the CAISO will create a Self-Schedule for MSG Configuration equal to the Day-Ahead Schedule for that resource for the MSG Configuration scheduled in the IFM. To the extent a Multi-Stage Generating Resource is awarded Operating Reserves in the Day-Ahead Market and no Economic Energy Bids is submitted for that resource in the Real-Time Market, the CAISO will insert Proxy Energy Bid in the MSG Configuration that was awarded in the Day-Ahead Market to cover the awarded Operating Reserves. The CAISO will validate that the combination of the Day-Ahead Ancillary Services Awards and Submissions to Self-Provide Ancillary Services are feasible with respect to the physical operating characteristics of the applicable MSG Configuration. The CAISO will reject Ancillary Services Bids or Submissions to Self-Provide Ancillary Services for MSG Configurations that are not

certified to provide Ancillary Services. For any given Multi-Stage Generating Resource, for any given CAISO Market and Trading Hour if one MSG Configuration's Bid fails the bid validation process, all other Bids for all other MSG Configurations are also invalidated.

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30.7.4 RTM Validation

RTM Bids will include the same validation process implemented in the DAM with the following additional rules. The CAISO will not validate the Bid before and again after the Master File Data update. RTM Bids are only validated based on the current Master File Data on the relevant Trading Day.

The CAISO will insert a Generated Bid or extend an Energy Bid or Self-Schedule in the RTM to cover any Day-Ahead Schedule, RUC Award, or Imbalance Reserves Award in the absence of the required Self-Schedule or Economic Bid components, or to fill in any gaps between any Self-Schedule Bid and any Economic Bid components to cover a Day-Ahead Schedule, RUC Award, or Imbalance Reserves Award. To the extent that an Energy Bid to the HASP/RTM is not accompanied by an Ancillary Services Bid, the CAISO will insert a Spinning Reserve and Non-Spinning Reserve Ancillary Services Bid at \$ 0/MW for any certified Operating Reserve capacity. The CAISO also will generate a Self-Schedule Bid for any Generating Unit that has a Day-Ahead Schedule but has not submitted Bids in HASP/RTM, up to the quantity in the Day-Ahead Schedule.

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30.7.12.5 Virtual Bids, Export Bids, Demand Bids, and Bids for Non-Resource-Specific System Resources

30.7.12.5.1 Bids for Non-Resource-Specific System Resources that are Resource Adequacy Resources

The CAISO will reduce Bids for Non-Resource-Specific System Resources that are Resource Adequacy Resources that exceed the Maximum Import Bid Price to the greater of the Soft Energy Bid Cap, the

Maximum Import Bid Price, or the highest-priced Energy Bid from a Resource-Specific System Resource that the CAISO has accepted for the applicable Trading Hour pursuant to Section 30.7.12.2.

30.7.12.5.2 Virtual Bids, Export Bids, Demand Bids, and Bids for Non-Resource-Specific System Resources that are not Resource Adequacy Resources

The CAISO will accept Virtual Bids, Export Bids, Demand Bids, and Bids for Non-Resource-Specific System Resources that are not Resource Adequacy Resources that exceed the Soft Energy Bid consistent with the conditions specified in Section 30.5.8. The CAISO will not accept Export Bids, Demand Bids, Virtual Bids, or Bids for Non-Resource-Specific System Resources that are not Resource Adequacy Resources that exceed the Hard Energy Bid Cap.

30.7.12.5.3 Maximum Import Bid Price

The CAISO calculates hourly Maximum Import Bid Prices for the Day-Ahead Market and Real-Time Market, separately, including for on-peak and off-peak hours. The CAISO calculates the Maximum Import Bid Price as 110 percent of the greater of the published bilateral electric index prices for the Mid-Columbia or Palo Verde trading hub locations, multiplied by an hourly shaping ratio. As detailed in the CAISO Business Practice Manual, the CAISO calculates the hourly shaping ratio for each hour by dividing the Day-Ahead Market Marginal Energy Cost for the CAISO Balancing Authority Area in that hour of a previous representative Trading Day by the average Day-Ahead Market Marginal Energy Cost for the CAISO Balancing Authority Area in all on-peak hours of the same previous representative Trading Day. If for any given Trading Hour the CAISO cannot calculate the Maximum Import Bid Price, the applicable Maximum Import Bid Price will be the most recently available calculated Maximum Import Bid Price.

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Section 31

31. Day-Ahead Market

The DAM consists of the following functions performed in sequence: Bid submission and validation, the

IFM MPM, IFM, RUC MPM, and RUC.

Scheduling Coordinators may submit Energy Bids, Ancillary Services Bids, RUC Availability Bids, and Imbalance Reserves Bids for an applicable Trading Day. The CAISO issues Schedules for all Supply and Demand, including Participating Load, Reliability Demand Response Resources, and Proxy Demand Resources, pursuant to their Bids as provided in this Section 31. The CAISO also issues RUC Awards and Imbalance Reserves Awards to Scheduling Coordinators pursuant to their RUC Availability Bids and Imbalance Reserves Bids, respectively, as provided in this Section 31.

31.1 Bid Submission and Validation in the Day-Ahead Market

Bids, including Self-Schedules and Ancillary Services Bids, and Submissions to Self-Provide an Ancillary Service shall be submitted pursuant to the submission rules specified in Section 30. There is a single Bid submission in which Scheduling Coordinators' Bids are used for purposes of the DAM, which includes the IFM MPM, the IFM, the RUC MPM, and RUC. Scheduling Coordinators may submit Bids for the DAM as early as seven (7) days prior to the applicable Trading Day up to Market Close of the DAM for the applicable 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 Resource Adequacy Capacity as required in Section 40.

31.2 IFM MPM Process

After the Market Close of the DAM, the CAISO has validated the Bids pursuant to Section 30.7, and after the CAISO conducts the EDAM RSE, the CAISO performs the IFM MPM process, which is a single market run that occurs prior to the IFM Market Clearing run. The IFM MPM process determines, pursuant to Section 31.2.3, which Energy Bids need to be mitigated to the applicable Default Energy Bids and which Imbalance Reserves Bids for IRU need to be mitigated to the IRU Default Availability Bid in the IFM. For Maximum Net Dependable Capacity of Legacy RMR Units, Energy Bids will be mitigated to the RMR Proxy Bids pursuant to Section 31.2.3. The IFM MPM process optimizes resources to meet Demand reflected in Demand Bids, including Export Bids and Virtual Demand Bids, targets procurement of one hundred (100) percent of Imbalance Reserves requirements based on Bids submitted to the DAM, and procures one hundred (100) percent of Ancillary Services requirements based on Supply Bids submitted to the DAM. Virtual Bids and Bids from Demand Response Resources, Participating Load, and

Hybrid Resources are considered in the MPM process, but are not subject to Bid mitigation. Energy storage resources whose PMax is less than five (5) MW are considered in the MPM process, but not subject to Bid mitigation. Bids from Participating Load resources that are not subject to Bid mitigation will also be considered in the IFM MPM process. The mitigated or unmitigated Bids and RMR Proxy Bids identified in the IFM MPM process for all resources that cleared in the IFM MPM are then passed to the IFM. The CAISO performs the IFM MPM process for the IFM for the twenty-four (24) hours of the targeted Trading Day.

31.2.1 Determining Competitive and Non-Competitive Congestion Components in the IFM

The IFM MPM process enforces all Transmission Constraints that are expected to be enforced in the relevant market, in the base case of meeting Demand and in the separate cases of modeling the dispatch of Energy from all capacity awarded IRU and IRD, and produces dispatch levels for all resources with submitted Bids and LMPs for all Locations. Bid mitigation is determined by decomposing the Congestion component of each LMP determined in the IFM MPM process into competitive Congestion and non-competitive Congestion components. The competitive Congestion component of each LMP is calculated as the sum of the product of the shift factor and the Shadow Price for all competitive Transmission Constraints and the non-competitive Congestion component of each LMP is calculated as the sum of the product of the shift factor and the Shadow Price for all non-competitive Transmission Constraints. The non-competitive Congestion component of an LMP can be based on a Transmission Constraint deemed non-competitive in the base case of meeting Demand or in the separate case of modeling the dispatch for Energy of all capacity awarded IRU. The Reference Bus used in the MPM process will be either: (1) the Midway 500kV bus if Path 26 flow is from north to south; or (2) the Vincent 500kV bus if Path 26 flow is from south to north. The treatment of a particular Transmission Constraint as competitive or non-competitive for purposes of the IFM MPM process is determined pursuant to Section 39.7.2.

31.2.2 [Not Used]

31.2.3 IFM Bid Mitigation

31.2.3.1 Mitigation of Energy Bids

If the non-competitive Congestion component of an LMP calculated in an MPM process is greater than zero (0), then any resource at that Location that is dispatched in that MPM process is subject to Local

Market Power Mitigation. Bids on behalf of any such resource, to the extent that they exceed the Competitive LMP plus the Competitive LMP Parameter at the resource's Location for the DAM or RTM process interval for which the MPM process applies, will be mitigated to the higher of the resource's Default Energy Bid (or RMR Proxy Bid for Legacy RMR Units), as specified in Section 39, or the Competitive LMP plus the Competitive LMP Parameter at the resource's Location for the DAM and RTM process interval for which the MPM process applies. To the extent a Multi-Stage Generating Resource is dispatched in the MPM process and the non-competitive Congestion component of the LMP calculated at the Multi-Stage Generating Resource's Location is greater than zero, for purposes of mitigation, all the MSG Configurations will be mitigated similarly and the CAISO will evaluate all submitted Energy Bids for all MSG Configurations based on the relevant Default Energy Bids for the applicable MSG Configuration. The CAISO will calculate the Default Energy Bids for Multi-Stage Generating Resources by submitted MSG Configuration. Any market Bids equal to or less than the Competitive LMP plus the Competitive LMP Parameter will be retained in the DAM and RTM process.

31.2.3.2 Mitigation of Bids for IRU

The CAISO applies Local Market Power Mitigation to Imbalance Reserves Bid for IRU if the resource for which that Bid was submitted could provide counter-flow to a Transmission Constraint deemed non-competitive pursuant to Section 39.7.2.2(B)(a) in the case of modeling the dispatch for Energy of the capacity awarded IRU. To the extent a Bid for IRU is subject to Local Market Power Mitigation and exceeds the Competitive Locational IRU Price plus the Competitive LMP Parameter, the CAISO mitigates the Bid to the higher of the: (i) resource's IRU Default Availability Bid; or (ii) Competitive Locational IRU Price plus the Competitive LMP Parameter.

31.3 Integrated Forward Market

After the IFM MPM and prior to RUC, the CAISO shall perform the IFM. The IFM (1) performs Unit Commitment and Congestion Management (2) clears mitigated or unmitigated Bids for Energy and Imbalance Reserves cleared in the MPM as well as Bids for Energy and Imbalance Reserves that were not cleared in the MPM process against bid-in Demand, taking into account transmission limits and honoring technical and inter-temporal operating constraints, such as Minimum Run Times (3) and

procures Ancillary Services to meet one hundred (100) percent of the Ancillary Services requirements based on the CAISO Forecast of BAA Demand for the CAISO. The IFM utilizes a set of integrated programs that: (1) determine Day-Ahead Schedules, Imbalance Reserves Awards, 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 that optimizes Start-Up Costs, Minimum Load Costs as modified pursuant to Section 30.7.10.2, if applicable, Transition Costs, and Energy Bids along with any Bids for Ancillary Services or Imbalance Reserves as well as Self-Schedules submitted by Scheduling Coordinators. The IFM selects the optimal MSG Configuration from a maximum of ten MSG Configurations of each Multi-Stage Generating Resource as mutually exclusive resources. If a Scheduling Coordinator submits a Self-Schedule or a Submission to Self-Provide Ancillary Services for a given MSG Configuration in a given Trading Hour, the IFM will consider the Start-Up Cost, Minimum Load Cost as modified pursuant to Section 30.7.10.2, if applicable, and Transition Cost associated with any Economic Bids for other MSG Configurations as incremental costs between the other MSG Configurations and the self-scheduled MSG Configuration. In such cases, incremental costs are the additional costs incurred to transition or operate in an MSG Configuration in addition to the costs associated with the self-scheduled MSG Configuration. 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 are binding.

31.3.1 Market Clearing and Price Determination

31.3.1.1 Integrated Forward Market Output

The IFM produces: (1) a set of hourly Day-Ahead Schedules, Imbalance Reserves Awards, 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 Imbalance Reserves and the ASMPs for Ancillary Services to be used for settlement of the IFM. For a Multi-Stage Generating Resource, the IFM produces a Day-Ahead Schedule for no more than one MSG Configuration per Trading Hour. In addition, the IFM will produce the MSG Transition and the MSG Configuration indicators for the Multi-Stage Generating Resource, which would establish the expected MSG Configuration in which the Multi-Stage Generating Resource will operate. During a transition, the committed MSG Configuration is considered to be the

“from” MSG Configuration. The CAISO will publish the LMPs at each PNode as calculated in the IFM. In determining Day-Ahead Schedules, Imbalance Reserves Awards, 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 Effective Economic Bids without adjusting Self-Schedules, and skips Ineffective Economic Bids and adjusts Self-Schedules only if it is not possible to balance Supply and Demand and manage Congestion in an operationally prudent manner with available Effective Economic Bids. The process and criteria by which the IFM adjusts Self-Schedules and other Non-priced Quantities are described in Sections 27.4.3, 31.3.1.3 and 31.4. The Day-Ahead Schedules are binding commitments, including the commitment to Start-Up, if necessary, to comply with the Day-Ahead Schedules. The CAISO will not issue separate Start-Up Instructions for Day-Ahead commitments. A resource’s status, however, can be modified as a result of additional market processes occurring in the RTM.

31.3.1.2 Treatment of Ancillary Services Bids in IFM

In clearing the IFM, the CAISO co-optimizes awards from Energy Bids, Imbalance Reserves Bids, and Ancillary Services Bids. To the extent that capacity subject to an Ancillary Services Bid submitted in the Day-Ahead Market is not associated with an Energy Bid or Imbalance Reserves Bid, there is no co-optimization, and therefore, no opportunity cost associated with that resource for that Bid for the purposes of calculating the Ancillary Services Marginal Price as specified in Section 27.1.2.2. The capacity that will be considered when co-optimizing the procurement of Energy, Imbalance Reserves, and Ancillary Services from Bids in the IFM will consider capacity up to the total capacity of the resource as reflected in the Ancillary Services Bid as derated through the CAISO’s outage management system pursuant to Section 9, if at all. In the case of Regulation, the capacity that will be considered is the lower of the capacity of the resource offered in the Ancillary Services Bid or the upper Regulation limit of the highest Regulating Range as contained in the Master File. For any Trading Hour within the period in which the Multi-Stage Generating Resource is transitioning from one MSG Configuration to another, the IFM will not award Ancillary Services and any Submission to Self-Provide Ancillary Services will be disqualified. Any

Ancillary Services Awards in the IFM to Multi-Stage Generating Resources will carry through to the Real-Time Market in the same MSG Configuration that the Multi-Stage Generating Resource is awarded in the IFM.

31.3.1.3 Reduction of Self-Scheduled LAP Demand

In the IFM, to the extent the market software cannot resolve a non-competitive Transmission Constraint utilizing Effective Economic Bids such that self-scheduled Load at the LAP level would otherwise be reduced to relieve the Transmission Constraint, the CAISO Market software will adjust Non-Priced Quantities in accordance with the process and criteria described in Section 27.4.3. For this purpose the priority sequence, starting with the first type of Non-Priced Quantity to be adjusted, will be:

- (a) 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 from an RMR Resource or a Resource Adequacy Resource. Consistent with Section 8.6.2, the CAISO Market software could also utilize the Energy from Self-Provided Ancillary Service Bids from capacity that is not under a must-offer obligation such as from an RMR Resource or a Resource Adequacy Resource, to the extent the Scheduling Coordinator has submitted an Energy Bid for such capacity. The associated Energy Bid prices will be those resulting from the MPM process.
- (b) Relax the constraint consistent with Section 27.4.3.1, and establish prices consistent with Section 27.4.3.2. No constraints, including Transmission Constraints, on Interties with adjacent Balancing Authority Areas will be relaxed in this procedure.

31.3.1.4 Eligibility to Set the Day-Ahead LMP

All Generating Units, Participating Loads, non-Participating Loads, Proxy Demand Resources, Reliability Demand Response Resources, System Resources, System Units, or Constrained Output Generators subject to the provisions in Section 27.7, with Bids, including Generated Bids, that are unconstrained due to Ramp Rates, MSG Transitions, Forbidden Operating Regions, or other temporal constraints are eligible to set the LMP, provided that (a) the Schedule for the Generating Unit or Resource-Specific System Resource is between its Minimum Operating Limit and the highest MW value in its Economic Bid or Generated Bid; or (b) the Schedule for the Participating Load, non-Participating Load, Proxy Demand

Resources, Reliability Demand Response Resources, Non-Resource-Specific System Resource, or System Unit is between zero (0) MW and the highest MW value in its Economic Bid or Generated Bid. If (a) a resource's Schedule is constrained by its Minimum Operating Limit or the highest MW value in its Economic Bid or Generated Bid; (b) the CAISO enforces a resource-specific constraint on the resource due to an RMR Dispatch of a Legacy RMR Unit or Exceptional Dispatch; (c) the resource is constrained by a boundary of a Forbidden Operating Region or is Ramping through a Forbidden Operating Region; or (d) the resource's full Ramping capability is constraining its inter-hour change in Schedule, the resource cannot be marginal and thus is not eligible to set the LMP. Resources identified as MSS Load following resources are not eligible to set the LMP. A Constrained Output Generator will be eligible to set the hourly LMP if any portion of its Energy is necessary to serve Demand.

31.3.1.5 Treatment of Imbalance Reserves Bids in IFM

In considering Imbalance Reserves Bids in the IFM, the CAISO applies the following rules.

31.3.1.5.1 Eligible Resource Types

The CAISO only considers Imbalance Reserves Bids from Generating Units, Participating Loads, Proxy Demand Resources, Reliability Demand Response Resources, System Units, System Resources with a Resource ID defined in the CAISO Master File, and Physical Scheduling Plants.

31.3.1.5.2 Fifteen-Minute Dispatchability and Start-up

The CAISO disregards Imbalance Reserves Bids submitted for a resource that is not 15-minute dispatchable.

The CAISO disregards Imbalance Reserves Bids submitted for a resource that otherwise would be Off during the relevant period unless it has a Start-Up Time of 15 minutes or less.

31.3.1.5.3 Energy Bid Submission Requirement

The CAISO only considers Imbalance Reserves Bids to the extent the resource submitted an Energy Bid in the Day-Ahead Market with Economic Bids for a quantity no less than the quantity of Imbalance Reserves Bid.

31.3.1.5.4 Ramp Capability as Limitation on Imbalance Reserves Awards

The CAISO disregards an Imbalance Reserves Bid to the extent it exceeds the resource's maximum 30-minute ramp capability as determined by the ramp rate defined in the CAISO Master File for the operating range covered by the Bid.

31.3.1.5.5 Simultaneous Bids and Awards for IRU and IRD

A Scheduling Coordinator may offer Bids for both IRU and IRD on distinct portions of capacity for the same interval for the same resource. The CAISO may award the resource both IRU and IRD based on those Bids if it is feasible to provide both.

31.3.1.6 Imbalance Reserves Procurement

Subject to the procurement curve described in Section 31.3.1.6.1, the CAISO procures Imbalance Reserves to meet the Imbalance Reserves Requirement for each hour and creates separate Locational IRU Prices and Locational IRD Prices at each Node based on that procurement.

31.3.1.6.1 Establishing the Imbalance Reserves Requirement

As further described in the Business Practice Manual, the CAISO sets each Balancing Authority Area's Upward Imbalance Reserves Requirement and Downward Imbalance Reserves Requirement to capture the anticipated levels of upward and downward Net Load Forecast deviations between the Day-Ahead Market and the Fifteen-Minute Market, respectively, within a specified confidence interval. The CAISO sets these values based on: (a) analysis of the differences between the load, wind, and solar forecasts utilized in the Day-Ahead Market and those used in the Fifteen-Minute Market, corresponding to the same time intervals; (b) production forecasts for EIRs in each Balancing Authority Area; and (c) the CAISO Forecast of BAA Demand. For each Balancing Authority Area participating in the Day-Ahead Market, the CAISO reduces the Balancing Authority Area's hourly Imbalance Reserves Requirement by its proportional allocation of the Diversity Benefit for EDAM.

31.3.1.6.2 Procurement Curve

In each run of the IFM, the CAISO procures IRU and IRD for each Balancing Authority Area participating in the Day-Ahead Market to meet their Upward Imbalance Reserves Requirement and Downward Imbalance Reserves Requirement, respectively, subject to a procurement curve. The procurement curves for IRU and IRD are calculated based on separate statistical analysis of the Upward Imbalance Reserve Requirement and Downward Imbalance Reserve Requirement for each EDAM Entity Balancing Authority

Area to ensure the total cost of Imbalance Reserves Awards for IRU or IRD does not exceed the expected cost of violating Operating Reserve requirements. Provided, however, the upper bound of the procurement curve for both IRU and IRD is \$55/MWh.

31.3.1.6.3 Imbalance Reserves Deliverability and Nodal Procurement

31.3.1.6.3.1 Nodal Procurement of Imbalance Reserves Awards

The CAISO optimizes procurement of Imbalance Reserves Awards such that, in the event modeled uncertainty arises fully for either the upward or downward directions, the Energy that would be dispatched from resource capacity corresponding to the Imbalance Reserves Awards, as adjusted by the applicable Deployment Factor, would not result in flows exceeding Transmission Constraints and scheduling limits, including EDAM Transfer limits, on categories of transmission facilities identified in the Business Practice Manual. In revising the Business Practice Manual to establish or update either the Deployment Factor or the categories of transmission facilities, the CAISO will consider the trade-off between the: (a) operational benefit of clearing reliably deliverable Imbalance Reserves; and (b) economic implications from imposing deliverability requirements on Imbalance Reserves procurement. In considering this trade-off, the CAISO will evaluate considerations such as the anticipated or observed impact of the Deployment Factor or identified transmission facilities on the: (1) deliverability of Energy procured from awarded Imbalance Reserves; (2) Marginal Cost of Congestion for Energy; (3) Locational IRU Prices and Locational IRD Prices; (4) performance of the IFM optimization, including solution time and solution quality; (5) need to manually intervene in RUC or engage in other out-of-market action; and (6) effect of other factors whose magnitude of impact on the basic trade-off is unforeseen on the effective date of this Section 31.3.1.6.3.1.

31.3.1.6.3.2 Nodal Distribution of Requirements

The CAISO distributes the Upward Imbalance Reserves Requirement and Downward Imbalance Reserves Requirement to the Demand and Variable Energy Resources Locations within each Balancing Authority Area participating in the Day-Ahead Market based on distribution factors derived from historical and/or forecasted information that reflect the relative contributions of Demand and Variable Energy Resources to the overall Imbalance Reserves Requirements.

31.3.1.6.4 Congestion Revenue from Procuring Imbalance Reserves

As further specified in the Business Practice Manual, the CAISO separately calculates Energy Congestion revenue displaced from meeting the Upward Imbalance Reserves Requirements and the Downward Imbalance Reserves Requirements as follows.

The CAISO calculates the Energy Congestion revenue displaced from meeting the Upward Imbalance Reserves Requirement by calculating for each resource for each Transmission Constraint binding in the case of modeling uncertainty in the upward direction the sum of the product of the: IRU award; Deployment Factor; Shift Factor from the resource location to the binding Transmission Constraint; and Shadow Price of the Transmission Constraint.

The CAISO calculates the Energy Congestion revenue displaced from meeting the Downward Imbalance Reserves Requirement by calculating for each resource for each Transmission Constraint binding in the case of modeling uncertainty in the downward direction the sum of the product of: IRD award; Deployment Factor; Shift Factor from the resource location to the binding Transmission Constraint; and Shadow Price of the Transmission Constraint.

31.3.1.6.5 Accounting for State of Charge in Awarding Ancillary Services and Imbalance Reserves to Non-Generator Resources

The IFM only awards an Ancillary Services Schedule or Imbalance Reserves Award to a storage resource using the Non-Generator Resource model to the extent its modeled State of Charge, as determined by a methodology defined in the Business Practice Manual, can support such schedule or award.

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31.3.4 RTM Bidding Obligations from Imbalance Reserves Awards

An Imbalance Reserves Award for an hour obligates the Scheduling Coordinator for the resource receiving the award to submit Economic Bids for Energy to the Real-Time Market for the full range of awarded Imbalance Reserves.

The portion of the resource's Day-Ahead Schedule for Energy below a IRD award may be Self-Scheduled in the Real-Time Market.

The Scheduling Coordinator for a resource receiving an Imbalance Reserves Award in an hour cannot

submit a Self-Schedule for Energy in the Real-Time Market for a quantity in excess of its Day-Ahead Schedule for Energy minus any awards for IRD and RCD.

By forty minutes prior to the applicable Trading Hour, a System Resource receiving an Imbalance Reserves Award that has not submitted an E-Tag (or set of E-Tags) that passes CAISO E-Tag validation procedures, with the quantity (or sum of quantities) of the transmission profile no less than the sum of the Imbalance Reserves Award and any Day-Ahead Schedule for Energy will result in the CAISO deeming the untagged portion of the Imbalance Reserves Award unavailable for purposes of Section 11.2.1.8.

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31.5 Residual Unit Commitment

The CAISO shall perform the RUC process after the IFM. As further specified in this Section 31.5, RUC procures RUC Capacity, which includes Reliability Capacity Up and Reliability Capacity Down, to address mismatches between the CAISO Forecast of BAA Demand and the physical capacity committed in the IFM.

RUC Capacity is selected by a SCUC optimization that uses the same Base Market Model used in the IFM adjusted as described in Section 27.5.1 and 27.5.6 to help ensure the deliverability of Energy from the RUC Capacity. That optimization procures RUC Capacity by Node and creates separate RUC Prices for RCU and RCD by Node. In the case of Multi-Stage Generating Resources, the RUC will optimize Transition Costs in addition to the Start-Up and Minimum Load Costs. If a Scheduling Coordinator submits a Self-Schedule or a Submission to Self-Provide Ancillary Services for a given MSG Configuration in a given Trading Hour, the RUC will consider the Start-Up Cost, Minimum Load Cost, and Transition Cost associated with any Economic Bids for other MSG Configurations as incremental costs between the other MSG Configurations and the self-scheduled MSG Configuration. In such cases, incremental costs are the additional costs incurred to transition or operate in an MSG Configuration in addition to the costs associated with the self-scheduled MSG Configuration.

31.5.1 RUC Participation

31.5.1.1 Capacity Eligible for RUC Participation

*NOT CURRENT TARIFF LANGUAGE.
This document contains language that is approved by FERC but not yet effective.*

Scheduling Coordinators may make capacity available for participation in RUC by submitting a RUC Availability Bid, provided the Scheduling Coordinator has also submitted an Energy Bid (other than a Virtual Bid) for such capacity into the IFM. As part of the Bid validation procedures specified in Section 30.7.3, the CAISO disregards RUC Availability Bids from capacity that is not accompanied in the IFM by an Energy Bid that is not a Virtual Bid. Virtual Bids are not eligible to participate in RUC. Non-Participating Load and Reliability Demand Response Resources are not eligible to participate in RUC. RUC participation is required for Resource Adequacy Capacity. System Resources with a Resource ID defined in the CAISO Master File are eligible to participate in RUC and will be considered on an hourly basis; that is, RUC will not observe any multi-hour block constraints. A Long Start Unit is eligible to participate in RUC to the extent it has submitted an Energy Bid to the Day-Ahead Market above PMin. In RUC the CAISO may commit a Multi-Stage Generating Resource with a Resource Adequacy must-offer obligation at any MSG Configuration with capacity equal to or greater than the MSG Configuration committed in the Integrated Forward Market. RUC will observe the Energy Limits that may have been submitted in conjunction with Energy Bids to the IFM. Legacy RMR Unit 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 are binding.

31.5.1.2 RUC Availability Bids

With the exception of capacity from Eligible Intermittent Resources, Scheduling Coordinators may only submit RUC Availability Bids for capacity (above the Minimum Load as registered in the Master File) for which they are also submitting an Energy Bid (other than a Virtual Bid) to participate in the IFM. A Scheduling Coordinator representing an Eligible Intermittent Resource must submit RUC Availability Bids for RCU at a quantity equal to their forecasted output based on the forecast referenced in Section 34.1.6. An RMR Resource must submit a RUC Availability Bid for RCU for their full RMR Capacity.

31.5.1.3 Legacy RMR Treatment

If a Legacy RMR Unit is determined to have a generation requirement for any Trading Hour of the next

day, either by the MPM process or by the CAISO through a Manual RMR Dispatch, and if any portion of the generation requirement has not been cleared in the IFM, the entire portion of the generation requirement will be represented as a Legacy RMR Generation Self-Schedule in the RUC.

31.5.1.4 Eligibility to Set the RUC Price

All resources that are eligible for RUC participation as described in Section 31.5.1.1 with RUC Bids, other than resources with RUC Capacity resulting from RUC Availability Bids inserted pursuant to Section 31.5.1.5, that are unconstrained due to Ramp Rates or other temporal constraints, including MSG Transitions, are eligible to set the RUC Price, provided the Schedule for the eligible resource other than a Generating Unit or Resource-Specific System Resource is between zero (0) MW and the highest MW value in its Economic Bid or Generated Bid. If (a) a resource's Schedule is constrained by its Minimum Operating Limit or the highest MW value in its Economic Bid or Generated Bid, (b) the CAISO enforces a resource-specific constraint on the resource due to an RMR Dispatch Notice or Exceptional Dispatch or (c) the resource's full Ramping capability is constraining its inter-hour change in Schedule, the resource cannot be marginal and thus is not eligible to set the RUC Price. Resources identified as MSS Load following resources are not eligible to set the RUC Price.

31.5.1.5 RCU Bid Insertion for Exports and Eligible Intermittent Resources

The CAISO inserts RUC Availability Bids for RCU: (a) if an Economic Bid to export Energy is awarded in the IFM and is not accompanied by a RUC Availability Bid for RCU of at least the same quantity as the Economic Bid for Energy; (b) for Self-Schedules of exports not explicitly sourced by non-Resource Adequacy Capacity awarded in the IFM; and (c) for a Scheduling Coordinator representing an Eligible Intermittent Resource that fails to submit a RUC Availability Bid for RCU as required by Section 31.5.1.2. For parts (a) and (b), the quantity of the inserted Bid is the quantity of the Day-Ahead Schedule for Energy and the price of the inserted Bid is formulated to maintain the merit order of the resource's Energy Bid in the IFM. For part (c), the quantity of the inserted Bid is the quantity not covered by a RUC Availability Bid for RCU as required by Section 31.5.1.2 and the price of the inserted Bid is at the price included in the RUC Availability Bid for RCU or, if the Scheduling Coordinator did not submit any such Bid, at a price above the Default Availability Bid and below the RUC power balance constraint penalty price parameter specified in the Business Practice Manual.

31.5.2 [Not Used]

31.5.2.1 [Not Used]

31.5.2.2 [Not Used]

31.5.2.2.1 [Not Used]

31.5.2.2.2[Not Used]

31.5.2.3 [Not Used]

31.5.3 RUC Procurement Target

Subject to Sections 31.5.3.1 and 31.5.4, the RUC Procurement Target for each Balancing Authority Area participating in the Day-Ahead Market is based on the relationship between the CAISO Forecast of BAA Demand for that BAA and the Supply cleared in the IFM for that Trading Hour (excluding Virtual Supply). If the CAISO Forecast of BAA Demand exceeds the Supply cleared in the IFM for a Trading Hour (excluding Virtual Supply), then the RUC Procurement Target for that Balancing Authority Area is RCU in the amount of the excess Demand.

If the Supply (excluding Virtual Supply) cleared in the IFM for a Trading Hour exceeds the CAISO Forecast of BAA Demand, then the RUC Procurement Target for that Balancing Authority Area is RCD in the amount of the excess Supply.

If the Supply (excluding Virtual Supply) cleared in the IFM for a Trading Hour equals the CAISO Forecast of BAA Demand, then the RUC Procurement Target for that Balancing Authority Area is zero RCU and zero RCD.

The adjustments listed in Sections 31.5.3.1 to 31.5.3.1.6 will be made to the CAISO Forecast of BAA Demand to account for the conditions as provided therein. 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 BAA Demand and all calculated adjustments as provided in Sections 31.5.3.1.1 through 31.5.3.1.6. The CAISO Operator shall accept, modify, or reject

such adjustments based on Good Utility Practice. If the CAISO Operator determines it must modify the CAISO Forecast of BAA Demand, the CAISO Operator shall log sufficient information as to reason, Operating Hour, and specific modification(s) made to the CAISO Forecast of BAA Demand.

31.5.3.1.1 RUC Net Short Conditions

The CAISO Operator may conform the CAISO Forecast of BAA Demand in the event the CAISO Operator has determined that additional capacity may need to be procured in RUC to meet anticipated Real-Time system conditions. The CAISO Operator will consider factors such as: CAISO Forecast of BAA Demand error; weather pattern that is expected to continue or change within the next Trading Day; generator outage resulting in different Supply availability than was bid into the Day-Ahead Market; fire that threatens transmission lines and/or corridors; the expectation that the amount of Generation committed in the IFM will not be sufficient to meet the anticipated Demand; and Reliability Coordinator next-day analysis of system conditions.

31.5.3.1.2 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 System Emergency event; and (2) Demand response that is triggered by a price or an event known in advance. If an LSE informs the CAISO of anticipated Demand response prior to Market Close of the DAM, the CAISO Forecast of BAA Demand used as the RUC procurement target will be reduced accordingly.

31.5.3.1.3 [Not Used]

31.5.3.1.4 Eligible Intermittent Resource Adjustment

Scheduling Coordinators for 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. The CAISO may adjust the forecasted Demand either up or down for such differences by RUC Zone in which the Eligible Intermittent Resource resides. If the EIR's expected output participating in the Day-Ahead Market, as reflected in the EIR's Bid, including a Self-Schedule, or lack thereof, is less than CAISO's forecast of the EIR, the CAISO may make a Supply-side adjustment to the resource's expected output by using the

CAISO's forecast of the EIR. If on the other hand, the EIR's expected output participating in the Day-Ahead Market, as reflected in the EIR's Bid, including a Self-Schedule, or lack thereof, is greater than the CAISO's forecast of the EIR, the CAISO may make a Demand side adjustment to the RUC Zone Demand equal to the difference between the EIR's Day-Ahead Schedule and the CAISO forecasted quantity.

31.5.3.1.5 Real-Time Expected Incremental Supply Self-Schedule Adjustment

In order to avoid over procurement of RUC, the CAISO shall, using a similar-day approach, estimate the RTM Self-Schedules for resources that usually submit RTM 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 (7) days; in which case the weekday estimate is based on the average of five (5) most recent weekdays and the weekend estimate is based on the average of the two (2) 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 BAA Demand of a RUC Zone based on the forecasted quantity changes in Supply as a result of Self-Schedules submitted in the RTM. This adjustment for forecasted Real-Time Self-Schedules may result in positive or negative adjustments. Demand adjustments to the CAISO Forecast of BAA 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.

31.5.3.1.6 Day-Ahead Ancillary Service Procurement Deficiency Adjustment

While the CAISO intends to procure one hundred percent (100%) of its forecasted Operating Reserve requirement in the IFM based on the CAISO Forecast of BAA Demand as specified in Section 8.3.1, the CAISO shall make adjustments to the CAISO Forecast of BAA Demand used in RUC to ensure sufficient capacity is available or resources committed in cases that the CAISO is unable to procure one hundred percent (100%) of its forecasted Operating 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.

31.5.3.2 RUC Zones

31.5.3.2.1 Use of RUC Zones

The CAISO shall adjust the CAISO Forecast of BAA Demand by RUC Zone for the conditions described in Sections 31.5.3.2 through 31.5.3.6. If any adjustments are made throughout the affected RUC Zone, such adjustments will be made consistent with the subset of system LDFs for the Nodes that define the RUC Zone(s). The CAISO will adjust the CAISO Forecast of BAA Demand of each affected RUC Zone, preserving the LDFs within each RUC Zone, but the relative weighting of the LDFs across the system will deviate from the original LDFs.

31.5.3.2.2 Designation of RUC Zones

The CAISO shall define RUC Zones as areas that represent UDC or MSS Service Areas, Local Capacity Areas, or any other collection of Nodes. RUC Zones will be designated by the CAISO as necessary and to the extent that the CAISO has developed sufficient data on historical Demand in a BAA and weather conditions to allow it to perform Demand Forecasts. Once the CAISO has established RUC zones, the mapping of RUC Zones to Nodes shall be static data and shall be maintained in the Master File. The CAISO may add new Nodes to a RUC Zone if new Nodes are added to the FNM. The status of each RUC Zone shall remain active for as long as the CAISO maintains regional forecasting capabilities, but once a RUC Zone is designated the CAISO will only adjust the CAISO Forecast of BAA Demand as necessary to address RUC procurement constraints and not as a normal course for all CAISO Market functions. The actual RUC Zones used by the CAISO in its operation of RUC are posted on the CAISO Website.

31.5.4 RUC Procurement Constraints

In addition to the resource constraints and Transmission Constraints employed by SCUC as discussed in Section 27.4.1, the CAISO shall employ the following constraint in RUC:

- (a) To ensure that sufficient RUC Capacity is procured to meet the CAISO Forecast of BAA Demand, the CAISO will enforce the power balance between the total Supply, which includes Day-Ahead Schedules and RUC Capacity, and the total Demand, which includes the CAISO Forecast of BAA Demand and IFM export Schedules. The CAISO may adjust the CAISO Forecast of BAA Demand to increase the RUC procurement target

if there is AS Bid insufficiency in the IFM.

31.5.5 Selection and Commitment of RUC Capacity

Capacity that is not already scheduled in the IFM may be selected as RUC Capacity to meet a RUC Procurement Target.

31.5.5.1 Nodal Procurement and Deliverability of Reliability Capacity

RUC optimizes procurement of Reliability Capacity such that, in the event the Real-Time Market awards the incremental or decremental Energy Bids corresponding to the Reliability Capacity Awards, the dispatch of Energy from the Reliability Capacity in the market would not result in flows exceeding Transmission Constraints and scheduling limits, including EDAM Transfer limits.

The RUC optimization distributes an EDAM Entity's RUC procurement target to the Demand Locations within each EDAM Entity based on distribution factors derived from historical and/or forecasted information that reflect the relative contributions of Demand to the RUC procurement targets.

31.5.5.2 The RUC Optimization

The RUC optimization will select RUC Capacity and produce nodal RUC Prices by minimizing total Bid cost based on RUC Availability Bids and Start-Up, Minimum Load Bids and Transition Costs. RUC will not consider Start-Up, Minimum Load Bids, or Transition Costs for resources already committed in the IFM. The CAISO will only issue RUC Start-Up Instructions to resources committed in RUC that must receive a Start-Up Instruction in the Day-Ahead in order to be available to meet Real-Time Demand. RUC Schedules will be provided to Scheduling Coordinators even if a RUC Start-Up Instruction is not issued at that time. RUC shall not Shut Down resources scheduled through the IFM but RUC may commit a Multi-Stage Generating Resource to a lower MSG Configuration. If the RUC process cannot find a feasible solution given the resources committed in the IFM, the RUC process will adjust constraints as described in Section 31.5.4 to arrive at a feasible solution that accommodates all the resources committed in the IFM.

31.5.5.3 Limitations on RUC Awards

A RUC Award is limited to a resource's 60-minute ramp capability. A RUC Award to a specific resource only can consist of RCU or RCD, and not both. RUC shall not Shut Down resources scheduled through

the IFM. RUC shall not provide a RUC Award to a Multi-Stage Generating Resource that would require it to make an infeasible transition from the MSG Configuration applicable to its Day-Ahead Schedule to the MSG Configuration applicable to meeting the requirements of the potential RUC Award.

The RUC optimization applies a capacity constraint such that the sum of awards for Energy, upward Ancillary Services, IRU, and RCU does not exceed the resource's Upper Economic Limit or, in the case of an Eligible Intermittent Resource, the forecasted output based on the forecast referenced in Section 4.8.2.1.

The RUC optimization only awards a RUC Award to a storage resource using the Non-Generator Resource model to the extent its modeled State of Charge can support such schedule or award.

31.5.6 Eligibility for RUC Compensation

All RUC Capacity is eligible for the RUC Availability Payment except for: (i) RMR Capacity from RMR Resources; (ii) RUC Capacity resulting from RUC Availability Bids for exports inserted pursuant to Section 31.5.1.5; and (iii) RUC Capacity that corresponds to the resource's Minimum Load, which is compensated through the Bid Cost Recovery as described in Section 11.8. Resources not committed in the IFM that are committed in RUC, including Condition 1 Legacy RMR Units that were not designated for RMR Dispatches and Resource Adequacy Resources, are also eligible for RUC Cost Compensation, which includes Start-Up, Transition Costs, and Minimum Load Cost compensation, and Bid Cost Recovery, subject to the resource actually following its Dispatch Instructions as verified by the CAISO pursuant to procedures set forth in the Business Practice Manuals.

31.5.7 Rescission of Payments for RUC Capacity

If capacity committed in RUC provided from a Generating Unit, Participating Load, Proxy Demand Resource, System Unit or System Resource is Undispatchable Capacity during the relevant Settlement Interval, then the CAISO rescinds the payments as described in this Section 31.5.7 and settled in accordance with Section 11.2.2.2. If the CAISO determines that non-compliance of a Participating Load, Proxy Demand Resource, Generating Unit, System Unit or System Resource with an Operating Instruction or Dispatch Instruction from the CAISO, or with any other applicable technical standard under the CAISO Tariff, causes or exacerbates system conditions for which the WECC imposes a penalty on the CAISO, then the Scheduling Coordinator of such Participating Load, Proxy Demand Resource,

Generating Unit, System Unit or System Resource shall be assigned that portion of the WECC penalty which the CAISO reasonably determines is attributable to such non-compliance, in addition to any other penalties or sanctions applicable under the CAISO Tariff. The rescission of payments in this Section 31.5.7 shall not apply to a capacity payment for any particular RUC Capacity if the RUC Availability Payment is less than or equal to zero (0).

31.5.8 RTM Bidding Obligations from RUC Awards

A RUC Availability Award in an hour obligates the Scheduling Coordinator for the resource receiving the award to submit Economic Bids to the Real-Time Market for the full range of awarded Reliability Capacity. The portion of the resource's Day-Ahead Schedule for Energy below a RCD award may be Self-Scheduled in the Real-Time Market.

A resource receiving a RUC Availability Award in an hour cannot submit a Self-Schedule for Energy in the Real-Time Market for a quantity in excess of its Day-Ahead Schedule for Energy minus any awards for IRD and RCD.

Resources receiving a RUC Availability Award for RCU for which their Scheduling Coordinator has submitted an Energy Bid in the Day-Ahead Market to export outside the EDAM Area must provide a decremental Energy Bid to dispatch down the export schedule in the FMM if needed.

By forty minutes prior to the applicable Trading Hour, the Scheduling Coordinator for a System Resource receiving a RUC Award must submit an E-Tag (or set of E-Tags) that passes CAISO E-Tag validation procedures, with the quantity (or sum of quantities) of the transmission profile no less than the sum of the RUC Award and any Day-Ahead Schedule for Energy. Failure to meet this deadline results in the CAISO deeming the entire quantity of the RUC Award as Undispatchable Capacity for RUC for purposes of Section 11.2.2.2.1.

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31.9 RUC MPM Process

After the IFM and prior to RUC, the CAISO performs the RUC MPM.

31.9.1 Determining Competitive and Non-Competitive Congestion Components in RUC

*NOT CURRENT TARIFF LANGUAGE.
This document contains language that is approved by FERC but not yet effective.*

The RUC MPM process produces potential RUC Availability Awards by enforcing all Transmission Constraints that are expected to be enforced in procuring Reliability Capacity to meet the CAISO Forecast of BAA Demand, with that forecast distributed to Demand Locations based on Load Distribution Factors, and based on unmitigated RUC Availability Bids. The RUC MPM uses as the Reference Bus either: (1) the Midway 500kV bus if Path 26 flow is from north to south; or (2) the Vincent 500kV bus if Path 26 flow is from south to north. The treatment of a particular Transmission Constraint as competitive or non-competitive for purposes of the RUC MPM process is determined pursuant to Section 39.7.2.

31.9.2 RUC Bid Mitigation

The CAISO applies Local Market Power Mitigation to Bids for RCU if the resource for which that Bid was submitted could provide counter-flow to a Transmission Constraint deemed non-competitive pursuant to the methodology outlined in Section 39.7.2.2(B)(a) in the case of modeling the dispatch of Energy from the capacity corresponding to RCU Awards. To the extent a Bid for RCU is subject to Local Market Power Mitigation and exceeds the Competitive RCU LMP plus the Competitive LMP Parameter, the CAISO mitigates the Bid to the higher of the: (i) resource's RCU Default Availability Bid; or (ii) Competitive RUC Price for RCU plus the Competitive LMP Parameter.

The CAISO does not mitigate RUC Availability Bids for RCD and does not mitigate RUC Availability Bids for RCU submitted on behalf of imports from outside the EDAM Area.

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Section 33

33. Extended Day-Ahead Market

Pursuant to Section 33, the CAISO will expand operation and Settlement of the Day-Ahead Market in an EIM Entity Balancing Authority Area for which the Balancing Authority executes an EDAM Addendum to EIM Entity Agreement with the CAISO.

33.1 General Provisions

Section 1 will apply to EDAM Market Participants in addition to the provisions in this Section 33.1, unless limited in their application by this Section 33.1.

Participation in, operation of, and Settlement of the Extended Day-Ahead Market will be subject to the provisions of Section 33, and to all other provisions of the CAISO Tariff to the extent those provisions are applicable to the Extended Day-Ahead Market. The provisions of Section 33 will apply only to the Extended Day-Ahead Market.

EDAM Market Participants must comply with the provisions of Section 33, and other applicable provisions of the CAISO Tariff to the extent such provisions:

- (a) expressly refer to Section 33 or EDAM Market Participants,
- (b) are cross-referenced in Section 33, or
- (c) are not limited in applicability to the CAISO Controlled Grid, the CAISO Balancing Authority Area, or CAISO Markets other than the Day-Ahead Market or Real-Time Market.

If there is an inconsistency between a provision in Section 33 and another provision of the CAISO Tariff regarding the rights or obligations of EDAM Market Participants, except in their capacity as EIM Market Participants under Section 29, the provisions in Section 33 will prevail to the extent of the inconsistency.

If there is an inconsistency between a provision in Section 33 and a provision in Section 29, the provisions of Section 33 will prevail with respect to participation in the Day-Ahead Market and the provisions of Section 29 will prevail with respect to participation in the Real-Time Market, provided that the provisions of both Sections 33 and 29 will be given equal consideration such that the provisions applicable as an EDAM Market Participant and EIM Market Participant may be reconciled where provisions apply to participation in both the Day-Ahead Market and the Real-Time Market.

33.1.1 Suspension of EDAM Entity Participation

The CAISO may, within 60 days following an EDAM Entity Implementation Date for an EDAM Entity, and pursuant to the terms of a Market Notice, temporarily suspend the participation of that EDAM Entity in the Day-Ahead Market within the EDAM Entity Balancing Authority Area for a period not to exceed 60 days if market or system operational issues adversely impact any portion of the EDAM Area, provided that the CAISO may continue operation of the Day-Ahead Market in the rest of the EDAM Area without the participation of the EDAM Entity for a reasonable additional period of time in order to implement a resolution of the market or system operational issues.

If the CAISO is not able to identify a resolution of the EDAM-related market or system operational issues within 60 days after issuance of the Market Notice of temporary suspension of EDAM participation by an EDAM Entity, the CAISO may, upon issuance of a subsequent Market Notice, terminate participation by the EDAM Entity in the Day-Ahead Market and may extend the suspension of EDAM participation by the EDAM Entity for a time sufficient to process the termination of the EDAM Addendum to EIM Entity Agreement. The CAISO may reinstate EDAM operations after a temporary suspension of EDAM participation by an EDAM Entity by issuing a Market Notice announcing the intended reinstatement no less than 5 days in advance of the reinstatement date.

33.1.1.1 EDAM Entity Action.

In the event the CAISO issues a Market Notice of the temporary suspension of EDAM participation by an EDAM Entity, the EDAM Entity will either (a) undertake manual operation of its Balancing Authority Area without reliance on the Day-Ahead Market or (b) continue to submit EDAM Bids, forecast information, and the associated Meter Data to enable continued operation of the Day-Ahead Market until the CAISO issues a subsequent Market Notice either that (i) the cause of the temporary suspension has been resolved and the EDAM Entity has been reinstated, in which case EDAM participation by the EDAM Entity will return to normal, or (ii) EDAM participation by the EDAM Entity has been terminated.

In the event the CAISO issues a Market Notice of the temporary suspension of EDAM participation by an EDAM Entity, the EDAM Entity will either (a) not continue participation as an EIM Entity if its Balancing Authority Area is under manual operation or (b) continue participation as an EIM Entity unless otherwise directed in accordance with Section 29.1(d), specifically to submit EIM Base Schedules and the associated Meter Data to enable continued operation of the Real-Time Market until the CAISO issues a subsequent Market Notice either that (i) the cause of the temporary suspension has been resolved and the EDAM Entity has been reinstated, in which case EDAM participation by the EDAM Entity will return to normal; or (ii) EDAM participation by the EDAM Entity has

been terminated, in which case the EDAM Entity will continue participation in the EIM as an EIM Entity.

33.1.2.1 CAISO Action.

In the event the CAISO issues a Market Notice of the temporary suspension of EDAM participation by an EDAM Entity, the CAISO will (i) prevent EDAM Transfers and separate the EDAM Entity Balancing Authority Area from operation of the Day-Ahead Market in the EDAM Area in accordance with the provisions of the Business Practice Manual for the Extended Day-Ahead Market, (ii) suspend Settlement of Day-Ahead Market charges with respect to the EDAM Entity in accordance with the provisions of the Business Practice Manual for the Extended Day-Ahead Market, and (iii) issue a subsequent Market Notice either that the cause of the temporary suspension has been resolved and the EDAM Entity has been reinstated, in which case EDAM participation by the EDAM Entity will return to normal, or EDAM participation by the EDAM Entity has been terminated.

33.2 Access To EDAM

Section 2 will not apply to EDAM Market Participants; rather, the specific provisions of this Section 33.2 will apply to EDAM Market Participants.

The CAISO will provide open and non-discriminatory access to the Day-Ahead Market, including the Extended Day-Ahead Market for Balancing Authorities that also participate in the Energy Imbalance Market in accordance with the CAISO Tariff. Only EIM Entities may be EDAM Entities, while EIM Entities who do not become EDAM Entities will have no obligation to participate in the Extended Day-Ahead Market and may continue to participate solely in the Energy Imbalance Market.

33.2.1 EDAM Entity Implementation Agreement.

A Balancing Authority that seeks to become an EDAM Entity must first execute an EDAM Entity Implementation Agreement with the CAISO that establishes the EDAM Entity Implementation Date, an obligation to sign an EDAM Addendum to EIM Entity Agreement, the onboarding fee for its implementation, and the scope of work required for its participation in the EDAM. A prospective EDAM Entity that has not yet executed an EDAM Addendum to EIM Entity

Agreement may terminate its EDAM Entity Implementation Agreement at any time and for any reason in accordance with the terms of the EDAM Entity Implementation Agreement.

33.2.2 Implementation Date.

The CAISO and the prospective EDAM Entity shall work together to determine the EDAM Entity Implementation Date based on the complexity and compatibility of the Balancing Authority's transmission and technology systems with the CAISO systems and the planned timing of the CAISO's implementation of software enhancements. The EDAM Entity Implementation Date must be not less than six months and not more than twenty-four months after the date that the EDAM Entity Implementation Agreement between the CAISO and the Balancing Authority becomes effective in accordance with its terms. Once established, the EDAM Entity may request a change in the EDAM Entity Implementation Date to account for any circumstances that may affect the implementation timeline.

33.2.3 Market Simulation and Parallel Operations.

The CAISO and the prospective EDAM Entity will engage in (a) market simulation that accounts for the prospective EDAM Entity's implementation circumstances and (b) at least 30 days of parallel operations representing the Extended Day-Ahead Market to support the CAISO and the prospective EDAM Entity's implementation.

33.2.4 Reporting.

The CAISO will report on the CAISO Website periodically, but not less than once during market simulation, on progress towards completing the implementation activities and once again during parallel operations confirming completion of the implementation activities.

33.2.5 Implementation Activities.

The CAISO and the prospective EDAM Entity will complete the following implementation activities:

- (A) **Execution of Necessary Agreements.** The prospective EDAM Entity has complied with Section 33.2.1, executed any necessary agreements for operating as an EDAM Entity, and helped the CAISO secure necessary agreements with third party prospective EDAM Market Participants.

- (B) **Operations Training.** Prior to the start of parallel operations as set forth in Section 33.2.3, all operations staff (including contractors or vendors) identified by the prospective EDAM Entity who will have responsibility for EDAM operations, market transactions and settlements, will have completed identified CAISO training modules.
- (C) **Forecasting Capability.** The CAISO and, to the extent the prospective EDAM Entity will use its own forecasts or is otherwise required to provide forecasting information to the CAISO, the prospective EDAM Entity has demonstrated its respective forecasting capability through –
- (i) the definition of day-ahead demand forecast boundaries based on the conforming and non-conforming load characteristics, as applicable;
 - (ii) the documentation of EDAM Entity's choice of day-ahead demand forecast provider and how the demand forecast will be completed;
 - (iii) the accuracy of the CAISO forecast of demand based on historical actual load data for the defined demand forecast boundaries;
 - (iv) the identification of weather stations locations used in forecasting, as applicable;
 - (v) the identification of the source of day-ahead Variable Energy Resource forecasts;
 - (vi) the accuracy of the day-ahead forecast of Variable Energy Resources;
 - (vii) the identification of all Hybrid Resources; and
 - (viii) the provision of CAISO historical data on day-ahead demand and renewable forecast information to fill the needed historical data period to produce the Imbalance Reserve requirements at the net load level.
- (D) **Resource Sufficiency Evaluation.** The prospective EDAM Entity Scheduling Coordinator demonstrates its ability to pass the Resource Sufficiency Evaluation for the prospective EDAM Entity's Balancing Authority Area.
- (E) **Transmission Availability.** The prospective EDAM Entity confirms initial

registration of the transmission rights of the EDAM Transmission Service Providers in its Balancing Authority Area available for EDAM Transfers or that otherwise may be scheduled in the Day-Ahead Market.

- (F) **Operating Procedures.** Prior to the start of parallel operations pursuant to Section 33.2.3, the CAISO and the prospective EDAM Entity have defined, completed, and tested operating procedures for the prospective EDAM Entity and its Scheduling Coordinator's participation in the Energy Imbalance Market.
- (G) **System Readiness and Integration.**
 - (i) **System and Functional Testing.** The prospective EDAM Entity and the CAISO have tested the functional and system elements in accordance with functional and system testing documentation posted on the CAISO Website.
 - (ii) **Prospective EDAM Entity Identification.** The CAISO has established and the prospective EDAM Entity has tested all necessary SCIDs and Resource IDs established for the prospective EDAM Entity's Balancing Authority Area.
 - (iii) **Certificates and Access.** The prospective EDAM Entity has issued all necessary certificates to its employees, contractors and vendors that require system access to perform EDAM-related job functions.
- (H) **Market Simulation and Structured Scenarios simulation.** The prospective EDAM Entity operations staff identified by the prospective EDAM Entity who will have responsibility for EDAM operations, transactions and settlements, have executed and passed all structured scenarios provided by CAISO with all significant issues resolved.
- (I) **Settlements.** The CAISO and the prospective EDAM Entity have demonstrated that –
 - (i) CAISO settlement statements and invoices match the operational data published to stakeholders or fed into settlement

system and the resulting calculations correspond to the formulas defined in CAISO's tariff and Business Practice Manuals.

- (ii) CAISO settlement statements and invoices allocates charges and credits to its customers accurately reflecting system and market data during parallel operations.

(J) **Parallel Operations Plan.** The period of parallel operations specified in Section 33.2.3 runs consistently and in accordance with the prospective EDAM Entity specific parallel operations plan.

(K) **Historical Revenue Recovery.** As specified in the Business Practice Manual for the Extended Day-Ahead Market, but no later than three (3) months before the EDAM Access Charge would begin to be assessed, the EDAM Entity, and the CAISO for the CAISO Balancing Authority Area for the initial EDAM implementation, will exchange the information and documentation necessary to account for the EDAM Recoverable Revenue pursuant to Section 33.26 associated with the EDAM Transmission Service Providers in its Balancing Authority Area,

33.2.6 Readiness.

No later than 10 days prior to the prospective EDAM Entity Implementation Date as established in the EDAM Entity Implementation Agreement, the CAISO will determine, in consultation with the prospective EDAM Entity, whether prospective EDAM Entity will be ready for the prospective EDAM Entity's participation in the Extended Day-Ahead Market on the EDAM Entity Implementation Date as contemplated by the implementation activities in Section 33.2.5.

33.2.7 Delay.

If the CAISO or the prospective EDAM Entity determines that either cannot proceed with implementation on the EDAM Entity Implementation Date, the CAISO and the prospective EDAM Entity will establish a new EDAM Entity Implementation Date as soon as it can be determined and reflect that date in an amended version of the EDAM Entity Implementation Agreement.

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33.3 Local Furnishing PTO

The provisions applicable to transmission facilities owned by a Local Furnishing PTO or other Tax-Exempt PTO in CAISO Tariff Section 3 do not apply to the Extended Day-Ahead Market.

33.4 Roles And Responsibilities

Section 4 will apply to EDAM Market Participants to the extent their roles and responsibilities are included in the Extended Day-Ahead Market, in addition to the provisions in this Section 33.4.

(a) Nothing in this Section 33 will alter the CAISO's responsibilities under the other sections of the CAISO Tariff, under any agreement not required by Section 33, or under NERC Reliability Standards, any other NERC requirements or criteria, or any other Applicable Reliability Criteria as the Balancing Authority for the CAISO Balancing Authority Area and the transmission operator for the CAISO Controlled Grid. During any interruption of the normal operation of the Day-Ahead Market, the CAISO as Balancing Authority will remain responsible for managing the resources in its Balancing Authority Area and the flows on transmission lines internal to the CAISO Balancing Authority Area, including imports and exports, for the duration of the interruption.

(b) Nothing in this Section 33 will alter an EDAM Entity's responsibilities under NERC Reliability Standards and any other NERC requirements or criteria as the Balancing Authority for the EDAM Entity Balancing Authority Area and, to the extent applicable, as the transmission operator for transmission facilities within its Balancing Authority Area. During any interruption of the normal operation of the Day-Ahead Market, the EDAM Entity as Balancing Authority will remain responsible in accordance with Section 33.7 for managing the resources in its Balancing Authority Area and the flows on internal transmission lines, including imports into and exports out of its Balancing Authority Area, for the duration of the interruption.

(c) An EDAM Transmission Service Provider will remain the transmission service provider in accordance with its tariff and will be responsible to manage transmission sales, reservations, and schedules on its transmission system in accordance with the EDAM Transmission Service Provider tariff.

(d) The CAISO will remain the transmission service provider for transmission capacity on the CAISO Controlled Grid in accordance with the CAISO Tariff.

33.4.1 EDAM Entity

An EDAM Entity must be a Balancing Authority registered and certified as such under the applicable authorities and execute an EDAM Addendum to EIM Entity Agreement no later than ninety (90) days before the EDAM Entity Implementation Date. Upon receipt of such notice, the CAISO will undertake all necessary preparations to enable operation of the Day-Ahead Market within the EDAM Entity Balancing Authority Area, as outlined in the Business Practice Manual for the Extended Day-Ahead Market, including issuance of a Market Notice within five Business Days after receipt of such notice.

An EDAM Entity must:

- (a) perform the obligations of an EDAM Entity in accordance with the EDAM Addendum to EIM Entity Agreement, Section 33, and other provisions of the CAISO Tariff that apply to EDAM Entities, subject to the limitations specified in Section 33.1;
- (b) determine and inform the CAISO about all Load Serving Entities within the EDAM Entity's Balancing Authority Area necessary to enable operation of the Day-Ahead Market in its Balancing Authority Area;
- (c) qualify as, or secure representation by, an EDAM Entity Scheduling Coordinator, provided that an EDAM Entity may not be represented by more than one EDAM Entity Scheduling Coordinator;
- (d) provide the CAISO and its EDAM Entity Scheduling Coordinator with information regarding all Transmission Constraints of which it is aware;
- (e) work with the CAISO to identify all resources within its Balancing Authority Area that do not currently participate in the Energy Imbalance Market pursuant to Section 29 so they can be represented in the Extended Day-Ahead Market as EDAM Resources and execute an EDAM Addendum to EIM Participating Resource Agreement pursuant to Section 33, which may be accomplished through execution of a separate EDAM Addendum to EIM Participating Resource Agreement or by including all or some of the

- resources under its EDAM Addendum to EIM Participating Resource Agreement;
- (f) define Load Aggregation Points in its Balancing Authority Area and be responsible for serving the associated Demand, including for an EDAM Load Serving Entity in its Balancing Authority Area that will be separately responsible for serving the associated Demand;
- (g) identify and inform the CAISO which resource types supported by the CAISO Markets are eligible to participate in the Day-Ahead Market as EDAM Resource Facilities;
- (h) determine and inform the CAISO of EDAM Transmission Service Providers within the EDAM Entity Balancing Authority Area;
- (i) serve as the entity that interacts with EDAM Transmission Service Providers within the EDAM Entity Balancing Authority Area; and
- (j) inform the CAISO whether or not the EDAM Entity intends to utilize the CAISO's Demand Forecast consistent with Section 33.31.1.

33.4.2 EDAM Transmission Service Provider

An EDAM Transmission Service Provider must execute an EDAM Transmission Service Provider Agreement with the CAISO. An EDAM Transmission Service Provider that is not an EDAM Entity and no longer wishes to make transmission service available for use in the Day-Ahead Market may terminate the EDAM Transmission Service Provider Agreement pursuant to its terms only if such termination is concurrent with the termination of participation in the Day-Ahead Market by the EDAM Entity for the Balancing Authority Area within which the EDAM Transmission Service Provider operates or holds transmission rights.

An EDAM Transmission Service Provider must:

- (a) perform the obligations of an EDAM Transmission Service Provider in accordance with the EDAM Transmission Service Provider Agreement, Section 33, and other provisions of the CAISO Tariff that apply to EDAM Transmission Service Providers;
- (b) have provisions in effect in the EDAM Transmission Service Provider's tariff, as necessary or applicable, to enable operation of the Day-Ahead Market, including an obligation for customers of the EDAM Transmission Service Provider to have a

Scheduling Coordinator for purposes of interfacing with the CAISO;

(c) use the EDAM Entity Scheduling Coordinator as the sole Scheduling Coordinator for the EDAM Transmission Service Provider;

(d) provide information about transmission capacity available to the Day-Ahead Market to its EDAM Entity Scheduling Coordinator and the CAISO; and

(e) ensure transmission customers of the EDAM Transmission Service Provider that will submit schedules in the Day-Ahead Market secure representation by a Scheduling Coordinator.

33.4.3 EDAM Entity Scheduling Coordinator

An EDAM Entity Scheduling Coordinator must meet or have met the certification requirements in Section 4.5.1 for a Scheduling Coordinator, and enter into an EDAM Addendum to EIM Entity Scheduling Coordinator Agreement with the CAISO, which will satisfy the obligation to enter into a Scheduling Coordinator Agreement under Section 4.5.1 with regard to its representation of the EDAM Entity.

An EDAM Entity Scheduling Coordinator may represent a Market Participant other than an EDAM Entity if it enters into a Scheduling Coordinator Agreement under Section 4.5.1 with regard to such Market Participant or more than one EDAM Entity if it has certified to the CAISO in the manner described in the Business Practice Manual for the Extended Day-Ahead Market that it has informed each EDAM Entity it represents of the multiple representation. However, an EDAM Entity Scheduling Coordinator may not also be an EDAM Resource Scheduling Coordinator or a Scheduling Coordinator for a Participating Generator, Participating Load, Demand Resource Provider, or Load Serving Entity, unless the EDAM Entity Scheduling Coordinator is a transmission provider subject to the standards of conduct set forth in 18 C.F.R. § 358, is a governmental entity that agrees to comply with standards of conduct equivalent to those set forth in 18 C.F.R. § 358, or is a generation-only balancing authority that has implemented procedures equivalent to the protections offered under the standards of conduct that specifically include procedures addressing the no-conduit rule to preclude non-public transmission function information that may be received from being passed to employees that satisfy the definition of a

“Marketing Function Employee.”

33.4.4 EDAM Resource

The owner or operator of each resource in an EDAM Entity Balancing Authority Area is required to participate in the Day-Ahead Market and is required to register its resource with the CAISO as an EDAM Resource Facility if it is capable of delivering Energy, Imbalance Reserves, Reliability Capacity, Flexible Ramping Product, other Ancillary Services, curtailable Demand, or Demand Response Services (or similar services) that may be committed in the Day-Ahead and committed for dispatch in the Real-Time Market as provided in the CAISO Tariff and the Business Practice Manual for the Extended Day-Ahead Market.

33.4.4.1 EDAM Addendum to EIM Participating Resource Agreement. An EDAM Resource must (a) perform the obligations of an EDAM Resource under the EDAM Addendum to EIM Participating Resource Agreement and Section 33, and (b) perform the obligations applicable to Market Participants and resources under the provisions of the CAISO Tariff described in Section 33.1. An EDAM Resource Facility must be listed in an executed EDAM Addendum to EIM Participating Resource Agreement.

33.4.4.2 EDAM Resource and the Energy Imbalance Market. An EDAM Resource Facility must also be registered as an EIM Resource pursuant to Section 29 and participate in the Real-Time Market as an EIM Participating Resource through representation by an EIM Participating Resource Scheduling Coordinator. Resource non-participation as provided under Section 29 is no longer an option.

33.4.5 EDAM Resource Scheduling Coordinator.

Each EDAM Resource must be represented by an EDAM Resource Scheduling Coordinator. An EDAM Resource Scheduling Coordinator must meet or have met the certification requirements in Section 4.5.1 for a Scheduling Coordinator, and enter into an EDAM Addendum to EIM Participating Resource Scheduling Coordinator Agreement with the CAISO (in addition to an EIM Participating Resource Scheduling Coordinator Agreement if it has not done so already), which will satisfy the obligation to enter into a Scheduling Coordinator Agreement under Section 4.5.1 with regard to its representation of the EDAM Resource.

An EDAM Resource Scheduling Coordinator may represent more than one EDAM Resource or a Market Participant other than an EDAM Resource, but only if it enters into a Scheduling Coordinator Agreement under Section 4.5.1 with regard to such Market Participant. However, an EDAM Resource Scheduling Coordinator may not also be an EDAM Entity Scheduling Coordinator unless the EDAM Resource Scheduling Coordinator is a transmission provider subject to the standards of conduct set forth in 18 C.F.R. § 358, is a governmental entity that agrees to comply with standards of conduct equivalent to those set forth in 18 C.F.R. § 358, or is a generation-only balancing authority that has implemented procedures equivalent to the protections offered under the standards of conduct that specifically include procedures addressing the no-conduit rule to preclude non-public transmission function information that may be received from being passed to employees that satisfy the definition of a “Marketing Function Employee.”

An EDAM Resource Scheduling Coordinator must (a) perform the obligations of an EDAM Resource Scheduling Coordinator under the EDAM Addendum to EIM Participating Resource Scheduling Coordinator Agreement and Section 33, (b) perform the obligations of a Scheduling Coordinator under the provisions of the CAISO Tariff described in Section 33.1(c), (c) ensure that the entity it represents has obtained any transmission service necessary to participate in the Extended Day-Ahead Market under the terms of the CAISO Tariff or the tariff of another transmission service provider, as applicable, and (d) register in the manner set forth in the Business Practice Manual for the Extended Day-Ahead Market all EDAM Resources that it represents, provide such information to the EDAM Entity Scheduling Coordinator, and update such information with the CAISO in a timely manner.

33.4.6 EDAM Load Serving Entity

All Load in an EDAM Entity Balancing Authority Area must be represented by an EDAM Load Serving Entity. An EDAM Load Serving Entity will be responsible for Load in the Day-Ahead Market and the Real-Time Market, including the submission of Bids and Settlement of Demand, in accordance with Section 33 and Section 29, and must be represented by an EDAM Load Serving Entity Scheduling Coordinator.

33.4.7 EDAM Load Serving Entity Scheduling Coordinator

An EDAM Load Serving Entity Scheduling Coordinator must meet or have met the certification requirements in Section 4.5.1 for a Scheduling Coordinator, and enter into a Scheduling Coordinator Agreement with the CAISO, which will satisfy the obligation to enter into a Scheduling Coordinator Agreement under Section 4.5.1 with regard to its representation of the EDAM Load Serving Entity.

An EDAM Load Serving Entity Scheduling Coordinator may represent more than one EDAM Load Serving Entity or a Market Participant other than an EDAM Load Serving Entity, but only if it enters into a Scheduling Coordinator Agreement under Section 4.5.1 with regard to such Market Participant. However, an EDAM Load Serving Entity Scheduling Coordinator may not also be an EDAM Entity Scheduling Coordinator unless the EDAM Load Serving Entity Scheduling Coordinator either is a transmission provider subject to the standards of conduct set forth in 18 C.F.R. § 358, a governmental entity that agrees to comply with standards of conduct equivalent to those set forth in 18 C.F.R. § 358, or a generation-only balancing authority that has implemented procedures equivalent to the protections offered under the standards of conduct that specifically include procedures addressing the no-conduit rule to preclude non-public transmission function information that may be received from being passed to employees that satisfy the definition of a “Marketing Function Employee”.

An EDAM Load Serving Entity Scheduling Coordinator must (a) perform the obligations of an EDAM Load Serving Entity Scheduling Coordinator under the applicable Scheduling Coordinator Agreement and Section 33, (b) perform the obligations of a Scheduling Coordinator under the provisions of the CAISO Tariff described in Section 33.1, (c) ensure that Load it represents has secured any transmission service necessary to participate in the Extended Day-Ahead Market under the terms of the applicable EDAM Transmission Service Provider tariff, and (d) register the EDAM Demand that it represents in the manner set forth in the Business Practice Manual for the Extended Day-Ahead Market, provide such information to the EDAM Entity Scheduling Coordinator, and update such information with the CAISO in a timely manner.

33.4.8 Scheduling Coordinator Representation

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This document contains language that is approved by FERC but not yet effective.*

The Scheduling Coordinator for an EDAM Entity must be the same as the Scheduling Coordinator for the corresponding EIM Entity to ensure alignment between representation of the Balancing Authority Area in the Day-Ahead Market and the Real-Time Market. The Scheduling Coordinator for an EDAM Resource must be the same as the Scheduling Coordinator for the corresponding EIM Participating Resource to ensure alignment between representation of resources in the Day-Ahead Market and the Real-Time Market. Similarly, an EDAM Load Serving Entity Scheduling Coordinator will be responsible for Settlement of the Demand in the Real-Time Market it represents in the Day-Ahead Market. If the Demand represented by an EDAM Load Serving Entity Scheduling Coordinator is also associated with an EIM Sub-Entity, the Scheduling Coordinator must also represent the Demand for the EIM Sub-Entity in the Real-Time Market.

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33.5 Black Start

The provisions applicable to Black Start and system restoration in Section 5 do not apply to the Extended Day-Ahead Market.

33.6 Communications

Section 6 will apply to EDAM Market Participants and govern communications and information availability regarding EDAM Market Participants in the Day-Ahead Market, except as this Section 33.6 specifically provides.

33.6.1 Technical Requirements.

The EDAM Entity must satisfy the technical and communication requirements specified in the Business Practice Manual for the Extended Day-Ahead Market, which will be based on the Inter-Control Center Communication Protocol and Reliability Standards.

33.6.2 Communications and OASIS.

Section 6 will govern communications and information availability regarding the participation of EDAM Market Participants in the Day-Ahead Market except that (a) references to internal resources will be deemed to include EDAM Resource Facilities, (b) references in Sections 6.2.2.1

and 6.5.2.1 to the CAISO Controlled Grid and references in Sections 6.5.4.2.2(a) and 6.5.5.1.1 to the CAISO Balancing Authority Area will be deemed references to the EDAM Area, and (c) the provisions of Section 6.3.1 that authorize the CAISO to communicate directly with Generators and Demand Response Providers to ensure System Reliability will not apply to Generators and Demand Response Providers in the EDAM Entity's Balancing Authority Area or pseudo-tied from an external Balancing Authority Area to the EDAM Entity Balancing Authority Area.

33.6.3 Loss of Communications.

The CAISO and each EDAM Entity, EDAM Entity Scheduling Coordinator, and EDAM Load Serving Entity Scheduling Coordinator will establish procedures to address an interruption of Day-Ahead Market communications, which will include steps to be taken to restore communications and address any impact on system or market operations as provided in Section 33. An EDAM Entity that loses communication with the CAISO remains responsible for managing its Balancing Authority Area without the Day-Ahead Market, and each EDAM Entity will have communication procedures to address such circumstances.

33.6.4 Variable Energy Resource Forecast Communications.

If the EDAM Resource Scheduling Coordinator for a Variable Energy Resource elects to use an independent forecasting service, it must make data transfer arrangements with the CAISO for the CAISO to receive the forecast in a format and on a schedule set forth in the Business Practice Manual for the Extended Day-Ahead Market.

33.6.5 Hybrid Resource Forecast Communications.

If the EDAM Resource Scheduling Coordinator for a Hybrid Resource elects to use an independent forecasting service, it must make data transfer arrangements with the CAISO for the CAISO to receive the forecast in a format and on a schedule set forth in the Business Practice Manual for the Extended Day-Ahead Market.

33.7 EDAM Operations Under Normal And Emergency Conditions

Section 7 of the CAISO Tariff will not apply to EDAM Market Participants; rather, the specific provisions of this Section 33.7 will apply to EDAM Market Participants.

33.7.1 Normal Operations

The CAISO will administer the transmission capacity made available to the Day-Ahead Market to support transfers of Energy, Reliability Capacity, and Imbalance Reserves in the EDAM Area under normal operations. The CAISO will issue a Day-Ahead Schedule only to an EDAM Entity Scheduling Coordinator or EDAM Load Serving Entity Scheduling Coordinator for Load in the Day-Ahead Market. The CAISO will issue a Day-Ahead Schedule to an EDAM Resource only if that resource has a Bid in the Day-Ahead Market, including Load participating as an EDAM Resource. The CAISO will have no authority to issue an Exceptional Dispatch to an EDAM Resource.

33.7.2 EDAM Transfer Modeling.

EDAM Transfers support both Energy and capacity transfers between Balancing Authority Areas in the EDAM Area. Each EDAM Transfer is modeled by a pair of export and import EDAM Transfer System Resources, one for each Balancing Authority Area on each side of the EDAM Internal Intertie with equal Energy schedules and/or capacity awards. EDAM Transfers include the exchange of Energy, Imbalance Reserves, Reliability Capacity, and ancillary services in support of the EDAM RSE at EDAM Internal Interties. The Ancillary Service transfers are declared by the Balancing Authority, not optimized in the IFM, and supported by designated transmission capacity. The CAISO will model individual constraints for each EDAM Transfer scheduling limit available on an EDAM Internal Intertie based on the transmission capacity made available under Section 33.18, and will enforce the scheduling limit for an EDAM Transfer in the Day-Ahead Market. The CAISO will calculate the net scheduled EDAM Transfers for the Balancing Authority Areas in the EDAM Area and derive from these net scheduled EDAM Transfers the schedules on EDAM Internal Interties for E-Tag purposes. The CAISO will communicate the EDAM Transfer limit to the EDAM Entity Scheduling Coordinator with each Balancing Authority Area in the EDAM Area for E-Tag purposes.

33.7.3 Manual Dispatch.

The EDAM Entity may issue a manual dispatch to an EDAM Resource in its Balancing Authority Area, outside of the Market Clearing of the Day-Ahead Market, and enforce Transmission Constraints when necessary to address issues in the EDAM Entity Balancing Authority Area that

the CAISO is unable to address through normal economic Dispatch and Congestion Management in accordance with the timelines and procedures in Business Practice Manual for the Extended Day-Ahead Market. The EDAM Entity Scheduling Coordinator will inform the CAISO of the manual dispatch through submission of a Self-Schedule or EIM Manual Dispatch, and if the EDAM Entity Balancing Authority Area is under manual operation. Upon receiving notice of a manual dispatch, the CAISO will reflect the manual dispatch in the applicable CAISO Market depending upon when the notice is received and only to the extent that reflection of the manual dispatch in the market is practicable.

33.7.4 EDAM Disruption.

The CAISO may declare an interruption of EDAM Entity participation in the Day-Ahead Market when in its judgment (a) operational circumstances (including a failure of the Day-Ahead Market operation to produce feasible results in the EDAM Area or other CAISO Market Disruption) in the EDAM Area have caused or are in danger of causing an abnormal system condition in the CAISO Balancing Authority Area or an EDAM Entity Balancing Authority Area that requires immediate action, or (b) communications between the CAISO and EDAM Market Participants are disrupted and prevent an EDAM Entity, EDAM Entity Scheduling Coordinator, EDAM Load Serving Entity Scheduling Coordinator, or EDAM Resource Scheduling Coordinator from accessing CAISO systems to submit or receive information. The CAISO will reinstate normal operation of the Day-Ahead Market in the EDAM Area at such time as it determines that the conditions that caused the interruption of EDAM Entity participation in the Day-Ahead Market have been resolved.

33.7.4.1 CAISO Response to EDAM Disruption. If the CAISO declares an interruption of EDAM Entity participation in the Day-Ahead Market or the CAISO Balancing Authority Area in the EDAM Area, the CAISO may in its judgment, among other things:

(a) separate the affected EDAM Entity Balancing Authority Area or the CAISO Balancing Authority Area from the EDAM Area and maintain the Day-Ahead Market for other Balancing Authority Areas in the EDAM Area including the CAISO Balancing Authority Area, by enforcing a net transfer constraint for the affected Balancing Authority Area to separate it from the remainder of the EDAM Area,

- (b) reduce or suspend EDAM Transfers between one or more Balancing Authority Areas in the EDAM Area, including the CAISO Balancing Authority Area, in accordance with Section 33.7.5, and communicate and coordinate with impacted EDAM Entities to assess and potentially mitigate potential issues within the EDAM Area,
- (c) instruct one or more EDAM Entities to maintain system balance within their Balancing Authority Area without Day-Ahead Market results, or take similar actions within the CAISO Balancing Authority Area,
- (d) in addition or as an alternative, use market results in the Day-Ahead Market in accordance with Section 7.7.9 or take any of the actions specified in Section 7.7.6 or Section 7.7.7 with respect to the Day-Ahead Market, with reference to Section 29.7(j)(2)(D)(i) as necessary to establish an Administrative Price,
- (e) suspend or limit the ability of all Scheduling Coordinators to submit Virtual Bids on behalf of Convergence Bidding Entities at specific Eligible PNodes or Eligible Aggregated PNodes, or at all Eligible PNodes or Eligible Aggregated PNodes, or
- (f) postpone the publication of Day-Ahead Market results.

33.7.4.2 EDAM Entity Responsibility. In response to an interruption of EDAM Entity participation in the Day-Ahead Market by the CAISO, all EDAM Entities will follow NERC Reliability Standards applicable to their roles as Balancing Authorities in an effort to alleviate operational and system conditions and restore routine operations, and all EDAM Entity Scheduling Coordinators will promptly inform the CAISO of actions taken by the EDAM Entities they represent in response to an interruption of EDAM Entity participation in the Day-Ahead Market by the CAISO through updates to their Schedules, Interchange E-Tags, transmission limit adjustments, or Outage and derate information, as applicable. If the interruption of EDAM Entity participation results in the EDAM Entity not receiving a Day-Ahead Market Schedule, then the EDAM Entity must submit information to the RTM as required by Section 29 and applicable to an EIM Entity. If it is necessary for an EDAM Entity to reduce or suspend EDAM Transfers between one or more Balancing Authority Areas in the EDAM Area, the EDAM Entity must communicate and coordinate with the

CAISO and impacted EDAM Entities prior to curtailing EDAM Transfers or as soon as practicable, and should continue to communicate and coordinate with the CAISO and all EDAM Entities to assess and mitigate potential issues within the EDAM Area.

33.7.5 EDAM Transfer Priority Relative to Demand

EDAM Transfers will have a priority equal to Demand in the EDAM Area. If it is necessary for an EDAM Entity or the CAISO to reduce or suspend EDAM Transfers between one or more Balancing Authority Areas in the EDAM Area based on operational judgement and consistent with Good Utility Practice, the EDAM Entity will do so solely with respect to its Balancing Authority Area or the CAISO will do so solely with respect to its Balancing Authority Area, provided that the reduction or suspension is consistent with the EDAM Transmission Service Provider tariff or the CAISO Tariff, as applicable, and communicated to potentially impacted Balancing Authority Areas in the EDAM Area in advance, if practicable, or immediately following the reduction or suspension. This communication and subsequent coordination should continue among the CAISO and all potentially impacted EDAM Entities to assess and mitigate potential issues within the EDAM Area until resolution of the circumstances underlying the reduction or suspension in the Real-Time Market as may be reflected by information provided by the CAISO under Section 29.34(o). The CAISO will promptly adjust the EDAM Transfer limits or EIM Transfer limits associated with the reduction or suspension to reflect in the CAISO Markets the reduction or suspension directed by the EDAM Entity with respect to its Balancing Authority Area or the CAISO with respect to its Balancing Authority Area.

33.8 Ancillary Services

Ancillary services are not procured through the EDAM and the Ancillary Services provisions of Section 8 do not apply to the Extended Day-Ahead Market, including other CAISO Tariff sections that apply to the procurement and pricing of Ancillary Services. Each EDAM Entity will remain responsible for procuring and maintaining its own Ancillary Services to meet its Balancing Authority Area obligations and communicating these quantities to the CAISO as Self-Provided Ancillary Services through a Submission to Self-Provide an Ancillary Service.

33.9 Outages and Critical Contingencies

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This document contains language that is approved by FERC but not yet effective.*

Section 9 does not apply to EDAM Market Participants except as referenced in this Section 33.9.

33.9.1 Maintenance Outages

An EDAM Entity, EDAM Transmission Service Provider, or transmission operator within the Balancing Authority Area shall remain responsible for performing engineering studies and approving Maintenance Outages under the applicable EDAM Transmission Service Provider tariff or the Reliability Standards, as applicable, within its EDAM Entity Balancing Authority Area on both transmission facilities and EDAM Resources. An EDAM Entity Scheduling Coordinator must submit notice of Maintenance Outages approved by that EDAM Entity to the CAISO by the means and in the manner set forth in the Business Practice Manual for the Extended Day-Ahead Market at least seven Business Days prior to the planned Outage. The CAISO implements Maintenance Outages submitted by that deadline in the Day-Ahead Market process and informs the EDAM Entity of any anticipated transmission overloads expected due to Maintenance Outages reported to the CAISO.

33.9.2 Forced Outages

EDAM Entity Scheduling Coordinators and EDAM Resource Scheduling Coordinators must report Forced Outages to the CAISO for Outages of transmission facilities within the EDAM Entity Balancing Authority Area they represent and Generating Units or other resources they represent as EDAM Resources, respectively, in accordance with the provisions of Section 9 regarding Forced Outage reporting, including Sections 9.3.6.4.1(b), 9.3.6.4.1(c), 9.3.6.4.1(d), 9.3.6.4.2(2), 9.3.6.4.2(3), and 9.3.10.

33.9.3 Transmission Limits

An EDAM Entity Scheduling Coordinator must notify the CAISO by the means and in the manner specified in the Business Practice Manual for the Extended Day-Ahead Market regarding transmission limits on the transmission capacity made available to the Day-Ahead Market within the EDAM Entity Balancing Authority Area that need to be enforced in the Day-Ahead Market.

33.10 EDAM Metering and Telemetry

Section 10 will apply in the EDAM unless otherwise noted in this Section 33.10. In the event of any conflict, this Section 33.10 will apply.

Scheduling Coordinators must ensure compliance with this Section 33.10. The EDAM Entity Scheduling Coordinator will ensure compliance with this Section 33.10 for each Energy, Load, intertie, or other resource in its Balancing Authority Area unless that resource or Load has its own Scheduling Coordinator. The EDAM Entity will ensure each EDAM Market Participant in an EDAM Entity Balancing Authority Area becomes either a CAISO Metered Entity or a Scheduling Coordinator Metered Entity and complies with the requirements of Section 10.

33.10.1 Demand Metering

The EDAM Entity will ensure that any Load Aggregation Point in its Balancing Authority Area not represented by the EDAM Entity Scheduling Coordinator is metered separately so that the associated Demand may be settled.

33.10.2 EDAM Resource Metering

All EDAM Resource Facilities must be CAISO Metered Entities or Scheduling Coordinator Metered Entities and comply with Section 10. Scheduling Coordinators for EDAM Resources may elect to submit Meter Data in 5-minute or 15-minute intervals. Scheduling Coordinators for EDAM Resources that cannot meter the EDAM Resource's Energy every 15 minutes or faster may not submit Economic Bids or provide Ancillary Services, and must submit Self-Schedules in the EDAM and Real-Time Market.

33.10.3 EDAM Interties

EDAM Interties must have their Meter Data reported by either CAISO Metered Entities or Scheduling Coordinator Metered Entities. Each EDAM Entity Scheduling Coordinator for the EDAM Entity at the EDAM Intertie will be responsible for submitting Settlement Quality Meter Data in compliance with Section 10. EDAM Entity Scheduling Coordinators also must ensure the EDAM Intertie provides telemetry consistent with Section 33.10.4.

33.10.4 Telemetry

As described in the Business Practice Manual for the Extended Day-Ahead Market, Scheduling Coordinators for EDAM Interties and EDAM Resource Facilities, including without limitation Generating Units, storage resources, Distributed Energy Resources, and Demand Response Resources, must satisfy communications, telemetry, and control requirements in a manner that

ensures that the CAISO and EDAM Entities will have the ability, consistent with the CAISO Tariff, to monitor the EDAM Resource Facility as necessary to maintain reliability in their respective Balancing Authority Areas. An EDAM Resource Facility will be exempt from this Section 33.10.4 if it has a rated capacity of less than ten (10) MW, unless it is certified by the CAISO to provide Ancillary Services. For purposes of this calculation, aggregated resources will calculate their aggregated capacity and provide telemetry at the aggregate level. EDAM Resource Facilities must comply with any EDAM Entity or Local Regulatory Authority requirements in addition to this Section 33.10.4.

33.11 Settlements And Billing for EDAM Market Participants

Section 33.11, rather than Section 11, will apply to CAISO Settlement with EDAM Entity Scheduling Coordinators, EDAM Resource Scheduling Coordinators, EDAM Load Serving Entity Scheduling Coordinators and EDAM Market Participants, except as otherwise provided in this Section 33.11.

33.11.1 Transfer Revenue and Congestion Revenue Allocation

EDAM Transfer revenue will be collected when one Balancing Authority Area in the EDAM Area provides Energy, Imbalance Reserve, and/or Reliability Capacity to another Balancing Authority Area in the EDAM Area and the associated EDAM Transfer System Resource prices elements or components differ. Congestion revenue will be collected when a Transmission Constraint or intertie scheduling limit binds at different locations of the transmission system and the LMP varies across a Balancing Authority Area in the EDAM Area. The CAISO will allocate EDAM Transfer revenue and Congestion revenue attributed to an EDAM Entity Balancing Authority Area or the CAISO Balancing Authority Area as provided below.

33.11.1.1 Transfer Revenue

The CAISO will calculate and allocate EDAM Transfer revenue for Energy transfers, Imbalance Reserve transfers, and/or Reliability Capacity transfers for a Balancing Authority Area in the EDAM Area.

33.11.1.1.1 Energy Transfer Revenue

EDAM Transfer revenue for Energy occurs when the net EDAM Transfer scheduling limit is reached in the Day-Ahead Market. This manifests as a separation of the Marginal

Energy Cost of the binding Balancing Authority Area in the EDAM Area from the Marginal Energy Cost of an adjacent Balancing Authority Area in the EDAM Area that is attributed to an EDAM Transfer System Resource. The CAISO will allocate the EDAM Transfer revenue for Energy represented by EDAM Transfer System Resources equally between the Balancing Authority Areas, except when the CAISO has been notified during the implementation of the Day-Ahead Market within a prospective EDAM Entity Balancing Authority Area of an agreement between both EDAM Entities on either side of a EDAM Transfer that a different allocation for some portion of the EDAM Transfer revenue is required to give effect to a pre-existing commercial arrangement. The CAISO will then allocate the EDAM Transfer revenue for Energy directed to a Balancing Authority Area based upon whether the transmission across an EDAM Internal Intertie is made available by: (a) by an EDAM Entity pursuant to Section 33.18.2, in which case the CAISO will allocate the EDAM Transfer revenue to the EDAM Entity Scheduling Coordinator, (b) an EDAM Transmission Service Provider customer pursuant to Section 33.18.2.2.2, in which case the CAISO will allocate the EDAM Transfer revenue to the Scheduling Coordinator for the EDAM Transmission Service Provider customer, or (c) an EDAM Legacy Contract, Existing Contract, EDAM Transmission Ownership Right, or Transmission Ownership holder pursuant to Section 33.18.2.2.2, in which case the CAISO will allocate the EDAM Transfer revenue to the Scheduling Coordinator for the EDAM Legacy Contract, Existing Contract EDAM Transmission Ownership Right, or Transmission Ownership holder, respectively. An EDAM Entity will ensure EDAM Transfer revenue for Energy allocated to its EDAM Entity Scheduling Coordinator is thereafter allocated by all applicable EDAM Transmission Service Providers as may be detailed in the EDAM Transmission Service Provider tariff and business practices. EDAM Transfer revenue for Energy allocated to the CAISO Balancing Authority is further allocated according to the CAISO Tariff, unless allocated directly to a Scheduling Coordinator for a Transmission Ownership Rights holder or Existing Contract rights holder consistent with the terms of the agreement concerning use of the transmission facilities supporting the EDAM Transfer.

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This document contains language that is approved by FERC but not yet effective.

33.11.1.1.2 Imbalance Reserve Transfer Revenue

The CAISO collects EDAM Transfer revenue for Imbalance Reserves when the transfer scheduling limit binds while optimizing capacity to meet the Imbalance Reserves Requirement for an EDAM Entity Balancing Authority Area or the CAISO Balancing Authority Area and manifests as price separation between the Shadow Price of the Imbalance Reserves procurement between the two Balancing Authority Areas at an EDAM Transfer location that is attributed to an EDAM Transfer System Resource. The CAISO calculates the hourly EDAM Transfer revenue for Imbalance Reserves as the product of the transfer quantity and the difference between the Locational IRU Price or Locational IRD Price, as appropriate, on either side of the binding limit. The CAISO will allocate the EDAM Transfer revenue for Imbalance Reserves equally between the Balancing Authority Areas, except when the CAISO has been notified during the implementation of the Day-Ahead Market within a prospective EDAM Entity Balancing Authority Area of an agreement between both EDAM Entities on either side of a EDAM Transfer that a different allocation for some portion of the EDAM Transfer revenue is required to give effect to a pre-existing commercial arrangement. The CAISO will then allocate the EDAM Transfer revenue for Imbalance Reserves directed to a Balancing Authority Area based upon whether the transmission across an EDAM Internal Intertie is made available by: (a) an EDAM Entity pursuant to Section 33.18.2, in which case the CAISO will allocate the EDAM Transfer revenue to the EDAM Entity Scheduling Coordinator, (b) an EDAM Transmission Service Provider customer pursuant to Section 33.18.2.2.2, in which case the CAISO will allocate the EDAM Transfer revenue to the Scheduling Coordinator for the EDAM Transmission Service Provider customer, or (c) an EDAM Legacy Contract, Existing Contract, EDAM Transmission Ownership Right, or Transmission Ownership holder pursuant to Section 33.18.2.2.2, in which case the CAISO will allocate the EDAM Transfer revenue to the Scheduling Coordinator for the EDAM Legacy Contract, Existing Contract EDAM Transmission Ownership Right, or Transmission Ownership holder, respectively. An EDAM Entity will ensure that EDAM

Transfer revenue for Imbalance Reserves allocated to its EDAM Entity Scheduling Coordinator is thereafter allocated by all applicable EDAM Transmission Service Providers as may be detailed in the EDAM Transmission Service Provider tariff. EDAM Transfer revenue for Imbalance Reserves allocated to the CAISO Balancing Authority is further allocated in the CAISO Balancing Authority Area according to the CAISO Tariff, unless allocated directly to a Scheduling Coordinator for a Transmission Ownership Rights holder or Existing Contract rights holder consistent with the terms of the agreement concerning use of the transmission facilities supporting the EDAM Transfer.

33.11.1.1.3 Reliability Capacity Transfer Revenue

EDAM Transfer revenue for Reliability Capacity occurs when the transfer scheduling limit binds while optimizing capacity to meet the RUC Procurement Target for an EDAM Entity Balancing Authority Area or the CAISO Balancing Authority Area and manifests as price separation between the Shadow Price of the Reliability Capacity procurement between the two Balancing Authority Areas at an EDAM Internal Intertie that is attributed to an EDAM Transfer System Resource. The CAISO calculates the hourly EDAM Transfer revenue for Reliability Capacity as the product of the transfer quantity and the difference between the RUC Price for RCU and the RUC Price for RCD, as applicable, on either side of the binding limit. The CAISO will allocate the EDAM Transfer revenue for Reliability Capacity equally between the Balancing Authority Areas, except when the CAISO has been notified during the implementation of the Day-Ahead Market within a prospective EDAM Entity Balancing Authority Area of an agreement between both EDAM Entities on either side of a EDAM Transfer that a different allocation for some portion of the EDAM Transfer revenue is required to give effect to a pre-existing commercial arrangement. The CAISO will then allocate the EDAM Transfer revenue for Reliability Capacity directed to a Balancing Authority Area based upon whether the transmission across an EDAM Internal Intertie is made available by: (a) an EDAM Entity pursuant to Section 33.18.2, in which case the CAISO will allocate the EDAM Transfer revenue to the EDAM Entity Scheduling Coordinator, (b) an EDAM Transmission Service Provider

customer pursuant to Section 33.18.2.2.2, in which case the CAISO will allocate the EDAM Transfer revenue to the Scheduling Coordinator for the EDAM Transmission Service Provider customer, or (c) an EDAM Legacy Contract, Existing Contract, EDAM Transmission Ownership Right, or Transmission Ownership holder pursuant to Section 33.18.2.2.2, in which case the CAISO will allocate the EDAM Transfer revenue to the Scheduling Coordinator for the EDAM Legacy Contract, Existing Contract EDAM Transmission Ownership Right, or Transmission Ownership holder, respectively. An EDAM Entity will ensure that EDAM Transfer revenue for Reliability Capacity allocated to its EDAM Entity Scheduling Coordinator is thereafter allocated by all applicable EDAM Transmission Service Providers as may be detailed in the EDAM Transmission Service Provider tariff and business practices. EDAM Transfer revenue for Reliability Capacity allocated to the CAISO Balancing Authority Area is further allocated in the CAISO Balancing Authority Area according to the CAISO Tariff, unless allocated directly to a Scheduling Coordinator for a Transmission Ownership Rights holder or Existing Contract rights holder consistent with the terms of the agreement concerning use of the transmission facilities supporting the EDAM Transfer.

33.11.1.2 Congestion Revenue

The CAISO will collect Congestion revenue based on price differences in the Marginal Cost of Congestion of the LMP across PNodes within the EDAM Area. For each Settlement Period of the DAM, the CAISO will calculate the contribution of each Balancing Authority Area in the EDAM Area to the Marginal Cost of Congestion at each resource location and intertie in the EDAM Area for each Balancing Authority Area based on the location of the Transmission Constraints in each Balancing Authority Area, EDAM Interties, and constraints enforced outside of the EDAM Area needed to manage that Balancing Authority Area's responsibilities. The CAISO will distribute the Congestion Charge revenue collected from the Transmission Constraints in each Balancing Authority Area in the EDAM Area to the applicable Balancing Authority Area within which the Congestion occurred, following any adjustment for (a) the CAISO Balancing Authority Area in accordance with Section 11 and EDAM Entity Balancing Authority Areas to account for schedules

associated with EDAM Legacy Contracts, EDAM Transmission Ownership Rights and registered EDAM Transmission Service Provider transmission customer rights under Sections 33.16, 33.17, and 33.18, respectively, and (b) the Marginal Cost of Congestion difference between nodes within an EDAM Balancing Authority Area that result from Transmission Constraints in a Balancing Authority Area in the EDAM Area outside of that EDAM Balancing Authority Area and are associated with registered, qualified and balanced Day-Ahead Self-Schedules under Section 33.11.1.2.1. An EDAM Entity will ensure that Congestion revenue allocated to its EDAM Entity Scheduling Coordinator is further allocated by all applicable EDAM Transmission Service Providers as may be detailed in the EDAM Transmission Service Provider tariff and business practices. Congestion revenue allocated to the CAISO Balancing Authority Area will be further allocated according to the CAISO Tariff, including Section 11.2.1 and Section 11.2.4.

33.11.1.2.1 EDAM Entity Balancing Authority Area MCC Adjustment

For each Settlement Period of the DAM, the CAISO will determine through calculations detailed in the Business Practice Manual for Settlements and Billing the Congestion difference within the EDAM Area from the contribution of qualified and balanced Day-Ahead Self-Schedules registered by the EDAM Entity in each EDAM Entity Balancing Authority Area to the Marginal Cost of Congestion at each resource location and intertie in the EDAM Area. This Congestion difference will be allocated to the EDAM Entity Balancing Authority Area where the qualified and balanced Day-Ahead Self-Schedule is associated for sub-allocation as required by Section 33.11.1.2. Qualification for this adjustment will be afforded to eligible long-term firm and monthly firm point-to-point and network integration transmission service rights, including conditional firm, as defined under the EDAM Transmission Service Provider tariff (with shorter-term rights being ineligible for this treatment). Registration of qualified transmission service rights will occur through the procedures described in Section 33.18.3 and result in a CRN to facilitate this adjustment. A Day-Ahead Self Schedule will be considered balanced for purposes of this adjustment in accordance with the provisions of Section 33.16 applicable to the determination of whether an EDAM Legacy Contract is balanced in the DAM.

33.11.2 EDAM RSE Failure Surcharge

A Balancing Authority Area in the EDAM Area must meet the requirements of the EDAM RSE for its Balancing Authority Area, as provided in Section 33.31.1.4. The applicable Scheduling Coordinator for each Balancing Authority Area in the EDAM Area that fails to meet all of the requirements of the EDAM RSE will be allocated the applicable EDAM RSE failure surcharge, as provided in Section 33.31.1.5.

33.11.2.1 Calculation of the EDAM RSE Failure Surcharges

33.11.2.1.1 EDAM RSE On-Peak Upward Failure Insufficiency Surcharge

If a Balancing Authority Area in the EDAM Area fails to satisfy all of the upward components of the EDAM RSE, as set forth in Section 33.31.1.3, during any hour within the sixteen-hour on-peak period, then the applicable Scheduling Coordinator for the Balancing Authority Area may be allocated the EDAM RSE On-Peak Upward Failure Insufficiency Surcharge in each hour of the sixteen-hour on-peak period, with such surcharge established on a tiered structure, as provided in Section 33.31.1.5. The EDAM RSE On-Peak Upward Failure Insufficiency Surcharge will be calculated as the product of (a) the highest EDAM RSE Hourly Upward Deficiency Quantity during the sixteen-hour on-peak period of that day, (b) the greater of the published bilateral electric index prices for the applicable EDAM Trade Location, and (c) the EDAM RSE Failure Multiplier adjusted by the EDAM RSE Failure Scaling Factor. The EDAM RSE On-Peak Upward Failure Insufficiency Surcharge applied in each hour of the sixteen-hour block will be adjusted by the EDAM RSE On-Peak Upward Credit amount for each hour the Balancing Authority Area satisfied all of the upward components of the EDAM RSE. In the event the EDAM RSE On-Peak Credit amount exceeds the surcharge amount, the EDAM RSE On-Peak Upward Failure Insufficiency Surcharge will be zero.

33.11.2.1.2 EDAM RSE Off-Peak Upward Failure Insufficiency Surcharge

If a Balancing Authority Area in the EDAM Area fails to satisfy all of the upward components of the EDAM RSE, as set forth in Section 33.31.1.3 in the upward direction during any hour within the off-peak period, then the applicable Scheduling Coordinator for

the Balancing Authority Area may be allocated the EDAM RSE Off-Peak Upward Failure Insufficiency Surcharge for each hour during the off-peak period in which there has been an upward failure. The EDAM RSE Off-Peak Upward Failure Insufficiency Surcharge will be calculated as the product of (a) EDAM RSE Hourly Upward Deficiency Quantity; (b) the load-weighted average of the LMP of the LAP within that Balancing Authority Area and (c) the EDAM RSE Failure Multiplier.

33.11.2.1.3 EDAM RSE Downward Failure Insufficiency Surcharge

If a Balancing Authority Area in the EDAM Area fails to satisfy all of the downward components of the EDAM RSE during any hour, as set forth in Section 33.31.1.3, then the applicable Scheduling Coordinator for the Balancing Authority Area may be allocated the EDAM RSE Downward Failure Insufficiency Surcharge for each hour in which there has been a downward failure. The EDAM RSE Downward Insufficiency Charge will be calculated as the product of (a) the EDAM RSE Hourly Downward RSE Deficiency Quantity and (b) the Marginal Energy Cost of that Balancing Authority Area. If the EDAM RSE Hourly Downward Deficiency Quantity is greater than ten (10) MW, then the Balancing Authority Area will be assessed the EDAM RSE Downward Failure Insufficiency Surcharge for each hour in which there has been a downward failure. If the EDAM RSE Hourly Downward Deficiency Quantity is less than or equal to ten (10) MW, then there will be no EDAM RSE Downward Failure Insufficiency Surcharge during the applicable hour given the *de minimis* nature of the failure.

33.11.2.2 EDAM RSE Surcharge Distribution

The CAISO will sum all EDAM RSE surcharge-related revenue on an hourly basis and distribute as follows:

33.11.2.2.1 EDAM RSE On-Peak Upward Failure Insufficiency Revenue Distribution

On an hourly basis, the CAISO will sum the EDAM RSE On-Peak Upward Failure Insufficiency Surcharge revenue owed by Balancing Authority Areas with tier 2 or tier 3 upward failures of the EDAM RSE during the on-peak hours and distribute that revenue,

pro rata, to the applicable Scheduling Coordinator for the Balancing Authority Areas in the EDAM Area that satisfied all upward components of the EDAM RSE in all of the sixteen on-peak hours of that Trading Day. If no Balancing Authority Area in the EDAM Area satisfied all of the upward components of the EDAM RSE in all of the sixteen on-peak hours of that Trading Day, then the CAISO will distribute the revenue collected on an hour-by-hour basis, pro rata, to the applicable Scheduling Coordinator for the Balancing Authority Areas that satisfied all of the upward components of the EDAM RSE in that on-peak hour. In both cases, the pro-rata distribution will be determined based on a Balancing Authority Area's total net EDAM Transfers in the export direction as the numerator and the total sum of the net EDAM Transfers in the export direction of Balancing Authority Areas that satisfied all of the upward components of the EDAM RSE upward tests as the denominator. If no Balancing Authority Area in the EDAM Area satisfied all of the upward components of the EDAM RSE in any single on-peak hour, then the CAISO will not collect the EDAM RSE On-Peak Upward Failure Insufficiency Surcharge revenue from the applicable Scheduling Coordinator for the Balancing Authority Area in the EDAM Area for that single on-peak hour.

33.11.2.2.2 EDAM RSE Off-Peak Upward Failure Insufficiency Revenue Distribution

On an hourly basis, the CAISO will sum the EDAM RSE Off-Peak Upward Failure Surcharge revenue owed by of the Balancing Authority Areas with tier 2 and tier 3 upward failures of the EDAM RSE during the off-peak hours and distribute that revenue to the applicable Scheduling Coordinator for the Balancing Authority Areas in the EDAM Area that satisfied all of the upward components of the EDAM RSE in all of the off-peak hours of that Trading Day. If no Balancing Authority Area in the EDAM Area satisfied all of the upward components of the EDAM RSE in all of the off-peak hours of that Trading Day, then the CAISO will distribute the revenue collected on an hour-by-hour basis, *pro rata*, to the applicable Scheduling Coordinator for the Balancing Authority Areas satisfied all of the upward components of the EDAM RSE in that off-peak hour. In both cases, the

pro rata distribution will be determined based on a Balancing Authority Area's total net EDAM Transfers in the export direction as the numerator and the total net EDAM Transfers in the export direction of all Balancing Authority Areas that satisfied all of the upward components of the EDAM RSE as the denominator. If no Balancing Authority Area in the EDAM Area has satisfied all of the upward components of the EDAM RSE in any single off-peak hour, then the CAISO will not collect the EDAM RSE Off-Peak Upward Failure Insufficiency Surcharge from the applicable Scheduling Coordinator for the Balancing Authority Area in the EDAM Area for that single off-peak hour.

33.11.2.2.3 EDAM RSE Downward Failure Insufficiency Revenue Distribution

On an hourly basis, the CAISO will sum the EDAM RSE Downward Failure Insufficiency revenue owed by Balancing Authority Areas in the EDAM Area that fail to satisfy all of the downward components of the EDAM RSE and distribute that revenue, *pro rata*, to the applicable Scheduling Coordinator for the Balancing Authority Areas in the EDAM Area that satisfied all downward components of the EDAM RSE for that Trading Day. If no Balancing Authority Area in the EDAM Area satisfied all of the downward components of the EDAM RSE over the twenty-four hour period of the Trading Day, then the CAISO will distribute the revenue collected on an hour-by-hour basis, *pro rata*, to the applicable Scheduling Coordinator for the Balancing Authority Areas that satisfied all of the downward components of the EDAM RSE in any single hour. In both cases, the *pro rata* distribution will be determined based on the Balancing Authority Area total net EDAM Transfers in the import direction as the numerator and the total sum of the net EDAM Transfers in the import direction of Balancing Authority Areas that satisfied all of the downward components of the EDAM RSE downward tests as the denominator. If no Balancing Authority Area in the EDAM Area satisfied all of the downward components of the EDAM RSE in any single hour, then the CAISO will not collect the EDAM RSE Downward Failure Insufficiency Surcharge from the applicable Scheduling Coordinator for the Balancing Authority Area in the EDAM Area for that single hour.

33.11.2.3 EDAM RSE Surcharge Allocation

NOT CURRENT TARIFF LANGUAGE.
This document contains language that is approved by FERC but not yet effective.

Revenue and costs arising from the EDAM RSE failure surcharge(s) distributed in accordance with Section 33.11.2.2 will be allocated to the CAISO Balancing Authority Area for sub-allocation in accordance with the CAISO Tariff and, for all other Balancing Authorities in the EDAM Area, to the applicable Scheduling Coordinator for any further sub-allocation in accordance with the requirements of the applicable tariffs and business practices of the entities within that EDAM Entity Balancing Authority Area.

33.11.3 Day-Ahead Market Settlement

The CAISO settles Day-Ahead Schedules and RUC Schedules issued to EDAM Market Participants as specified in this Section 33.11.3.

33.11.3.1 Settling Day-Ahead Schedules for Energy

The CAISO settles Day-Ahead Schedules for Energy issued to EDAM Market Participants as specified in Section 11.2.1.1 for Supply and as specified in Section 11.2.1.2 for Demand. The CAISO settles Energy Exports at an EDAM External Intertie as specified in Section 11.2.1.4. The CAISO settles EDAM Transfers of Energy by assessing both the importing and exporting Balancing Authority Areas. In the case of EDAM Entities, the CAISO assesses the Scheduling Coordinator representing the importing Balancing Authority Area a settlement equal to the product of the quantity of the import and the LMP at the relevant Scheduling Point pricing location and assesses the Scheduling Coordinator representing the exporting Balancing Authority Area a settlement equal to the product of the quantity of the export and the LMP at the relevant Scheduling Point pricing location. If the CAISO is one of the importing or exporting Balancing Authority Areas, then the CAISO allocates the product of the export or import, as appropriate, and the LMP at the relevant Scheduling Point pricing location to CAISO Scheduling Coordinators as specified in Section 11 for allocating EDAM Transfers of Energy.

33.11.3.2 Settling Imbalance Reserves

The CAISO settles Imbalance Reserves Awards issued to EDAM Resources as specified in Sections 11.2.1.1, 11.2.1.8, and 11.25.2.1.1 as though the EDAM Resource were a Participating Generator.

The CAISO allocates the costs of procuring Imbalance Reserves in the EDAM as specified in

Section 11.2.1.9 individually for each EDAM Entity with the exception that any reference to the CAISO Balancing Authority Area is a reference to the Balancing Authority Area of the relevant EDAM Entity.

In allocating the costs of Imbalance Reserves, the CAISO assesses both the importing and exporting Balancing Authority Areas for EDAM Transfers of Imbalance Reserves. In the case of EDAM Entities, the CAISO assesses the Scheduling Coordinator representing the importing Balancing Authority Area a settlement equal to the product of the quantity of the import and the Locational IRU Price or Locational IRD Price, as applicable, at the relevant Scheduling Point pricing location. In the case of EDAM Entities, the CAISO assesses the Scheduling Coordinator representing the exporting Balancing Authority Area a settlement equal to the product of the quantity of the export and the Locational IRU Price or Locational IRD Price, as applicable, at the relevant Scheduling Point pricing location. If the CAISO is one of the importing or exporting Balancing Authority Areas, then the CAISO allocates the product of the export or import, as appropriate, and the Locational IRU Price or Locational IRD Price, as applicable, at the relevant Scheduling Point pricing location to CAISO Scheduling Coordinators as specified in Section 11 for allocating EDAM Transfers of Imbalance Reserves.

33.11.3.3 Settling Reliability Capacity

The CAISO settles RUC Awards issued to EDAM Resources as specified in Section 11.2.2 as though the EDAM Resource were a Participating Generator or other seller of Energy or Ancillary Services.

The CAISO allocates the costs of procuring Reliability Capacity in the EDAM as specified in Section 11.8.6.5.3.3 individually for each EDAM Entity with the exception that any reference to the CAISO Balancing Authority Area is a reference to the Balancing Authority Area of the relevant EDAM Entity. In allocating the costs of Reliability Capacity, the CAISO assesses both the importing and exporting Balancing Authority Areas for EDAM Transfers of Reliability Capacity. The CAISO assesses the importing Balancing Authority Area a charge equal to the product of the quantity of the import and the RUC Price for RCU or RUC Price for RCD, as applicable, at the relevant Scheduling Point pricing location. The CAISO assesses the exporting Balancing

Authority Area a credit equal to the product of the quantity of the export and the RUC Price for RCU or RUC Price for RCD, as applicable, at the relevant Scheduling Point pricing location. If the CAISO is one of the importing or exporting Balancing Authority Areas, then the CAISO allocates the product of the export or import, as appropriate, and the RUC Price for RCU or RUC Price for RCD, as applicable, at the relevant Scheduling Point pricing location to CAISO Scheduling Coordinators as specified in Section 11 for allocating EDAM Transfers of Reliability Capacity.

33.11.3.4 Settling Ancillary Services

The EDAM does not procure Ancillary Services for EDAM Entity Balancing Authority Areas and the CAISO therefore does not settle charges or payments for Ancillary Services for the EDAM Entities in the Extended Day-Ahead Market. Ancillary Services provided by an EDAM Entity cannot be used to offset Ancillary Services obligations of a Scheduling Coordinator representing an entity with Ancillary Services obligations in the CAISO Balancing Authority Area.

33.11.3.5 IFM Bid Cost Recovery

EDAM Resources may receive Bid Cost Recovery for the IFM in accordance with Section 11.8. The CAISO allocates the IFM Bid Cost Uplift to Balancing Authority Areas in the EDAM Area, with the following rules in addition to any provisions in Section 11.8.

For a Balancing Authority Area with net Energy export transfer, the CAISO transfers a portion of the Balancing Authority Area's IFM Bid Cost Uplift amount to Balancing Authority Areas receiving net Energy import transfers. For purposes of the foregoing, a Balancing Authority Area has net import transfers if the sum of the Balancing Authority Area's net Energy transfer and its net Imbalance Reserve transfer is in the import direction. If such sum is in the export direction, the Balancing Authority Area is deemed to have a net Energy export transfer.

The Balancing Authority Area IFM Bid Cost Uplift transfer adjustment amount will equal the product of the Balancing Authority Area hourly IFM Bid Cost Uplift amount and the ratio of the Balancing Authority Area's Day-Ahead net Energy export transfers and net Imbalance Reserve Up export transfers divided by Balancing Authority Area's Day-Ahead Schedules, Day-Ahead net Energy export transfers, net Imbalance Reserve Up export transfers and virtual demand, if

applicable. The CAISO allocates the IFM Balancing Authority Area IFM Bid Cost Uplift transfer adjustment amount to Balancing Authority Areas with net transfers in the import direction. For each EDAM Entity Balancing Authority Area, the CAISO allocates the adjusted Balancing Authority Area IFM BCR amounts to the EDAM Entity for allocation under the applicable tariff and, for the CAISO Balancing Authority Area, pursuant to Section 11.8.6.

33.11.3.6 RUC Bid Cost Recovery

EDAM Resources may receive Bid Cost Recovery for RUC in accordance with Sections 11.8.3. For each Trading Hour, the CAISO calculates the RUC Bid Cost Uplift for each EDAM Entity and the CAISO Balancing Authority Area. The CAISO allocates the RUC Bid Cost Uplift to each EDAM Entity Balancing Authority Area according the methodology specified in Section 11.8.6.5 with the following adjustments.

For a Balancing Authority Area with net Reliability Capacity export transfer, the CAISO transfers a portion of the Balancing Authority Area's RUC Bid Cost Uplift amount to Balancing Authority Areas receiving net Reliability Capacity transfers. For purposes of the foregoing, a Balancing Authority Area receives net Reliability Capacity transfers if the sum of the Balancing Authority Area's net Reliability Capacity transfers is in the import direction. If such sum is in the export direction, the Balancing Authority Area is deemed to have a net Reliability Capacity export transfer.

The Balancing Authority Area RUC Bid Cost Uplift transfer adjustment amount will equal the product of the Balancing Authority Area hourly RUC Bid Cost Uplift amount and the ratio of the Balancing Authority Area's net Reliability Capacity export transfers divided by Balancing Authority Area's Reliability Capacity Schedules. The CAISO allocates the IFM Balancing Authority Area IFM Bid Cost Uplift transfer adjustment amount to Balancing Authority Areas with net transfers in the import direction. For each EDAM Entity Balancing Authority Area, the CAISO allocates the adjusted Balancing Authority Area IFM BCR amounts to the EDAM Entity for allocation under its tariff and, for the CAISO Balancing Authority Area, pursuant to Section 11.8.6.

33.11.3.7 Greenhouse Gas in the IFM

Resources that receive a Day-Ahead attribution to serve Demand in a GHG Regulation Area will

receive a GHG payment. The GHG payment is the product of the IFM obligation to serve Demand in a specific GHG Regulation Area and the IFM Marginal GHG Cost for that respective GHG Regulation Area. For a resource within a GHG Regulation Area that does not receive an attribution to served Demand in another GHG Regulation Area, the cost of GHG compliance is embedded in the resource's LMP.

33.11.3.8 EDAM Legacy Contracts, EDAM Ownership Rights, and Day-Ahead Schedules

Scheduling Coordinators who Self-Schedule Energy in the IFM using their qualified and registered EDAM Transmission Service Provider rights will settle at the LMP in a manner similar to all other Day-Ahead awards. Scheduling Coordinators who Self-Schedule Energy in the IFM using their qualified and registered EDAM Legacy Contract Rights or EDAM Transmission Ownership Rights will settle at the LMP in a manner similar to all other Day-Ahead awards, except the balanced portion of a Schedule associated with an EDAM Legacy Contract or an EDAM Transmission Ownership Right will be eligible for mitigation against Congestion costs in accordance with Section 33.16 and Section 33.17, and be settled as described in this Section 33.11.3.8. The CAISO will facilitate this mitigation by reversing the Marginal Cost of Congestion component of the LMP difference between the balanced source Day-Ahead Schedule and sink Day-Ahead Schedule. The CAISO will include these Congestion costs in the calculation of Day-Ahead Congestion revenue. In addition, long-term contracts with special marginal losses provisions will have a similar Settlement mechanism apply to the Marginal Cost of Losses component of the LMP.

33.11.3.9 Neutrality

The CAISO will consider each component of the LMP to ensure neutrality within a Balancing Authority Area in the EDAM Area and across GHG Regulation Areas: Marginal Energy Cost, Marginal Cost of Congestion, Marginal Cost of Losses, and the applicable Marginal GHG Cost.

33.11.3.9.1 Marginal Loss Offset

The CAISO will calculate an hourly Day-Ahead marginal loss offset amount for each Balancing Authority Area. The hourly Day-Ahead marginal loss offset amount will equal

the sum of the product of Day-Ahead Energy Schedules, including Schedules for Virtual Awards and transfer Energy schedules, and the Marginal Cost of Losses at their relevant pricing location. The CAISO will allocate the hourly Day-Ahead marginal loss offset amount to the EDAM Entity and, for the CAISO Balancing Authority Area, to Measured Demand. The hourly Day-Ahead marginal losses offset amount will also include any marginal losses reversal from balanced Schedule portions of EDAM Legacy Contracts, EDAM Transmission Ownership Rights, and Self-Schedules submitted in accordance with Section 33.18.2.2.1.

33.11.3.9.2 Marginal Greenhouse Gas Cost Offset

The CAISO will calculate an hourly Day-Ahead Marginal GHG Cost Offset amount in relation to each GHG Regulation Area. The hourly Day-Ahead Marginal GHG Cost Offset amount will equal the product of Day-Ahead Energy Schedules within the GHG Regulation Area, including Schedules for Virtual Awards; GHG attributions associated with the GHG Regulation Area and the applicable Marginal GHG Cost. The CAISO will allocate the Day-Ahead Marginal GHG Cost Offset amount to a GHG Regulation Area's metered Demand.

33.11.3.9.3 Marginal Congestion Offset

The CAISO will calculate an hourly Day-Ahead marginal Congestion offset revenue for each EDAM Entity Balancing Authority Area. The hourly Day-Ahead marginal Congestion offset revenue will equal the sum of the product of Day-Ahead Energy Schedules, including Schedules for Virtual Awards and Energy transfer Schedules, and the Marginal Cost of Congestion contribution for each EDAM Entity Balancing Authority Area at its relevant pricing location and considering relevant intertie Transmission Constraints. The hourly Day-Ahead Congestion revenue amount will also account for any EDAM Legacy Contracts and EDAM Transmission Ownership Rights marginal Congestion adjustment amounts and any adjustment amounts for Congestion revenue under Section 33.11.1.2.1. The CAISO will allocate the hourly Day-Ahead marginal Congestion revenue amount to each EDAM Entity and the hourly Day-Ahead marginal

Congestion revenue amount allocated to the CAISO Balancing Authority Area will be distributed first to CRRs and then to any surplus allocated to Measured Demand per the CAISO Tariff.

33.11.3.9.4 Marginal Energy Offset

The CAISO will calculate an hourly Day-Ahead marginal Energy offset amount for each EDAM Entity Balancing Authority Area. The Balancing Authority Area hourly Day-Ahead marginal Energy offset amount will equal the remainder of the hourly Day-Ahead Energy Settlement less the offset amounts attributed to the Balancing Authority Area Day-Ahead Marginal Cost of Losses, Balancing Authority Area Day-Ahead Marginal GHG Cost, and Balancing Authority Area Day-Ahead Marginal Cost of Congestion. The CAISO will allocate the hourly Day-Ahead marginal Energy offset amount to the EDAM Entity and for the CAISO Balancing Authority Area to metered Demand.

33.11.4 Real-Time Market Settlement

The CAISO settles EIM Market Participants in the RTM as specified in Sections 11.5, 11.8, 11.10, 11.25, 11.29, and all other aspects of Section 11 that pertain to the RTM and apply to EIM Market Participants. The CAISO settles EDAM Market Participants as EIM Market Participants assuming references to an EIM Base Schedule is a reference to a Day-Ahead Schedule with the following modifications.

33.11.4.1 Balancing Test Under-scheduling and Over-scheduling Charge

EDAM Entities are not subject to the balancing test in Section 29.34(k) and will not be eligible for revenue apportionment and allocation pursuant to Section 29.11(d)(3).

33.11.4.2 Fifteen-Minute Market (FMM) Imbalance Energy Settlement

Intertie Schedules awarded an Energy Schedule in the Day-Ahead Market that subsequently have an incremental/decremental FMM Schedule change in the RTM, and did not submit an E-Tag prior to the HASP, will be subject to the HASP reversal rule applied through Settlement according to Section 11.32.

33.11.4.3 Ancillary Services in the RTM

EDAM Entity Balancing Authority Areas will provide the RTM with total Ancillary Service self-

provision. This RTM self-provision should equal the Day-Ahead self-provision or Day-Ahead self-provision plus any incremental Real-Time self-provision if Ancillary Service requirements increase in the RTM.

33.11.4.4 Intertie Deviations

The CAISO does not assess Under/Over Delivery Charges pursuant to Section 11.31 for intertie transactions at EDAM Internal Interties between EDAM Entities.

33.11.5 Implementation Fee

The CAISO will recover an implementation fee through the EDAM Entity Implementation Agreement to recover its costs incurred to onboard each EIM Entity into the Extended Day-Ahead Market based on the CAISO's cost of service. The CAISO will determine hourly rates for onboarding activity on an annual basis based on current aggregated and burdened labor rates. The majority of the onboarding costs will be labor costs; however, it is reasonable to assume some onboarding-specific non-labor costs. The CAISO will recover the cost to implement each EDAM Entity, which may vary depending on the size and complexity of the project. A \$300,000 deposit will be collected from prospective EDAM Entities to cover the actual start-up costs incurred. If the deposit exceeds the actual cost incurred to provide onboarding services, the CAISO will refund the excess amount, including any Interest accrued on the remaining deposit. If the actual implementation costs exceed the deposit, additional deposits in \$300,000 increments will be required, which the EDAM Entity must pay within thirty (30) days of receiving the invoice. Any invoice payment past due will accrue interest, per annum, calculated in accordance with 5 C.F.R. § 1315.10. If the EDAM Entity fails to timely pay any undisputed costs, the CAISO will not be obligated to continue performing onboarding activities unless and until the EDAM Entity has paid all undisputed amounts. If an EDAM Entity terminates an implementation agreement after the prospective EDAM entity's onboarding has begun, the CAISO will make every attempt to halt work and stop incurring costs on implementation as soon as practical. Any implementation-related costs the CAISO incurs will be drawn against the deposit provided. The CAISO will invoice the prospective EDAM entity for any amounts over the onboarding deposit; invoices will be due no later than thirty (30) days after the date of receipt. The CAISO will provide a report that

details deposit(s) received, actual costs incurred, and applicable interest earnings (on deposit balance) for each onboarding project and return any unused deposit remaining after onboarding, plus interest on the remaining deposit (based on the average interest rate earned), to the EDAM Entity within ninety (90) days after onboarding is completed and acknowledged by both the CAISO and EDAM Entity.

33.11.6 Administrative Charge

The CAISO will charge each EDAM Market Participant an EDAM Administrative Charge, which consists of the EDAM System Operations Charge and the Day-Ahead and Real-Time portions of the Market Services Charge, both volumetric charges. The CAISO will no longer collect the EIM Administrative Charge from an EDAM Market Participant. The Market Services Charge is described in Appendix F, Schedule 1, Part A. The EDAM System Operations Charge will be the product of the Systems Operations Charge, as calculated according to the formula in Appendix F, Schedule 1, Part A, real-time market percentage, as calculated in the cost of service study conducted according to Appendix F, Schedule 1, Part A, applied to metered values in MWh of Supply and Demand represented by the Scheduling Coordinator for the EDAM Market Participant.

33.11.7 Historical Revenue Recovery.

The CAISO will allocate to each EDAM Entity an EDAM Access Charge for recovery of EDAM Recoverable Revenue according to Section 33.26. The CAISO will charge Market Participants for transmission service on the CAISO Controlled Grid according to Section 26.

33.11.8 Flexible Ramping Product.

The CAISO will allocate and settle payments and charges for the Flexible Ramping Product according to Section 11.25.

33.11.9 Settlement

With regard to the CAISO's assessment and payment of charges to, and collection of charges from, EDAM Market Participants pursuant to Sections 11 and 33.11, the CAISO will assess, pay, and collect such charges, address disputed invoices, assess, pay and collect Settlement-related fees and charges, including those under Sections 11.21, 11.28, and 11.29, and make any

financial adjustments in accordance with the terms and schedule set forth in Section 11.

33.12 Creditworthiness

EDAM Entity Scheduling Coordinators, EDAM Load Serving Entity Scheduling Coordinators, and EDAM Resource Scheduling Coordinators must comply with the creditworthiness requirements of the CAISO Tariff. In the event EDAM Entity Scheduling Coordinators, EDAM Load Serving Entity Scheduling Coordinators, or EDAM Resource Scheduling Coordinators fail to satisfy the credit or other requirements in Section 12, the consequences specified in Section 12 will apply.

33.13 Dispute Resolution

Confirmation and validation of any dispute associated with the participation of EDAM Market Participants in the Day-Ahead Market is subject to Section 11.29.8 and will be managed through the CAISO's customer inquiry, dispute, and information system and as provided in the Business Practice Manual for the Extended Day-Ahead Market. EDAM Market Participants will be subject to dispute resolution pursuant to Section 13.

33.14 Force Majeure, Indemnity, Liabilities, and Penalties

The provisions of Section 14 regarding Uncontrollable Force, indemnity, liability, and penalties will apply to the participation of EDAM Market Participants in the Day-Ahead Market.

33.15 Regulatory Filings

The regulatory filings provisions of Section 15 will apply to the Extended Day Ahead Market.

33.16 EDAM Legacy Contracts

33.16.1 Administration.

Section 16 will apply to EDAM Market Participants as referenced in this Section 33.16. The CAISO will accommodate EDAM Legacy Contracts in accordance with Section 16 as required to implement this Section 33.16. With respect to applicable provisions of Section 16:

- (a) references to Existing Contracts will be read as references to EDAM Legacy Contracts;
- (b) references to a Participating TO will be read as references to an EDAM Entity;
- (c) any applicable EDAM Transmission Service Providers in an EDAM Entity Balancing Authority Area must satisfy the requirements of Section 16 and this Section 33.16;

(d) references to the CAISO Controlled Grid will be read as references to EDAM Transmission Service Provider facilities; and

(e) references to the CAISO Balancing Authority or CAISO Balancing Authority Area will be read as references to an EDAM Entity Balancing Authority or EDAM Entity Balancing Authority Area, respectively.

33.16.2 Registration

The EDAM Entity for the Balancing Authority Area associated with a potential EDAM Legacy Contract will determine if the contract qualifies as an EDAM Legacy Contract and coordinate with the EDAM Legacy Contract rights holder and any applicable EDAM Transmission Service Providers to provide the CAISO with information and instructions as required by Section 16.4 and the procedures and timelines in the Business Practice Manual for the Extended Day-Ahead Market.

33.16.3 Availability

An EDAM Legacy Contract rights holder, in coordination with the applicable EDAM Entity, may Self-Schedule all the capacity available under the terms of the contract, in which case none of the capacity will be available for EDAM Transfers. Alternatively, an EDAM Legacy Contract rights holder may Self-Schedule a portion of the capacity or none at all, in which case the unreserved capacity will be made available only for EDAM Transfers in accordance with Section 33.18.2.2.2 and the terms of the EDAM Legacy Contract. An EDAM Legacy Contract rights holder must be represented by a Scheduling Coordinator, which may be the EDAM Entity Scheduling Coordinator. The EDAM Legacy Contract rights holder must coordinate use of its rights with the EDAM Entity associated with the EDAM Legacy Contract, and communicate the transmission capacity available for EDAM Transfers to the CAISO in accordance with the procedures and timelines in the Business Practice Manual for the Extended Day-Ahead Market.

33.16.4 Scheduling

A Scheduling Coordinator for an EDAM Legacy Contract rights holder must submit Self-Schedules consistent with the requirements of Section 16.6 and not Economic Bids associated with its Contract Reference Number. Validation of Self-Schedules associated with a Contract

Reference Number will follow the procedures in Section 16.6.2, and such Self-Schedules will receive the priority established in Section 16.5 and the settlement treatment established in Section 16.6.3 according to the results of the validation rules and the registered characteristics of the rights.

33.16.5 Settlement

EDAM Transfer revenue will be settled with the Scheduling Coordinator for an EDAM Legacy Contract rights holder under Section 33.11.1. Congestion revenue associated with an EDAM Legacy Contract will be settled with the Scheduling Coordinator for an EDAM Legacy Contract rights holder under Section 33.11.3.8.

33.17 EDAM Transmission Ownership Rights

33.17.1 Administration

Section 17 will apply to EDAM Market Participants as referenced in this Section 33.17. The CAISO will administer EDAM Transmission Ownership Rights in accordance with Section 17 as required to implement this Section 33.17. With respect to applicable provisions of Section 17:

- (a) references to Transmission Ownership Rights will be read as references to EDAM Transmission Ownership Rights;
- (b) references to a Participating TO will be read as references to an EDAM Entity;
- (c) any applicable EDAM Transmission Service Providers in an EDAM Entity Balancing Authority Area must satisfy the requirements of Section 17 and this Section 33.17;
- (d) references to the CAISO Controlled Grid will be read as references to EDAM Transmission Service Provider facilities; and
- (e) references to the CAISO Balancing Authority or CAISO Balancing Authority Area will be read as references to an EDAM Entity Balancing Authority or EDAM Entity Balancing Authority Area, respectively.

33.17.2 Registration

The EDAM Entity for the Balancing Authority Area associated with the EDAM Transmission Ownership Rights will coordinate with the EDAM Transmission Ownership Rights holder to provide information and instructions as required by Section 17.1 and the procedures and

timelines in the Business Practice Manual for the Extended Day-Ahead Market.

33.17.3 Availability

An EDAM Transmission Ownership Rights holder may Self-Schedule all the capacity associated with its ownership interest and elect not to make any such capacity available for EDAM Transfers or other use by the market. Alternatively, an EDAM Transmission Ownership Rights holder may release a portion of the capacity for EDAM Transfers in accordance with Section 33.18.2.2.2 and, if the EDAM Transmission Ownership Rights holder is also a transmission service provider, the CAISO will afford its transmission customers similar treatment. An EDAM Transmission Ownership Rights holder or customer must be represented by a Scheduling Coordinator, which may be the EDAM Entity Scheduling Coordinator. The EDAM Transmission Ownership Rights holder must coordinate release of its rights with the EDAM Entity associated with the EDAM Transmission Ownership Rights, and communicate the available transmission capacity to the CAISO in accordance with the procedures and timelines in the Business Practice Manual for the Extended Day-Ahead Market. Alternatively, an EDAM Transmission Ownership Rights holder may coordinate with the EDAM Entity to include all of its transmission ownership rights in the associated EDAM Transmission Service Information, in which case the transmission ownership rights would be made available pursuant to Section 33.18.

33.17.4 Scheduling

A Scheduling Coordinator for an EDAM Transmission Ownership Rights holder must submit Self-Schedules consistent with the requirements of Section 17.3 and not Economic Bids associated with EDAM Transmission Ownership Rights. Validation of Self-Schedules associated with EDAM Transmission Ownership Rights will follow the procedures in Section 17.3, and such Self-Schedules will receive the priority established in Section 17.2 and the settlement treatment established in Section 17.3.3 according to the results of the validation rules and the registered characteristics of the rights.

33.17.5 Settlement

EDAM Transfer revenue will be settled with the Scheduling Coordinator for the EDAM Transmission Ownership Rights under Section 33.11.1. Congestion revenue associated with an

EDAM Transmission Ownership Right will be settled with the Scheduling Coordinator for the EDAM Transmission Ownership Rights under Section 33.11.3.8.

33.18 Tariff Transmission Service by EDAM Transmission Service Providers

An EDAM Entity must provide the CAISO with EDAM Transmission Service Information for the transmission system within its Balancing Authority Area and an EDAM Transmission Service Provider must make available for use in the Day-Ahead Market the transmission capacity supporting the network model data included in the CAISO's Full Network Model for the EDAM Entity Balancing Authority Area, as provided in this Section 33. The EDAM Transmission Service Provider must amend its tariff to the extent the EDAM Entity deems necessary to account for the transmission capacity it will make available in the Day-Ahead Market, provided such amendments are consistent with this Section 33.

33.18.1 Transmission at EDAM External Interties

An EDAM Transmission Service Provider with a transmission system located within an EDAM Entity Balancing Authority Area must coordinate with the EDAM Entity so that the transmission system is available to the Day-Ahead Market and the EDAM Entity has all necessary information to register the transmission service customers' transmission service rights within the EDAM Entity Balancing Authority Area and at EDAM External Interties with the CAISO and other EDAM Entities as provided under the EDAM Transmission Service Provider tariff. The EDAM Entity must also ensure association of an EIM Mirror System Resource in accordance with Section 33.30.9 if an EDAM External Intertie is with an EIM Entity Balancing Authority Area.

33.18.1.1 Qualification

Transmission service that qualifies for registration includes network integration transmission service or firm and conditional firm point-to-point transmission service from: (a) a source in an EDAM Entity Balancing Authority Area to an EDAM External Intertie location, (b) an EDAM External Intertie location to a sink within the EDAM Entity Balancing Authority Area, (c) a wheel through an EDAM Entity Balancing Authority Area from an EDAM External Intertie location to another EDAM External Intertie location, or (d) a source to a sink within an EDAM Entity Balancing Authority Area.

33.18.1.2 Registration

Qualified transmission services must be registered with the CAISO by the EDAM Entity in accordance with the procedures and timelines in the Business Practice Manual for the Extended Day-Ahead Market, which may differ depending upon the duration of the transmission rights, e.g., yearly, monthly, weekly or of a shorter duration. Network integration transmission service customers will follow the EDAM Transmission Service Provider tariff for designation and un-designation of network resources.

33.18.1.3 Scheduling

The Scheduling Coordinator for a transmission customer of an EDAM Transmission Service Provider must use its firm or conditional firm point-to-point transmission service rights or associated secondary network service, and network integration transmission service rights, to/from an EDAM External Intertie by submitting a Self-Schedule export/import transaction to/from an EDAM External Intertie, a Self-Schedule wheeling through transaction between two EDAM External Interties, or an internal source and sink in accordance with Section 33.18.2.2.1.

33.18.1.4 Permissible Intra-Day Transmission Schedule Changes

When a schedule associated with registered transmission service rights is submitted in accordance with the EDAM Transmission Service Provider tariff after the start of the Day-Ahead Market, it will be accommodated in the Real-Time Market. The EDAM Entity Scheduling Coordinator for the EDAM Transmission Service Provider will ensure that the CAISO is notified of all such schedules submitted after the start of the Day-Ahead Market through submission of a Self-Schedule to the CAISO in accordance with Section 33.18.2.2.3.

33.18.1.5 Settlement

A Self-Schedule associated with registered firm or conditional firm point-to-point transmission service rights or network integration transmission service at EDAM External Interties or within an EDAM Entity Balancing Authority Area will be settled by the CAISO with the Scheduling Coordinator that submitted the Self-Schedule.

33.18.1.6 Resource Registration and Tagging

The EDAM Entity will be responsible for registration of System Resources associated with imports into its Balancing Authority Area at an EDAM External Intertie, and will provide the CAISO with a pre-market and after-the-fact E-Tag for transmission schedules associated with an import, export or wheel through its Balancing Authority Area at EDAM External Interties, unless a System Resource associated with an import is unknown and the import supports delivery of firm Energy in accordance with Section 33.30.8.2.

33.18.2 Transmission at EDAM Internal Interties

An EDAM Transmission Service Provider with a transmission system located within an EDAM Entity Balancing Authority Area must coordinate with the EDAM Entity and the EDAM Transmission Service Provider tariff so that the EDAM Entity will have all necessary information to register transmission service customers' transmission service at EDAM Internal Interties with the CAISO and other EDAM Entities in accordance with the procedures and timelines in the Business Practice Manual for the Extended Day-Ahead Market, which processes may differ depending upon the duration of the transmission rights, *e.g.*, yearly, monthly, weekly or of a shorter duration. EDAM Transfers must be supported by firm or conditional firm point-to-point transmission service rights across an EDAM Internal Intertie, network integration transmission service associated with an import of a designated network resource across an EDAM Internal Intertie, or available transfer capability across an EDAM Internal Intertie. EDAM Legacy Contracts may support EDAM Transfers only if registered under Section 33.16.2. EDAM Transmission Ownership Rights may support EDAM Transfers only if registered under Section 33.17.2. EDAM Transmission Service Provider rights may support EDAM Transfers as registered under this Section 33.18.2. An EDAM Entity Scheduling Coordinator must identify the transmission limits associated with the firm and conditional firm point-to-point transmission service capacity and network integration transmission service capacity that will be available to the Day-Ahead Market at EDAM Internal Interties to support EDAM Transfers and register those rights with the CAISO. The EDAM Entity Scheduling Coordinator responsible for submitting the E-Tag must communicate to the CAISO the transmission limits associated with the transmission service available under Section 33.18.2.1, Section 33.18.2.2 broken down into individual

components for Section 33.18.2.2.1 through Section 33.18.2.2.3, and Section 33.18.2.3, in accordance with the procedures and timelines in the Business Practice Manual for the Extended Day-Ahead Market.

33.18.2.1 Transmission to Support Resource Sufficiency Provided by the EDAM Entity

An EDAM Transfer from the source Balancing Authority Area to the sink Balancing Authority Area to support the EDAM Resource Sufficiency Evaluation for the sink Balancing Authority Area must be supported by firm or conditional firm point-to-point transmission service or network integration transmission service across an EDAM Internal Intertie. An EDAM Entity may also account for delivery of Supply external to its Balancing Authority Area in the EDAM Resource Sufficiency Evaluation under Section 33.30.8; however, the transmission that may ultimately support delivery of the Supply is not known before the Day-Ahead Market and will not be available to support EDAM Transfers.

33.18.2.2 Transmission Provided by Transmission Customers

The Scheduling Coordinator must take one of three pathways described in Section 33.18.2.2 prior to Market Close of the Day-Ahead Market to schedule its firm and conditional firm point-to-point transmission service rights, or network integration transmission service rights, at an EDAM Internal Intertie to support an EDAM Transfer which may or may not be required for the EDAM Resource Sufficiency Evaluation under Section 33.18.2.1.

33.18.2.2.1 Self-Schedule Associated with Registered Transmission

The Scheduling Coordinator for a transmission customer of an EDAM Transmission Service Provider may submit a Self-Schedule for Energy associated with its registered firm or conditional firm point-to-point transmission service rights or network integration transmission service rights prior to Market Close of the Day-Ahead Market. The Energy associated with the Self-Schedule will be settled by the CAISO with the Scheduling Coordinator for the registered

transmission rights.

33.18.2.2.2 Release of the Transmission

The Scheduling Coordinator for a transmission customer of an EDAM Transmission Service Provider, EDAM Legacy Contract or EDAM Transmission Ownership Right must notify the CAISO and the EDAM Transmission Service Provider prior to 9:00 a.m. the morning of the Day-Ahead Market if it intends to release its long-term and monthly firm and conditional firm point-to-point registered transmission service rights across an EDAM Internal Intertie. The Scheduling Coordinator representing the transmission rights may determine, on a daily basis, whether to make the full amount or only a portion of its registered transmission service rights available for EDAM Transfers for that day only or a longer timeframe, provided such release is consistent with the registered transmission rights and the EDAM Transmission Service Provider tariff. Released transmission service rights cannot be reclaimed or scheduled for the duration of the trade date for which they have been released. The EDAM Entity Scheduling Coordinator associated with the EDAM Transmission Service Provider will ensure that information on such released transmission service rights is communicated to the CAISO for association with an EDAM Transfer System Resource in accordance with the timelines and procedures in the Business Practice Manual for the Extended Day-Ahead Market. The released transmission capacity utilized by the Day-Ahead Market will be settled by the CAISO with the Scheduling Coordinator for the transmission rights.

33.18.2.2.3 Permissible Intra-Day Transmission Schedule Changes

If the Scheduling Coordinator for a transmission customer of an EDAM Transmission Service Provider does not release the transmission service rights or schedule its registered firm or conditional firm point-to-point transmission service rights under Section 33.18.2.2.1 or Section 33.18.2.2.2 prior to the Day-Ahead Market, the capacity will be made available for EDAM Transfers in the

Day-Ahead Market, and the transmission customer may nonetheless later exercise its rights under the EDAM Transmission Service Provider tariff. If the transmission customer later submits a schedule associated with its registered transmission service rights in accordance with the EDAM Transmission Service Provider tariff, the EDAM Entity Scheduling Coordinator associated with the EDAM Transmission Service Provider will ensure that the CAISO is notified of all such transmission schedules through submission of a Self-Schedule to the CAISO by the EDAM Entity Scheduling Coordinator, which the CAISO will accommodate in the Real-Time Market. The Real-Time Market may re-dispatch if necessary to accommodate the late Self-Schedule of the associated transmission service rights and will afford the Self-Schedule submitted by the EDAM Entity Scheduling Coordinator equal priority to cleared Day-Ahead Schedules unless the CAISO receives instructions that the EDAM Transmission Service Provider that it has assigned the Self-Schedule associated with firm OATT rights, whether point to point, network integration transmission service, or conditional firm, a scheduling priority higher than cleared Day-Ahead Schedules in accordance with the EDAM Transmission Service Provider tariff. Self-Schedules submitted after the Day-Ahead Market will be settled with the EDAM Entity Scheduling Coordinator.

33.18.2.3 Unsold Available Transfer Capability

The EDAM Entity Scheduling Coordinator will determine the amount of unsold firm available transfer capability at an EDAM Internal Intertie under the EDAM Transmission Service Provider tariff prior to 10:00 a.m. on the morning of the Day-Ahead Market, accounting for reserve sharing group obligations or other unique circumstances and arrangements as provided in the EDAM Transmission Service Provider tariff. The unsold transmission capability as communicated by the EDAM Entity Scheduling Coordinator will be available for EDAM Transfers. A single EDAM Entity Scheduling Coordinator, as agreed upon by the respective EDAM Transmission Service Providers at each EDAM

Internal Intertie between Balancing Authority Areas in the EDAM Area will provide the CAISO with the available transfer capability associated with the EDAM Internal Interties for which it is responsible.

33.18.2.4 EDAM Transfer Limits Used for the Day-Ahead Market

The CAISO will communicate the quantity of transmission that the Day-Ahead Market utilized for EDAM Transfers to the EDAM Entity Scheduling Coordinator after Market Close of the Day-Ahead Market, which the EDAM Entity associated with the EDAM Transmission Service Provider will ensure the EDAM Transmission Service Provider will thereafter use to determine any remaining transmission to make available in accordance with its tariff and Section 29. A single EDAM Entity Scheduling Coordinator, as agreed upon by the respective EDAM Transmission Service Providers at each EDAM Internal Intertie between Balancing Authority Areas in the EDAM Area, will provide the CAISO with an after-the-fact E-Tag for transmission schedules associated with the EDAM Internal Interties for which it is responsible.

33.18.3 Contract Reference Number (CRN)

The CAISO will recognize EDAM Transmission Service Provider customer transmission rights as provided under the EDAM Transmission Service Provider tariff subject to the provisions of Section 33.18.1 and Section 33.18.2. The CAISO will assign a CRN for firm point-to-point or network transmission rights with a duration of a month or longer and registered (a) at EDAM Internal Interties, which will be associated with an EDAM Transfer System Resource, (b) at EDAM External Interties, which will be associated with a System Resource or according to Section 33.30.8.2, or (c) within an EDAM Entity Balancing Authority Area, which will be associated with an internal source and specific internal sink.

33.18.3.1 Self-Schedules Associated with a CRN

A Scheduling Coordinator that submits a balanced Self-Schedule less than or equal to the capacity associated with the CRN in accordance with Section 33.18.2.2.1 will be assigned a scheduling priority in the Day-Ahead Market above a Self-Schedule not associated with a CRN in the Day-Ahead Market in accordance with Section 27.4.3.4,

which will be afforded a scheduling priority equal to cleared Day-Ahead Self-Schedules in the Real-Time Market. Otherwise, the Self-Schedule will be assigned the same priority as a Self-Schedule in the Day-Ahead Market not associated with a CRN, and will be afforded a scheduling priority equal to cleared Day-Ahead Self-Schedules in the Real-Time Market. The CAISO will notify the Scheduling Coordinator if a Self-Schedule associated with a CRN is not balanced prior to the Market Close of the Day-Ahead Market, which the Scheduling Coordinator may update prior to the Market Close of the Day-Ahead Market. A Scheduling Coordinator that submits a balanced Self-Schedule less than or equal to the capacity associated with the CRN in accordance with Section 33.18.2.2.3 will be assigned a scheduling priority equal to cleared Day-Ahead Self-Schedules in the Real-Time Market unless the CAISO receives instructions from the EDAM Transmission Service Provider that it has assigned the balanced Self-Schedule associated with firm OATT rights a scheduling priority higher than cleared Day-Ahead Self-Schedules in accordance with the EDAM Transmission Service Provider tariff. All other Self-Schedules will be assigned the same priority as a Self-Schedule in the Real-Time Market not associated with a CRN.

- (a) An EDAM Transfer System Resource registered to an EDAM Entity will account for capacity available to support EDAM Transfers and will not be assigned a CRN, which may support a capacity release for optimization and the EDAM Resource Sufficiency Evaluation, as applicable.
- (b) An EDAM Transfer System Resource registered to an EDAM Transmission Service Provider customer will support a Self-Schedule or capacity release and will be assigned a CRN.
- (c) An internal source and sink registered to an EDAM Transmission Service Provider customer will support a Self-Schedule and will be assigned a CRN.
- (d) Any portion of a CRN that is Self-Scheduled in the Day-Ahead Market will be available for the EDAM Resource Sufficiency Evaluation.
- (e) Any portion of a CRN released in accordance with Section 33.18.2.2 may

not be Self-Scheduled in the Day-Ahead Market and may not be Self-Scheduled by the EDAM Entity after the Market Close of the Day-Ahead Market under Section 33.18.1.4 or Section 33.18.2.2.3.

(f) Any portion of a CRN that is neither released in accordance with Section 33.18.2.2 nor Self-Scheduled in the Day-Ahead Market will be available in the Day-Ahead Market and may be Self-Scheduled by the EDAM Entity Scheduling Coordinator after the Market Close of the Day-Ahead Market under Section 33.18.1.4 or Section 33.18.2.2.3.

(g) Self-Schedules not associated with a CRN will be afforded the same priority as any other Self-Schedule in the Day-Ahead Market that does not have a CRN.

(h) The CAISO will not adjust a Self-Schedule in the Day-Ahead Market associated with a CRN under this Section 33.18.3 to accommodate a Self-Schedule in the Day-Ahead Market that is not associated with a CRN.

(i) Each EDAM Entity will be responsible for managing Transmission Constraints after the Day-Ahead Market according to Section 29, Section 33.7.5, and the EDAM Transmission Service Provider tariff.

33.18.3.2 Self-Schedules Associated with Short-Term Transmission Rights

The CAISO will also assign a CRN for firm transmission rights with a duration of less than a month pursuant to the registration process provided in the Business Practice Manual for the Extended Day-Ahead Market. Self-Schedules associated with a CRN representing shorter-duration transmission rights will be afforded the same physical and financial treatment as a CRN associated with a longer-duration transmission right under this Section 33.18.3.

33.18.3.3 Transmission Not Available in the Day-Ahead Market

If the CAISO is informed through the prospective EDAM Entity implementation process or by the EDAM Entity Scheduling Coordinator for the EDAM Transmission Service Provider that accommodation of incremental intra-day schedules in the Real-Time Market should

be unavailable in the Day-Ahead Market according to the EDAM Transmission Service Provider tariff, the CAISO will accept a notification from the EDAM Entity Scheduling Coordinator associated with the EDAM Transmission Service Provider and will adjust Day-Ahead Market availability of the impacted transmission elements and the associated transmission service rights.

33.18.4 CAISO Transmission at EDAM Interties

The CAISO will provide transmission service on the CAISO Controlled Grid and at EDAM Interties in accordance with the CAISO Tariff to support the EDAM Resource Sufficiency Evaluation for the CAISO Balancing Authority Area and to support the EDAM Resource Sufficiency Evaluation for an EDAM Entity Balancing Authority Area. The CAISO will make Available Transfer Capability at EDAM Internal Interties on the CAISO Controlled Grid available as determined in accordance with Section 23 and Appendix L at the start of the Day-Ahead Market to support EDAM Transfers, including the assessment of any applicable charges. The CAISO will facilitate the availability of transmission capacity associated with Existing Contracts and Transmission Ownership Rights for EDAM Transfers if the rights holder makes the capacity available to the CAISO consistent with Section 33.16.2 or Section 33.17.2, as applicable, which will then be eligible to receive EDAM Transfer revenue and Congestion revenue settlement with the Scheduling Coordinator for the Existing Contracts and Transmission Ownership Rights under Section 33.11.1 and Section 33.11.2.

33.18.4.1 Wheels Through

The Scheduling Coordinator of Supply wheeled through the CAISO Balancing Authority Area and accounted for in the EDAM Resource Sufficiency Evaluation must demonstrate establishment of a Wheeling Through transaction across the CAISO Controlled Grid and have designated transmission service under Section 33.18.2.1 into an EDAM Entity Balancing Authority Area and on the CAISO Controlled Grid Section in accordance with Section 23 and Appendix L. An EDAM Entity may similarly account for delivery of Supply wheeled through the CAISO Balancing Authority Area for its EDAM Resource Sufficiency Evaluation to be delivered under Section 33.30.8; however, the transmission that may

ultimately support delivery of the Supply will not be available to support EDAM Transfers because it is not known before the Market Close of the Day Ahead Market.

33.18.4.2 Exports From

The Scheduling Coordinator of Supply from a CAISO Participating Resource accounted for in the EDAM Resource Sufficiency Evaluation of an EDAM Entity Balancing Authority Area must demonstrate it has a contract with a resource that has non-Resource Adequacy available capacity from the CAISO Balancing Authority Area and has designated transmission service under Section 33.18.2.1 into an EDAM Entity Balancing Authority Area and on the CAISO Controlled Grid Section in accordance with Section 23 and Appendix L. An EDAM Entity may similarly account for delivery of Supply exported from the CAISO Balancing Authority Area in the EDAM Resource Sufficiency Evaluation to be delivered under Section 33.30.8; however, the transmission that may ultimately support delivery of the Supply will not be available to support EDAM Transfers because it is not known before the Market Close of the Day Ahead Market.

33.18.5 EDAM Transfer Priority

EDAM Transfers will have a priority equal to Demand in the EDAM Area and may be curtailed only as provided in Section 33.7.5. The Day-Ahead Market will include a constraint as provided in Section 33.27.4 to ensure each Balancing Authority in the EDAM Area meets its Balancing Authority Area requirements before supporting EDAM Transfers.

33.19 Reliability Coordination

Reliability Coordination does not apply to the Extended Day-Ahead Market, although EDAM Market Participants may separately receive Reliability Coordination services according to Section 19.

33.20 Confidentiality

The confidentiality provisions in Section 20 will apply to participation of EDAM Market Participants in the Day-Ahead Market.

33.21 [Not Used]

33.22 Miscellaneous

Section 22 and the additional miscellaneous provisions of this Section 33.22 will apply to the EDAM.

To the extent that the CAISO would incur any tax liability as a result of the participation of EDAM Market Participants in the Day-Ahead Market, for example as market operator or as central counterparty to EDAM transactions, the CAISO will pass those taxes on to the EDAM Entity Scheduling Coordinator for the EDAM Entity Balancing Authority Area where the transactions triggered the tax liability.

Neither the CAISO nor the EDAM Entity is a “Purchasing Selling Entity” for purposes of E-Tags or EDAM Transfers, nor will either be listed as a “Purchasing Selling Entity” for purposes of E-Tags or EDAM Transfers.

Title to Energy in the Day-Ahead Market passes directly from the entity that holds title when the Energy enters the CAISO Controlled Grid or the transmission system of an EDAM Transmission Service Provider, whichever is first following Dispatch, to the entity that removes the Energy from the CAISO Controlled Grid or the transmission system of a EDAM Transmission Service Provider, whichever last precedes delivery to Load.

33.23 Transmission Service Requirements for EDAM Resources

This Section 33.23 applies only to EDAM Market Participants. Transmission service requirements on the CAISO Controlled Grid will continue in accordance with Section 23 and other provisions of the CAISO Tariff applicable to transmission service on the CAISO Controlled Grid.

An EDAM Resource Scheduling Coordinator must obtain transmission service from an EDAM Transmission Service Provider, which may be satisfied through the following options:

- (a) The EDAM Resource is a designated network resource under the terms of an EDAM Transmission Service Provider tariff;
- (b) The EDAM Resource reserves firm point-to-point transmission service of any duration under the terms of an EDAM Transmission Service Provider tariff, or
- (c) The EDAM Resource is associated with an EDAM Legacy Contract or an EDAM Transmission Ownership Right.

If options (a), (b), or (c) above are not satisfied, the CAISO will notify the EDAM Entity associated with the EDAM Transmission Service Provider so that the EDAM Transmission Service Provider assesses a transmission charge based on the transmission rate for the lowest duration of firm transmission service offered under its tariff, which may be a daily firm or hourly firm transmission service. If the EDAM

Transmission Service Provider offers daily firm point-to-point transmission service as the lowest granularity of firm transmission service, the transmission service charge would be evaluated based on the single highest-hour Real-Time Dispatch of the resource across the day for the amount in excess of reserved transmission service. If the EDAM Transmission Service Provider offers hourly firm point-to-point transmission service as the lowest granularity of firm transmission service, the transmission service charge would be evaluated based on each individual hourly Real-Time Dispatch of the resource for the day. If the Real-Time Dispatch for any hour across the day is above the transmission reservation, the CAISO will notify the EDAM Entity associated with the EDAM Transmission Service Provider and the EDAM Transmission Service Provider will assess the hourly transmission charge as described above. This Section 33.23 establishes a common methodology for a Scheduling Coordinator to secure transmission service from an EDAM Transmission Service Provider. The specific transmission service requirements and any associated transmission service charges or penalties will be determined in accordance with the EDAM Transmission Service Provider tariff.

33.24 Transmission Planning

The Extended Day-Ahead Market does not include transmission planning related functions or services and Section 24 does not apply to EDAM Market Participants.

33.25 Generator Interconnection

The Extended Day-Ahead Market does not include generator interconnection related functions or services and Section 25 does not apply to EDAM Market Participants.

33.26 Historical Revenue Recovery And Charges

Access Charges for Day-Ahead Market transactions serving Load within the CAISO Balancing Authority Area that use the CAISO Controlled Grid are governed by Section 26. Transmission service charges for Day-Ahead Market transactions serving Load within an EDAM Entity Balancing Authority Area are governed by the applicable EDAM Transmission Service Provider tariff. Transmission service charges for Day-Ahead Market transactions supported by EDAM Transfers are addressed in this Section 33.26. Transmission service charges for Real-Time Market transactions are governed by Section 11, Section 26, or Section 29.26, as applicable.

33.26.1 EDAM Access Charges

The CAISO will determine an EDAM Access Charge for each Balancing Authority Area in the EDAM Area based on the aggregate inputs of each EDAM Transmission Service Provider in that Balancing Authority Area. The CAISO will assess the EDAM Access Charges, allocate revenues collected, and true-up actual revenue recovery through calculation of the next year's EDAM Access Charges. EDAM Entities will provide forecasts for their EDAM Transmission Service Providers of the aggregate EDAM Recoverable Revenue from the three components described below, to be true-up based on EDAM Recoverable Revenue each year.

33.26.1.1 EDAM Recoverable Revenue Allocated to Gross Load

To assess the EDAM Access Charge consistent with Section 33.26.3, the CAISO will derive a rate in \$/MWh specific to each EDAM Entity Balancing Authority Area. The CAISO will calculate the rate by:

- (1) allocating each EDAM Transmission Service Provider's EDAM Recoverable Revenue to the EDAM Balancing Authority Areas associated with the other EDAM Transmission Service Providers, on behalf of such other EDAM Transmission Service Providers, in proportion to
 - (a) the EDAM Transmission Service Provider's Gross Load divided by
 - (b) the total EDAM Area Gross Load minus Gross Load of the EDAM Transmission Service Provider;
- (2) calculating the total EDAM Recoverable Revenue allocation; and
- (3) dividing the total EDAM Recoverable Revenue by the EDAM Transmission Service Provider's Gross Load.

33.26.1.2 Truing Up to Actual EDAM Recoverable Revenue

At the conclusion of each calendar year, each EDAM Transmission Service Provider with EDAM Recoverable Revenue will provide the CAISO calculations of actual forgone and collected revenue for each EDAM Access Charge component, and the supporting documentation required by Section 33.26.4. The EDAM Transmission Service Provider's EDAM Recoverable Revenue true-up amount for the following year will be the difference between (a) the actual sales of qualifying products in components 1 and 2, and (b) the

EDAM Transmission Service Provider's projected sales for that year, as documented by the EDAM Transmission Service Provider consistent with Section 33.26.4. The CAISO will include the true-up amount, positive or negative, as an adjustment to the following year's EDAM Access Charge. The CAISO also will include a true-up amount, positive or negative, to balance the difference between the CAISO's projected EDAM Access Charge collections and actual collections for each EDAM Transmission Service Provider.

33.26.2 Calculation of EDAM Recoverable Revenue

EDAM Recoverable Revenue will consist of the sum of the following three components.

33.26.2.1 Component 1: Short-Term Firm and Non-Firm Point-to-Point Transmission and Wheeling Access Charge Revenues

Eligible component 1 costs are revenue shortfalls associated with the costs of forgoing certain historical transmission sales to third parties, excluding costs related to sales to the EDAM Entity marketing function associated with EDAM Transmission Service Providers. Only forgone revenues associated with the following transmission products are eligible for historical revenue recovery: hourly non-firm point-to-point, daily non-firm point-to-point, weekly non-firm point-to-point, monthly non-firm point-to-point, hourly firm point-to-point, daily firm point-to-point, weekly firm point-to-point, and monthly firm point-to-point transmission service.

33.26.2.1.1 Calculating Component 1

Each EDAM Transmission Service Provider will calculate the annual average of its revenues from the qualifying products described in Section 33.26.2.1 for the three years leading up to its EDAM participation. That three-year average will be fixed for purposes of calculating the EDAM Access Charge for the EDAM Entity's EDAM participation. For component 1 of EDAM Recoverable Revenue, the EDAM Transmission Service Provider will include only that portion of revenues from the three-year average the EDAM Transmission Service Provider reasonably expects to forgo as a result of participating in the EDAM. In the annual true-up, the EDAM Transmission Service Provider will use its actual shortfall in lieu of the forecasted shortfall. The actual shortfall will be the

difference between the EDAM Transmission Service Provider's actual sales of qualifying products for the applicable calendar year compared to the fixed three-year pre-EDAM average.

33.26.2.1.2 EDAM Recoverable Revenue Limits

Component 1 EDAM Recoverable Revenue for each EDAM Entity will not exceed the product of (a) its projected Component 1 EDAM Recoverable Revenue and (b) the percentage resulting from dividing exports from its EDAM Balancing Authority Area to the EDAM Area by total exports from the EDAM Balancing Authority Area.

33.26.2.2 Component 2: New Transmission Capacity

Eligible component 2 costs include (a) costs resulting from reduced revenues from sales of non-firm and short-term firm transmission associated with the release of transmission capacity resulting from the expiration of EDAM Legacy Contracts, and (b) the cost associated with forgone transmission sales on certain new network upgrades.

33.26.2.2.1 Component 2 Revenue Associated With New Transmission Capacity From Expired Legacy Contracts

An EDAM Transmission Service Provider may include in its component 2 EDAM Recoverable Revenue those revenue shortfalls from sales of non-firm and short-term firm transmission associated with the release of transmission capacity resulting from the expiration of EDAM Legacy Contracts that were not included as EDAM Recoverable Revenue in component 1. The EDAM Transmission Service Provider may not recover as EDAM Recoverable Revenue more than the product of the most recent annual revenue of the expired EDAM Legacy Contract multiplied by the ratio of (a) the non-firm and short-term firm point-to-point historical EDAM recoverable transmission revenues from the pre-EDAM three-year average in component 1 to (b) the EDAM Entity's annual average revenue requirement over the same three years.

33.26.2.2.2 Component 2 Revenue Associated With New Network Upgrades

An EDAM Transmission Service Provider may include in its component 2 EDAM Recoverable Revenue forgone revenue from eligible new network upgrades. Eligible new network upgrades are those that: (a) are in service; (b) are already included in the EDAM Transmission Service Provider's transmission rates or have otherwise been approved for rate recovery by the Local Regulatory Authority or FERC, as applicable; (c) increase transfer capability between EDAM Entity Balancing Authority Areas or between the CAISO Balancing Authority Area and an EDAM Entity Balancing Authority Area; and (d) are energized after the applicable EDAM Transmission Service Provider begins participation in the Day-Ahead Market. For each new qualifying network upgrade, the EDAM Transmission Service Provider will calculate an estimate of forgone revenue applicable to that network upgrade. Because new network upgrades will not have a three-year historical baseline, the EDAM Transmission Service Provider will calculate a proxy baseline. To do so, the EDAM Transmission Service Provider will calculate the ratio of (a) the non-firm and short-term firm point-to-point historical transmission revenues from the pre-EDAM three-year average in component 1 to (b) the EDAM Entity's annual average revenue requirement over the same three years. The EDAM Transmission Service Provider's proxy baseline for the new network upgrade will be the product of this ratio and the transmission revenue requirement for the new network upgrade. The EDAM Transmission Service Provider will then include as its component 2 EDAM Recoverable Revenue those revenues it expects to forgo from the new network upgrade as a result of participating in the EDAM, not to exceed the proxy baseline. After the first year the new network upgrade is included in the EDAM Access Charge, the EDAM Transmission Service Provider will true-up actual forgone revenues to projected forgone revenues in the following year's component 2 EDAM Recoverable Revenue based on the proxy baseline. The CAISO will include examples of network upgrades that increase transfer

capability for purposes of this Section and examples that do not do so in the Business Practice Manual for the Extended Day-Ahead Market. For purposes of this section, network upgrades will be deemed to increase transfer capability where they:

- (a) increase total transfer capability;
- (b) create new interfaces;
- (c) increase the simultaneous import limits at existing interfaces;
- (d) result from an Interregional Transmission Project to increase transfer capability; or
- (e) were identified through the WECC path rating process as increasing total transfer capability or creating new transmission interfaces; between EDAM Entity Balancing Authority Areas or between the CAISO Balancing Authority Area and an EDAM Entity Balancing Authority Area.

33.26.2.3 Component 3: Recovery of Transmission Costs Associated With EDAM Wheeling Through Volumes Net of Imports/Exports

Eligible component 3 costs are projected revenue shortfalls associated with wheeling-through an EDAM Entity Balancing Authority Area or the CAISO Balancing Authority Area. An EDAM Transmission Service Provider's EDAM Recoverable Revenue will include those revenues associated with its total volume of wheeling-through transactions in excess of the total net transfers (imports and exports) of the applicable EDAM Entity Balancing Authority Area or CAISO Balancing Authority Area, as measured on a monthly basis. In periods where this excess occurs, the CAISO will calculate the EDAM Recoverable Revenue by multiplying that volume of wheeling-through transactions in excess of the total net transfers by the applicable EDAM Transmission Service Provider's non-firm hourly point-to-point transmission rate. For Participating TOs, the CAISO will use the applicable Wheeling Access Charge rate.

33.26.3 Assessing Access Charges and Allocating Revenues in the EDAM

To recover each EDAM Transmission Service Provider's EDAM Recoverable Revenue, the CAISO will assess an EDAM Access Charge to Gross Load in each EDAM Balancing Authority

Area. Each EDAM Access Charge will recover the projected EDAM Recoverable Revenue for the EDAM Balancing Authority Areas outside the Balancing Authority Area for that EDAM Access Charge, such that no EDAM Balancing Authority Area will be assessed its own projected EDAM Recoverable Revenue. The CAISO will assess EDAM Access Charges based on the EDAM Balancing Authority Areas' Gross Loads.

The CAISO will allocate revenues collected from the EDAM Access Charges to EDAM Entities on behalf of each EDAM Transmission Service Provider, in proportion to each EDAM Entity's proportionate share of total projected EDAM Recoverable Revenue. Any difference between projected EDAM Recoverable Revenue and actual EDAM Recoverable Revenue will be included as debits or credits in the annual true-up, as provided in Section 33.26.1.2.

33.26.4 Documentation

EDAM Transmission Service Providers will provide the CAISO all supporting documentation necessary to determine the local EDAM Access Charges in each Balancing Authority Area by July 1 of the year prior to each year in which the EDAM Access Charge will apply. The CAISO will publish all supporting documentation on the CAISO Website. At a minimum EDAM Entities must provide: (a) the final order from FERC or the Local Regulatory Authority effecting their approved transmission rates and any informational filings or postings under relevant formula rates; (b) the sums for each EDAM Recoverable Revenue component and true-up; and (c) an authorized affidavit from each EDAM Transmission Service Provider attesting to the accuracy of the data provided and that the EDAM Transmission Service Provider will make reasonable efforts to avoid any double recovery of costs through the EDAM Access Charge. All data provided must be sufficiently granular to enable verification of the EDAM Access Charge rates by the CAISO and Market Participants. For each EDAM Transmission Service Provider, the CAISO will maintain on its Website the current sum of each recoverable revenue component, the total true-up amount, and the total eligible recovery amount. The CAISO will maintain on its Website each EDAM Access Charge, including the rate, the Gross Load, and the total eligible recovery amount in that Balancing Authority Area.

33.26.5 Exit from EDAM

*NOT CURRENT TARIFF LANGUAGE.
This document contains language that is approved by FERC but not yet effective.*

If an EDAM Entity withdraws from the EDAM pursuant to Section 3 of its EDAM Addendum to EIM Entity Agreement, it will continue to collect and be assessed EDAM Access Charges only during the six (6) month interim notice period before withdrawing from the EDAM. A withdrawn EDAM Entity will not collect, be assessed, or true-up any costs or revenues through the EDAM Access Charge after this interim notice period, except for the previous calendar year's true-up under Section 33.26.5.1.

33.26.5.1 Treatment of True-up Amounts

If an EDAM Entity owed or was owed any true-up amount from the previous calendar year pursuant to Section 33.26.1.2 before it gave its written notice of termination to the CAISO in accordance with Section 3 of its EDAM Addendum to EIM Entity Agreement, and it withdraws from the EDAM before the end of the calendar year such that any true-up amount remains outstanding, either:

- (a) the EDAM Entity will pay the CAISO the remaining true-up balance it owed upon the end of the interim period described in Section 33.26.5, and the CAISO will distribute that balance through the EDAM Access Charges over the rest of the calendar year; or
- (b) the CAISO will continue to collect the remaining true-up amount owed the EDAM Entity through the EDAM Access Charges throughout the rest of the calendar year, and will pay that true-up amount to the EDAM Entity thereafter.

This Section 33.26.5.1 excludes all charges or payments outside of the previous calendar year true-up under Section 33.26.1.2.

33.26.6 Three-Year Review

No later than three (3) years after the original effective date of this Section 33.26, the CAISO will publish on the CAISO Website a performance report on the EDAM Access Charge. The performance report will include without limitation: an explanation of the impacts of the EDAM Access Charge on EDAM Transmission Service Providers' revenue recovery and rates; the performance of the EDAM Access Charge in managing cost shifts among customers; and analysis by the CAISO of any other impacts or externalities.

33.27 CAISO Markets And Processes

The provisions of Section 27 that apply to the Day-Ahead Market will apply to EDAM Market Participants, except as provided in or inconsistent with this Section 33.27 or other provisions of Section 33. For purposes of applying this Section 33.27, the term CAISO Balancing Authority Area as used in Section 27 means the Market Area unless the context requires otherwise.

33.27.1 Transitional Process

For a period of six months following the EDAM Entity Implementation Date of a new EDAM Entity, the provisions of Section 27.4.3.2 and the second sentence of Section 27.4.3.4 will not apply to constraints that are within the Balancing Authority Area of the new EDAM Entity or affect EDAM Transfers between the Balancing Authority Area of the new EDAM Entity. For those intervals that experience infeasibilities described in those provisions, the CAISO will instead determine prices consistent with the provisions of Section 27, Section 31, and Appendix C, that would apply in the absence of Section 27.4.3.2 and the second sentence of Section 27.4.3.4 constraints.

In addition, for a period of six months following the EDAM Entity Implementation Date of a new EDAM Entity, when the transmission and/or power balance constraints as specified in Section 27.4.3.2 and the second sentence of Section 27.4.3.4 are relaxed, the CAISO will set the Flexible Ramping Product parameter for pricing purposes, for the new EDAM Entity Balancing Authority Area, at an amount between and including \$0 and \$0.01. Sixty days prior to the expiration of the transition period, the CAISO will post on the CAISO Website an assessment of whether an extension of the transition period, for up to an additional six months, is needed for the applicable EDAM Entity. The CAISO will post an update to such assessment prior to the expiration of the transition period should there be any changes to its posted conclusions. Any extensions of the initial six-month transition period must be approved by FERC.

33.27.2 Locational Marginal Price Formation

The Locational Marginal Price for PNodes within each Balancing Authority Area in the EDAM Area will be determined in accordance with Appendix C.

33.27.3 Default Generation Aggregation Points

Each Balancing Authority Area in the EDAM Area will associate directly with PNodes of Balancing

Authority Areas in WECC outside the EDAM Area through two non-overlapping default generation aggregations as described in Appendix C:

- (1) a North DGAP, which includes the WECC northwest Balancing Authority Areas; and
- (2) a South DGAP, which includes the WECC southwest Balancing Authority Areas' PNodes, except Mexico.

33.27.4 Power Balance Constraint Relaxation

The Extended Day-Ahead Market will include a constraint to ensure each EDAM Entity meets its Balancing Authority Area requirements before supporting EDAM Transfers. The constraint will not allow a simultaneous power balance constraint violation in the upward/downward direction with a net EDAM Transfer export/import beyond the net EDAM Transfer eligible for the EDAM RSE as established in Section 33.18.2.1.

33.27.5 IBAA and EDAM Entity Balancing Authority Areas

Section 27.5.3 will not apply to an EDAM Entity Balancing Authority Area.

33.28 Inter-SC Trades

EDAM Entity Scheduling Coordinators, EDAM Load Serving Entity Scheduling Coordinators, EDAM Resource Scheduling Coordinators and other Scheduling Coordinators in the Extended Day-Ahead Market may not submit Inter-SC Trades for transactions outside the CAISO Balancing Authority Area, and Section 28 will not apply to the Extended Day Ahead Market.

33.29 EDAM Relationship to EIM

EDAM Market Participants are also EIM Market Participants and the provisions in Section 29 apply in their capacity as EIM Market Participants. Operation of the Day-Ahead Market within an EDAM Entity Balancing Authority Area produces outcomes that satisfy or modify certain requirements otherwise applicable to EIM Market Participants, including a Day-Ahead Schedule that will be referenced in the Real-Time Market instead of a submitted EIM Base Schedule and an initial EIM Base Load Schedule, pools of Balancing Authority Areas for purposes of the EIM Resource Sufficiency Evaluation, and capacity and Energy transfers between Balancing Authority Areas with equal priority to Demand.

33.30 Bids And Self-Schedule Submission

Scheduling Coordinators for EDAM Resources, EDAM Entities, Load Serving Entities, and other Day-

Ahead Market Participants in the EDAM Area must submit Bids, including Self-Schedules, pursuant to this Section 33.30 as supplemented by Section 30.

33.30.1 Bids

A Scheduling Coordinator may submit a Bid in the Day-Ahead Market for an EDAM Resource eligible to participate in the Day-Ahead Market according to the EDAM Transmission Service Provider tariff and Section 33, while Scheduling Coordinators for EDAM Resources self-providing Ancillary Services must provide a Submission to Self-Provide Ancillary Services. Each EDAM Resource must comply with the general Bid rules in Section 30 as well as the specific Bid rules based on resource type, including without limitation owners or operators of Non-Generator Resources, Convergence Bidding Entities, Demand Response Providers, and Distributed Energy Resource Providers. Consistent with Section 30 and Appendix A, references to Bids include Self-Schedules, and references to Economic Bids exclude Self-Schedules.

33.30.2 Demand Bids

Only an EDAM Entity Scheduling Coordinator or an EDAM Load Serving Entity Scheduling Coordinator authorized by the EDAM Entity Scheduling Coordinator may submit a Demand Bid within the EDAM Entity's Balancing Authority Area. For EDAM Entities that have not yet enabled convergence bidding, the CAISO will limit Demand Bids in the Day-Ahead Market to the Energy Bids from EDAM Resources within the EDAM Entity's Balancing Authority Area.

33.30.3 Economic Bids at EDAM Interties

Except for resource-specific resources with an obligation to serve Demand in the EDAM Area described in Section 33.30.8, a Scheduling Coordinator for a designated resource associated with network integration transmission service of an EDAM Transmission Service Provider, or a resource located outside of the EDAM Area at an EDAM External Intertie with the CAISO Balancing Authority Area, may not submit Economic Bids at EDAM External Interties or EDAM Internal Interties unless the submission of Economic Bids has been enabled in accordance with Section 29.34(i)(2). Scheduling Coordinators may submit Self-Schedules at any EDAM Intertie.

33.30.4 EDAM Entity Access to Bid Information

For the CAISO to conduct the EDAM Resource Sufficiency Evaluation pursuant to Section 33.31,

an EDAM Entity will necessarily have access to certain data related to Bids, without pricing information, associated with the EDAM Resources within the Balancing Authority Area it represents and at EDAM Interties with other Balancing Authority Areas.

33.30.5 Start-Up and Minimum Load

For the determination of Proxy Start-Up Costs and Proxy Minimum Load Costs, the CAISO will utilize the Market Services Charge and System Operations Charge reflected in the EDAM Administrative Charge.

33.30.6 RUC Availability Bids for Variable Energy Resources

An EDAM Resource Scheduling Coordinator for a Variable Energy Resource must submit RUC Availability Bids as specified in Section 31.5.1.2 as if the Variable Energy Resource were an Eligible Intermittent Resource.

33.30.7 Convergence Bidding

For all EDAM Entity Balancing Authority Areas with convergence bidding, Convergence Bidding Entities may submit Virtual Bids pursuant to Section 30.9. The CAISO will settle Virtual Bids pursuant to Section 11.3.

33.30.7.1 Optional Transition Period

Each EDAM Entity may participate in the Day-Ahead Market without Virtual Bids in its Balancing Authority Area. Alternatively, each EDAM Entity may elect to forego a transition period and commence Day-Ahead Market participation with Virtual Bids in its Balancing Authority Area.

33.30.7.2 Bidding Rules

During the period that an EDAM Entity has not enabled convergence bidding, Load Serving Entities within the EDAM Entity Balancing Authority Area may not Bid or Self-Schedule Demand above the amount of Supply within the EDAM Entity Balancing Authority Area. The CAISO will enforce this Demand limitation based on the available Supply, accounting for the difference between Variable Energy Resource Bids and their forecasts. Forecasts will account for each Variable Energy Resource's deliverable Energy based on system conditions and input from the each EDAM Entity.

33.30.7.3 Suspension or Limitation

The CAISO has the authority to suspend or limit convergence bidding pursuant to Section 7.9. Each EDAM Entity may recommend that the CAISO suspend convergence bidding in its Balancing Authority Area, provided that the CAISO will make the ultimate determination as to such recommendation.

33.30.8 Bids from External Resources

Resources located outside of the EDAM Area may participate in the Day-Ahead Market subject to certain requirements that depend on whether (a) the resource submits a Bid at an EDAM External Intertie or an EDAM Internal Intertie, (b) the intertie is with the CAISO Balancing Authority Area or an EDAM Entity Balancing Authority Area, and (c) the resource's location is specific or non-specific. The EDAM Entity Scheduling Coordinator responsible for the interchange associated with these transactions must identify the supporting resource in an E-Tag submitted in accordance with Section 29.4(c)(4).

33.30.8.1 EDAM External Interties

A Scheduling Coordinator for a resource located outside of the EDAM Area may submit a Bid at an EDAM External Intertie with an EDAM Entity if the resource is pseudo-tied into the EDAM Entity Balancing Authority Area, is dynamically scheduled into the EDAM Entity Balancing Authority Area, or submits a Self-Schedule into the EDAM Entity Balancing Authority Area. An EDAM Entity will facilitate scheduling of export transactions from its Balancing Authority Area to EDAM External Interties pursuant to Section 33.18 and the EDAM Transmission Service Provider tariff or, in the case of the CAISO Balancing Authority Area, this CAISO Tariff. A Scheduling Coordinator for a resource located outside of the EDAM Area may submit a Bid at an EDAM External Intertie with the CAISO Balancing Authority Area in accordance with the CAISO Tariff. Economic Bids at EDAM External Interties with the CAISO Balancing Authority Area must be capable of delivery under Section 33.30.8.2 to count towards the EDAM RSE.

33.30.8.2 Delivered Firm Energy Contracts

Bids from delivered firm Energy contracts may participate in the Day-Ahead Market. Such firm Energy contracts include but are not limited to arrangements pursuant to

Service Schedule C of the Western Systems Power Pool Agreement, CAISO resource adequacy imports, and similar forward contracted Supply. All source-specific forward contracted supply will, if possible, be modeled in the EDAM Area and, when the source cannot be identified, modeling assumptions will be made regarding the source based on the best information available. Bids at an EDAM Intertie with the CAISO Balancing Authority Area will be submitted by the Scheduling Coordinator associated with a forward contract with a Load Serving Entity within the CAISO Balancing Authority Area.

33.30.8.3 Non-Source Specific E-Tag Requirements.

All Energy scheduled from non-resource-specific forward supply contracts under Section 33.30.8.2 must have a submitted E-Tag within three hours following publication of the Day-Ahead Market results. The CAISO will publish an EDAM Entity Balancing Authority Area's quantity of import Supply that does not have a Day-Ahead E-Tag for situational awareness. An EDAM Entity Scheduling Coordinator will have until 5 hours before the start of the Operating Hour to submit E-Tags and/or replace the capacity with other firm schedules or physical resources for schedules that lack a valid Day-Ahead E-Tag within the timeframe. If the EDAM Entity Scheduling Coordinator does not E-Tag the outstanding import schedules, including import EDAM Transfers, and fails to resupply by submitting additional incremental Energy Bids from internal supply EDAM Resources above the resource's Day-Ahead Schedule not encumbered by Day-Ahead capacity awards to cover the E-Tag insufficiency prior to the deadline, the CAISO will remove the EDAM Entity Balancing Authority Area from the group of Balancing Authority Areas that comprise the EDAM Upward Pool in accordance with Section 33.31.1.4.

33.30.9 Base Schedules Replaced by Day-Ahead Schedules

An EDAM Entity Scheduling Coordinator will not submit EIM Base Schedules and the CAISO will not provide an EIM Base Load Schedule for the EIM Entity Balancing Authority Area it represents in the Real-Time Market. Instead, the Day-Ahead Schedules for the EDAM Entity Balancing Authority Area will be used for the EIM Entity Balancing Authority Area in the Real-Time Market rather than submitted EIM Base Schedules and an EIM Base Load Schedule provided by the

CAISO. EDAM Transfer schedules of Energy between Balancing Authority Areas in the EDAM Area will persist in the Real-Time Market with the corresponding Balancing Authority Areas in the EIM Area. EDAM Transfers of Energy will not be optimized in the Real-Time Market, but they will have equal scheduling priority with Demand. Day-Ahead import and export schedules at EDAM External Interties with Balancing Authority Areas in the EIM Area will also persist in the Real-Time Market and, if the import/export schedule is with another EIM Entity Balancing Authority Area, the Day-Ahead Schedule will be mirrored at the corresponding EIM Mirror System Resources for the Balancing Authority Areas in the Real-Time Market. Day-Ahead import and export schedules at EDAM External Interties will also not be optimized in the Real-Time Market, but they will have equal scheduling priority with Demand.

33.30.10 Information Available for Bidding by Gas-Fired Resources

The CAISO will publish advisory Day-Ahead Market results two days prior to the Trading Day in accordance with Section 6.5.2.2.3 to help inform gas procurement decisions by EDAM Resource Scheduling Coordinators that submit Bids from gas-fired EDAM Resource Facilities. An EDAM Resource Scheduling Coordinator must request this information before 05:00 a.m. of the Day-Ahead Market.

33.31 Extended Day-Ahead Market Requirements

The EDAM operates within the EDAM Area in accordance with Section 31, as supplemented by provisions in this Section 33.31. EDAM Market Participants must comply with Section 31 as applicable to their participation in the Day-Ahead Market.

33.31.1 EDAM Resource Sufficiency Evaluation (EDAM RSE)

Through the EDAM RSE, the CAISO will test each Balancing Authority Area in the EDAM Area, including the CAISO Balancing Authority Area, prior to the DAM and the results of the EDAM RSE serve as inputs into the DAM and EDAM with the CAISO completing the EDAM RSE before the IFM MPM.

33.31.1.1 Timing of Advisory and Binding EDAM RSE Runs

The CAISO produces advisory results for each Balancing Authority Area in the EDAM Area for the EDAM RSE at approximately 6:00 a.m. and 9:00 a.m. on the day the CAISO runs the Day-

Ahead Market for the next Trading Day; additional advisory results for the EDAM RSE will be provided to each Balancing Authority Area in the EDAM Area consistent with the process set forth in the Business Practice Manual for the Extended Day-Ahead Market. The CAISO conducts the binding EDAM RSE after the Day-Ahead Market submission process closes at approximately 10:00 a.m., after the CAISO has validated Bids pursuant to Section 33.30, and immediately prior to running the Day-Ahead Market. Results of the advisory and binding EDAM RSE will be made available in accordance with the procedures set forth in the Business Practice Manual for the Extended Day-Ahead Market.

33.31.1.2 Components of the EDAM RSE

The EDAM RSE uses existing CAISO market models with the goal of minimizing total cost of meeting Demand and relaxing the Energy and Imbalance Reserve procurement constraints, if they cannot be satisfied, by utilizing all available Bids in the Day-Ahead Market that are eligible for participation under Section 33.31 and validated under Section 33.30, excluding Virtual Bids, non-Participating Load Bids, and intertie transactions by resources that are not registered. The EDAM RSE will also utilize all Ancillary Service Bids, self-provision of ancillary service, and the forecasted output of Variable Energy Resources, together with any adjustments made pursuant to Section 33.31.4.1, in each Balancing Authority Area and for each hour of the Day-Ahead time horizon. EDAM Resources and intertie resources qualified to register, and registered, with the CAISO are eligible for the EDAM RSE upon satisfaction of the requirements and process set forth in the Business Practice Manuals for the Extended Day-Ahead Market. All internal resources in the CAISO Balancing Authority Area are eligible to be counted for purposes of the EDAM RSE without additional registration. The EDAM RSE reflects resource constraints based on registered resource characteristics including, but not limited to, hydro resource and limited energy storage resource energy constraints, together with other available information as provided in the Business Practice Manuals, but does not enforce Transmission Constraints within each Balancing Authority Area. The result of the EDAM RSE is the quantity of upward sufficiency or downward insufficiency for each hour in the Day-Ahead time horizon for each Balancing Authority Area in the EDAM Area.

33.31.1.2.1 Resource Sufficiency Requirements in the EDAM

To perform the EDAM RSE, the CAISO will use the following inputs in performing the advisory runs and binding runs set forth in Section 31.3.1.6.1 as requirements for each Balancing Authority Area in the EDAM Area in accordance with the procedures set forth in the Business Practice Manuals, with the following requirements fixed at the time of the final binding EDAM RSE.

33.31.1.2.1.1 Forecast Requirement

The Demand Forecast and Variable Energy Resource forecast used in the 6:00 a.m. and 9:00 a.m. advisory run by the CAISO will be determined in accordance with Section 33.31.4 and the Business Practice Manual for the Extended Day-Ahead Market. The Demand Forecast and Variable Energy Resource forecast used in the final binding EDAM RSE will be the same forecasts the CAISO used in the 9:00 am advisory run, unless the timelines in the Business Practice Manual for the Extended Day-Ahead Market otherwise allow for adjustment.

33.31.1.2.1.2 Imbalance Reserves Requirement

The Imbalance Reserve requirement used in the 6:00 a.m. and 9:00 a.m. advisory run by the CAISO will be calculated in accordance with Section 31.3.1.6. The Imbalance Reserve requirement used in the final binding EDAM RSE will be the same requirement the CAISO used in the 9:00 a.m. advisory run unless the timelines in the Business Practice Manual for the Extended Day-Ahead Market otherwise allow for adjustment.

33.31.1.2.1.3 Ancillary Services Requirement

Each EDAM Entity must determine the requirements for ancillary services within its Balancing Authority Area consistent with its Balancing Authority obligations. The EDAM Entity Scheduling Coordinator must communicate the ancillary services requirements to the CAISO for use in the advisory and binding runs in accordance with the timelines set forth in the Business Practice Manuals. The

ancillary services requirements used in the final binding EDAM RSE for each EDAM Entity will be the same requirement the CAISO used in the 9:00 a.m. advisory run unless the timelines in the Business Practice Manual for the Extended Day-Ahead Market otherwise allow for adjustment. The Ancillary Services requirements for the CAISO Balancing Authority Area will be determined under Section 8 and used in the final binding EDAM RSE.

33.31.1.2.2 Transfers Between Balancing Authority Areas in Support of EDAM RSE

The CAISO will account for EDAM Transfers that will occur between two Balancing Authority Areas in the EDAM Area in support of the EDAM RSE pursuant to Section 33.18.2.1 by transferring the EDAM RSE requirements from the importing Balancing Authority Area to the exporting Balancing Authority Area prior to performing the advisory and binding runs of the RSE in accordance with the timelines set forth in the Business Practice Manual for the Extended Day-Ahead Market.

33.31.1.3 Performance of the EDAM Resource Sufficiency Evaluation

The EDAM RSE will evaluate whether RSE-eligible supply is sufficient to meet each of the upward and downward components of the requirements established for the Balancing Authority Area, as provided in Section 33.31.1.2 in each hour of the Day-Ahead Market.

33.31.1.3.1 Demand Evaluation

Each Balancing Authority Area in the EDAM Area must meet its Demand Forecast and Variable Energy Resource forecast requirements as determined by Section 33.31.1.2.1.1.

33.31.1.3.2 Imbalance Reserves Evaluation

Each Balancing Authority Area in the EDAM Area must meet its Imbalance Reserve Up and Imbalance Reserve Down requirements as determined by Section 33.31.1.2.1.2.

33.31.1.3.3 Ancillary Services Evaluation

Each Balancing Authority Area in the EDAM Area must meet its ancillary service requirements as determined by Section 33.31.1.2.1.3. The CAISO Balancing Authority Area must meet its Ancillary Service obligations as provided in Section 8.

33.31.1.4 Satisfaction of the EDAM RSE Requirements

A Balancing Authority Area in the EDAM Area will pass the final binding EDAM RSE if it meets all of the requirements in Section 33.31.1.3 for each hour of the Day-Ahead Market.

33.31.1.4.1 Inclusion in the EDAM Upward Pool

A Balancing Authority Area in the EDAM Area which passes the final binding EDAM RSE by satisfying the upward requirements of the demand evaluation described in Section 33.31.1.3.1, the Imbalance Reserve evaluation described in Section 33.31.1.3.2, and the ancillary services evaluation described in Section 33.31.1.3.3 in each hour of the Day-Ahead Market, together with any Balancing Authority Area that cured its failure to pass the EDAM RSE in the upward direction through the IFM and incurred the applicable surcharge(s) set forth in Section 33.31.1.5, will be placed into the EDAM Upward Pool. The Balancing Authority Areas in the EDAM Area placed in the EDAM Upward Pool will be collectively accounted for when performing the EIM Resource Sufficiency Evaluation, with the EDAM Upward Pool evaluated as a collective in accordance with Section 29.34(m) and not otherwise evaluated under Section 29.34(k)-(l).

33.31.1.4.2 Inclusion in the EDAM Downward Pool

A Balancing Authority Area in the EDAM Area which passes the final binding EDAM RSE by satisfying the downward requirements of the demand evaluation described in Section 33.31.1.3.1, the Imbalance Reserve evaluation described in Section 33.31.1.3.2, and the ancillary services evaluation described in Section 33.31.1.3.3 in each hour of the Day-Ahead Market, together with any Balancing

Authority Area that has cured its failure to pass the EDAM RSE in the downward direction through the IFM and incurred the applicable surcharge set forth in Section 33.31.1.5 will be placed into the EDAM Downward Pool. The Balancing Authority Areas in the EDAM Area placed in the EDAM Downward Pool will be collectively accounted for when performing the EIM Resource Sufficiency Evaluation, with the EDAM Downward Pool evaluated as a collective in accordance with Section 29.34(m) and not otherwise evaluated under Section 29.34(k)-(l).

33.31.1.4.3 Exclusion from the EDAM Upward and Downward Pools

If a Balancing Authority Area in the EDAM Area is excluded from either the EDAM Upward Pool or EDAM Downward Pool then the Balancing Authority Area excluded from either the EDAM Upward Pool or the EDAM Downward Pool will be evaluated as an individual Balancing Authority Area for the EIM Resource Sufficiency Evaluation in accordance with Section 29.34(m) and not otherwise evaluated under Section 29.34(k)-(l).

33.31.1.5 Surcharge Upon Failure of the EDAM RSE

A Balancing Authority Area in the EDAM Area that fails the EDAM RSE in any hour of any day and in any direction is subject to the following surcharges, with any resulting surcharges distributed to the applicable Scheduling Coordinator as provided in Section 33.11.2.2:

33.31.1.5.1 EDAM RSE On-Peak Upward Failure Insufficiency Surcharge

A Balancing Authority Area in the EDAM Area that has failed to satisfy the upward components of the EDAM RSE during the on-peak period will be subject to a three-tiered penalty structure as follows:

(i) In a tier 1 failure, the Balancing Authority Area failure is *de minimis* defined as the higher of 10 MW or an amount that is less than or equal to one percent of the Balancing Authority Area's upward Imbalance Reserve requirement for that hour, and the EDAM RSE On-Peak Upward Failure Insufficiency Surcharge will not be

calculated.

(ii) In a tier 2 failure, the Balancing Authority Area failure is above the *de minimis* failure amount and is less than or equal to fifty percent of the Balancing Authority Area's upward Imbalance Reserve requirement and the EDAM RSE On-Peak Upward Failure Insufficiency Surcharge will be calculated as provided in Section 33.11.2.1.1.

(iii) In a tier 3 failure, the Balancing Authority Area failure is greater than fifty percent of the Balancing Authority Area's upward Imbalance Reserve requirement and the EDAM RSE On-Peak Upward Failure Insufficiency Surcharge will be calculated as provided in Section 33.11.2.1.1.

33.31.1.5.2 EDAM RSE Off-Peak Upward Failure Insufficiency Surcharge

The EDAM RSE Off-Peak Upward Failure Insufficiency Surcharge will be calculated for each Balancing Authority Area that has failed the EDAM RSE during the off-peak period in the upward direction, as provided in Section 33.11.2.1.2. The EDAM RSE Off-Peak Upward Failure Insufficiency Surcharge will not be calculated for a *de minimis* failure, defined as the higher of 10 MW or an amount that is less than or equal to one percent of the Balancing Authority Area's upward Imbalance Reserve requirement for that hour, as provided in Section 33.11.2.1.2.

33.31.1.5.3 EDAM RSE Downward Failure Insufficiency Surcharge

The EDAM RSE Downward Failure Insufficiency Surcharge will be calculated for each Balancing Authority Area in the EDAM Area that has failed the EDAM RSE in the downward direction in any hour on any day, as provided in Section 33.11.2.1.3. The EDAM RSE Downward Failure Insufficiency Surcharge will not be calculated for a *de minimis* failure, defined as an amount that is greater than 10 MW in the hour, as provided in Section 33.11.2.1.3.

33.31.1.6 Timely Submission of Tags Necessary to Remain in EDAM Upward and Downward Pools

*NOT CURRENT TARIFF LANGUAGE.
This document contains language that is approved by FERC but not yet effective.*

A Balancing Authority Area in the EDAM Area must comply with the tagging protocols set forth in Section 33.30.8.3 and the Business Practice Manuals to ensure imports and exports are timely tagged. A Balancing Authority Area in the EDAM Area that fails to timely E-tag imports or exports and does not otherwise re-supply from a firm schedule or physical source to cover for the untagged imports or exports for the operating hour following the process in the Business Practice Manual will be removed from the EDAM Upward Pool or the EDAM Downward Pool, respectively, for that Trading Hour. A Balancing Authority Area in the EDAM Area that is removed from the EDAM Upward Pool or the EDAM Downward Pool in accordance with this Section 33.31.1.6 will be evaluated as an individual Balancing Authority Area and will not be allowed to share in the Diversity Benefits of the pool that it would have otherwise been a part of and as provided in Section 33.31.1.4.3.

33.31.2 Operation of the Day-Ahead Market in the EDAM Area

33.31.2.1 IFM MPM in the EDAM Area

For purposes of the IFM MPM process in the EDAM Area, the CAISO applies a competitive path assessment to binding Transmission Constraints to determine whether a path is competitive or non-competitive, consistent with the requirements of Section 29.39. If a path is non-competitive, MPM procedures will apply to determine any non-competitive contribution to LMPs. Resources' Bids will be subject to applicable mitigation procedures if the net contribution from non-competitive binding Transmission Constraints to these resources' LMPs is positive.

In relation to power balance constraints within the EDAM Area, the Marginal Energy Cost in the CAISO Balancing Authority Area will reflect a competitive marginal energy price. For this purpose, when an EDAM Balancing Authority Area's Marginal Energy Cost is greater than CAISO Balancing Authority Area's Marginal Energy Cost, then the IFM MPM process will apply the competitive path assessment. If non-competitive conditions exist, the IFM MPM process will treat the differential between the Marginal Energy Cost in the CAISO Balancing Authority Area and the Marginal Energy Cost in the EDAM Balancing Authority Area similar to the non-competitive component of the Marginal Cost of Congestion in CAISO's Local Market Power Mitigation

process and will subject resources' Bids to mitigation procedures.

33.31.2.2 IFM in the EDAM Area

The IFM procures Energy and Imbalance Reserves for EDAM Entity Balancing Authority Areas but does not procure Ancillary Services. EDAM Entities must self-provide their full Ancillary Services requirements to the IFM and cannot submit Economic Bids for Ancillary Services to the IFM.

The CAISO procures Energy across the EDAM Area as specified in Section 31.3.1. The CAISO procures Imbalance Reserves across the EDAM Area as specified in Sections 31.3.1.5 and 31.3.1.6. An EDAM Resource must meet the requirements applicable to Participating Generators to be eligible for Imbalance Reserves Awards and must meet all of the RTM Bidding Obligations specified in Section 31.3.4.

33.31.2.3 RUC MPM in the EDAM Area

For purposes of the RUC MPM process in the EDAM Area, the CAISO applies a competitive path assessment to binding Transmission Constraints to determine whether a path is competitive or non-competitive, consistent with the requirements of Section 29.39. If a path is non-competitive, MPM procedures will apply to determine any non-competitive contribution to RUC prices. Resources' Bids will be subject to applicable mitigation procedures if the net contribution from non-competitive binding Transmission Constraints to these resources' prices for Reliability Capacity Up is positive.

In relation to power balance constraints within the EDAM Area, the marginal Reliability Capacity cost in the CAISO Balancing Authority Area will reflect a competitive RUC price. For this purpose, when an EDAM Balancing Authority Area's marginal Reliability Capacity cost is greater than CAISO Balancing Authority Area's marginal Reliability Capacity cost, then the RUC MPM process will apply the competitive path assessment. If non-competitive conditions exist, the RUC MPM process will treat the differential between the marginal Reliability Capacity cost in the CAISO Balancing Authority Area and the marginal Reliability Capacity cost in the EDAM

Balancing Authority Area similar to the non-competitive component of the Marginal Cost of Congestion in CAISO's Local Market Power Mitigation process and will subject resources' Bids to applicable mitigation procedures.

33.31.2.4 RUC in the EDAM Area

The CAISO procures Reliability Capacity across the EDAM Area as specified in Sections 31.5 and 31.9 with the following additional qualifications. An EDAM Resource must meet the requirements applicable to Participating Generators to be eligible for RUC Awards and must meet all of the RTM Bidding Obligations specified in Section 31.5.8. The CAISO procures Reliability Capacity across the EDAM Area as specified in Sections 31.5, except that a reference to the CAISO Forecast of BAA Demand for the CAISO refers to the total CAISO Forecast of BAA Demand for all Balancing Authority Areas across the EDAM Area. The CAISO does not have authority under Section 31.5.3.1 to adjust the CAISO Forecast of BAA Demand for an EDAM Balancing Authority Area.

33.31.3 Net Export EDAM Transfer Constraint

The Extended Day-Ahead Market will include a configurable constraint to permit a Balancing Authority Area in the EDAM Area to enable an hourly limit on the amount of net EDAM Transfer exports, where the total net export EDAM Transfer constraint cannot be reduced below the higher of zero or the transmission service made available to support a net export in the EDAM RSE under Section 33.18.2.1. The net export EDAM Transfer constraint limit is calculated as the available capacity of Supply Bids from resources eligible for the EDAM RSE, plus the available capacity of Supply Bids from resources not eligible for the EDAM RSE, multiplied by a configurable confidence factor, minus the EDAM RSE requirements as described in Section 33.31.1, minus a configurable non-exportable capacity margin. The CAISO or an EDAM Entity may elect to enable the net export EDAM Transfer constraint for its Balancing Authority Area prior to 9:00 a.m. on the day before the Trading Day in accordance with the timelines and procedures in the Business Practice Manual for the Extended Day-Ahead Market. If an EDAM Entity or the CAISO elects to enable the constraint, then the CAISO applies the constraint across all IFM market processes, including deployment scenarios for IRU/IRD and the RUC. Once elected, the

EDAM Entity or the CAISO can choose which hours in which the constraint can be applied to the Operating Day for which the IFM is run.

33.31.3.1 Confidence Factor

If there is observed risk of non-performance or non-delivery by Supply overall or from intertie schedules, then a Balancing Authority Area in the EDAM Area may register a confidence factor of less than 100%.

33.31.3.2 Reliability Margin

Once the upper-bound limit of the net EDAM Transfer export constraint is derived, the CAISO or the EDAM Entity may further reduce this limit for its Balancing Authority Area by an additional reliability margin that reflects an amount of non-exportable capacity held back in anticipation of needing to respond to reliability conditions as may be permitted under the EDAM Transmission Service Provider tariff or the CAISO Tariff, as applicable, including associated business practices. An EDAM Entity or the CAISO may specify a reliability margin to be used in the net export EDAM Transfer constraint for its Balancing Authority Area prior to 9:00 a.m. on the day before the Trading Day for each hour of that Trading Day in accordance with the procedures in the Business Practice Manual for the Extended Day-Ahead Market.

33.31.4 CAISO Forecast of BAA Demand and Variable Energy Resource Forecast for EDAM Entities

In accordance with procedures set forth in the Business Practice Manual for the Extended Day-Ahead Market, the CAISO develops a Demand Forecast and Variable Energy Resource forecast for each EDAM Entity. This forecast constitutes the CAISO Forecast of BAA Demand and the Variable Energy Resource forecast for that EDAM Entity unless the EDAM Entity elects, in accordance with procedures set forth in the Business Practice Manual for the Extended Day-Ahead Market, to submit its own forecast. The forecast option selected by the EDAM Entity will be the same forecast option that is utilized in the Real-Time Market. A Demand Forecast submitted by the EDAM Entity that will be utilized as the CAISO Forecast of BAA Demand must contain the expected transmission loss as defined in the EDAM Entity's tariff. In the Day-Ahead Market, the CAISO Forecast of BAA Demand for a Balancing Authority Area modeled as Supply-

only is zero. The Demand Forecast provided by the EDAM Entity that meets the procedures established in the Business Practice Manual constitutes that EDAM Entity's CAISO Forecast of BAA Demand and the Variable Energy Resource forecast provided by the EDAM Entity that meets the procedures established in the Business Practice Manual constitutes that EDAM Entity's Variable Energy Resource forecast.

33.31.4.1 Load Modification/Demand Response Programs

An EDAM Entity may elect to adjust its Demand Forecast to account for demand response programs administered in its Balancing Authority Area that do not qualify as EDAM Resource Facilities in accordance with procedures set forth in the Business Practice Manual for the Extended Day-Ahead Market. When enabled, the EDAM Entity will enable or deploy the demand response corresponding to the adjustment consistent with the applicable requirements for such demand response programs. If the EDAM RSE for the CAISO BAA is adjusted to reflect demand response resources participating in demand response programs administered in its Balancing Authority Area that do not qualify as RSE-eligible EDAM Resource Facilities, then the CAISO may adjust RUC participation to correspond to such adjustment in accordance with the procedures set forth in the Business Practice Manual for the Extended Day-Ahead Market. If such an adjustment is made, the CAISO will enable or deploy the demand response corresponding to the adjustment consistent with the applicable requirements for such demand response programs. Adjustments made pursuant to this Section 33.31.4.1 are subject to audit and monitoring as provided in Section 33.38.

33.31.5 Reserve Sharing Groups

The EDAM will accommodate ancillary service requirements that are satisfied through participation in a reserve sharing group. If multiple EDAM Entity Balancing Authority Areas participate in a reserve sharing group, they must identify the transmission that will be utilized to ensure delivery of the shown reserve capacity, consistent with existing practices the entities may have in place today for delivery of the reserves. This transmission capacity will not be available for EDAM Transfers to ensure the deliverability of the reserve sharing obligations in the Real-Time.

33.31.6 Interchange Schedules

After Day-Ahead Market results are published, EDAM Entity Scheduling Coordinators must submit Interchange Schedules with other Balancing Authority Areas at the relevant EDAM Interties and must update these Interchange Schedules with any adjustments, when applicable. For each EDAM Intertie Bid that clears the IFM resulting in a 15-minute EDAM Intertie Schedule, the EDAM Entity Scheduling Coordinator must submit to the CAISO the corresponding hourly transmission profile and 15-minute Energy profiles from the respective E-Tags. The required transmission profiles and Energy profiles must reflect the Point of Receipt and Point of Delivery that was declared in the IFM Bid submittal, must be submitted at least 20 minutes before the start of the Operating Hour, and the EDAM Entity Scheduling Coordinator must provide an updated Energy profile to the extent required by Section 30.5.7.

33.32 Greenhouse Gas (GHG)

33.32.1 GHG Compliance Cost Recovery

EDAM Resource Scheduling Coordinators and Scheduling Coordinators for resources within the CAISO Balancing Authority Area will have an opportunity to recover costs of compliance with GHG regulations adopted by a state jurisdiction that has priced GHG emissions as part of a state GHG reporting and reduction program.

33.32.1.1 Bid Adders Used by the Integrated Forward Market

The Integrated Forward Market will use GHG Bid Adders submitted by EDAM Resource Scheduling Coordinators for EDAM Resource Facilities located outside of a specific GHG Regulation Area to optimize the attribution of GHG Transfers into that GHG Regulation Area. The Integrated Forward Market will use GHG Bid Adders submitted by EDAM Resource Scheduling Coordinators for EDAM Resource Facilities located within the GHG Regulation Area of the State of Washington to optimize the attribution of GHG Transfers into GHG Regulation Areas outside of the State of Washington. The Integrated Forward Market will use GHG Bid Adders submitted by Scheduling Coordinators for resources located within the GHG Regulation Area of the State of California to optimize the attribution of GHG Transfers into GHG Regulation Areas outside of the State of

California.

33.32.1.2 Bid Adders and GHG Regulation Areas

For purposes of Section 33.32, GHG Regulation Areas will reflect the Pricing Nodes of the CAISO Balancing Authority Area or an EDAM Entity Balancing Authority Area within the GHG boundary as defined by a state jurisdiction that has priced GHG emissions as part of a state GHG reporting and reduction program.

EDAM Resource Scheduling Coordinators for EDAM Resource Facilities located inside a specific GHG Regulation Area will not submit GHG Bid Adders to serve Demand within that GHG Regulation Area. Scheduling Coordinators for resources located within the GHG Regulation Area of the State of California will not submit GHG Bid Adders to serve Demand within the GHG Regulation Area of California.

Scheduling Coordinators for resources with Pseudo-Tie arrangements or Dynamic Schedules into the CAISO Balancing Authority Area that register in the Master File that their resources' capacity is associated with serving Demand in the GHG Regulation Area within the State of California will not submit GHG Bid Adders.

33.32.1.3 Bid Submission

EDAM Resource Scheduling Coordinators for EDAM Resource Facilities located outside of GHG Regulation Areas may submit a separate GHG Bid Adder as an hourly Bid component specific to each GHG Regulation Area.

Scheduling Coordinators for resources located within the GHG Regulation Area of the State of California may submit a separate GHG Bid Adder as an hourly Bid component specific to each GHG Regulation Area located outside of the State of California. EDAM Resource Scheduling Coordinators for EDAM Resource Facilities within the GHG Regulation Area of the State of Washington may submit a separate GHG Bid Adder as an hourly Bid component specific to each GHG Regulation Area located outside the State of Washington.

GHG Bid Adders will consist of a price and MW quantity. The price included in the GHG Bid Adder will not be less than \$0/MWh and not greater than 110% of the resource's

GHG maximum compliance cost as determined in accordance with Section 33.32.1.5.

33.32.1.4 Default Treatment.

If a resource located outside of a GHG Regulation Area does not have a GHG Bid Adder to serve Demand within a specific GHG Regulation Area, the Integrated Forward Market will not attribute the resource as supporting a GHG Transfer into that specific GHG Regulation Area.

33.32.1.5 Determination of Maximum GHG Bid Adder

The CAISO will calculate a maximum daily GHG Bid Adder for each EDAM Resource Facility and each resource located within the CAISO Balancing Authority Area in relation to GHG Regulation Areas, as applicable, based on the resource's highest average heat rate on its heat rate curve, the applicable GHG Allowance Price, and the resource's applicable emission rate. The CAISO will perform this calculation in accordance with the provisions of the applicable Business Practice Manual. The CAISO will also provide for an option for resources to negotiate a maximum GHG Bid Adder for each GHG Regulation Area in accordance with the provisions of the applicable Business Practice Manual.

33.32.1.6 GHG Bid Adder Price

The price included in the GHG Bid Adder will not be less than \$0/MW. The sum of the GHG Bid Adder price and the Energy Bid price may not exceed the Soft Energy Bid Cap unless the sum of a resource's relevant maximum daily GHG Bid Adder and Default Energy Bid as adjusted pursuant to Section 30.11 exceeds the Soft Energy Bid Cap. In this case, the sum of a resource's GHG Bid Adder and Energy Bid price may not exceed the sum of the relevant maximum daily GHG Bid Adder and the resource's Default Energy Bid or the Hard Energy Bid Cap, whichever is lower.

33.32.2 Consideration of GHG Bid Adders in Market Clearing

33.32.2.1 Dispatch of Resources with Non-zero Bid Adders

The Integrated Forward Market will take into account GHG Bid Adders in selecting Energy produced by EDAM Resource Facilities located outside of a specific GHG

Regulation Area up to the associated MW quantity included in the GHG Bid Adder to serve Demand within that GHG Regulation Area.

The Integrated Forward Market will take into account GHG Bid Adders in selecting Energy produced by resources located within the CAISO Balancing Authority Area up to the associated MW quantity included in the GHG Bid Adder to serve load Demand in the GHG Regulation Area located outside of the State of California.

The Integrated Forward Market will not consider GHG Bid Adders when selecting EDAM Resources to serve Demand outside of GHG Regulation Areas.

33.32.2.2 Maximum GHG Bid Adder MW Attribution

The Integrated Forward Market will limit the maximum MW attribution of an EDAM Resource Facility to serve Demand in a specific GHG Regulation Area to a value equal to lower of (i) the MW value in the resource's GHG Bid Adder; (ii) the dispatchable Bid range between the resource's GHG reference pass schedule and the resource's effective upper Economic Bid, considering any applicable derates and Ancillary Services capacity reservations, for the relevant Operating Hour; or (iii) the resource's Day-Ahead Energy Schedule for that Trading Hour.

The Integrated Forward Market will limit the maximum MW attribution of a resource located within the GHG Regulation Area of the State of California to serve load within a GHG Regulation Area outside of the State of California to a value equal to the lower of (i) the MW value in the resource's GHG Bid Adder; (ii) the resource's Day-Ahead Energy Schedule for that Trading Hour.

33.32.2.3 GHG Reference Pass

The GHG reference pass runs before the Integrated Forward Market. The GHG reference pass uses Day-Ahead Bids and Self-Schedules of resources to optimally clear Supply and Demand Bids without GHG Transfers into GHG Regulation Areas. The GHG reference pass establishes GHG reference pass schedules for resources to determine what Dispatch would have occurred without GHG Transfers into GHG Regulation Areas. The GHG reference pass will not schedule capacity located outside of a GHG Regulation

Area obligated to serve Demand within a GHG Regulation Area that is registered with the CAISO in accordance with the applicable Business Practice Manual, thereby allowing this capacity to support a GHG Transfer into a GHG Regulation Area in the Integrated Forward Market.

Resources with Pseudo-Tie arrangements or Dynamic Schedules into a Balancing Authority Area that includes Demand within a specific GHG Regulation Area will register in the Master File whether they are associated with Demand in that GHG Regulation Area. The GHG reference pass will not schedule Pseudo-Tie or dynamically scheduled resources to serve Demand outside of a specific GHG Regulation Area if they are associated with Demand in that GHG Regulation Area.

33.32.2.4 Dispatch of Resources with Bid Adders of Zero

The Integrated Forward Market will not dispatch resources located outside of a GHG Regulation Area for attribution to serve Demand in a GHG Regulation Area if the MW quantity included in the GHG Bid Adder is zero.

33.32.3 GHG Marginal Cost

The Integrated Forward Market will, taking into account Energy Bids and GHG Bids, optimally select resources located outside of a GHG Regulation Area to support GHG Transfers into a GHG Regulation Area until the total MW of GHG Transfers into the respective GHG Regulation Area is fully allocated. The Shadow Price of this allocation constraint is the Marginal GHG Cost for the respective GHG Regulation Area.

33.32.4 Compensation

When the Integrated Forward Market attributes a resource located outside of a GHG Regulation Area to support a GHG Transfer to serve Demand in a GHG Regulation Area, the EDAM Resource Scheduling Coordinator for the EDAM Resource Facility or Scheduling Coordinator for the resource will receive a payment equaling the product of the GHG Transfer to a GHG Regulation Area attributed to the resource in the IFM and the IFM Marginal GHG Cost for that respective GHG Regulation Area.

33.32.5 GHG Net Export Constraint

*NOT CURRENT TARIFF LANGUAGE.
This document contains language that is approved by FERC but not yet effective.*

The CAISO will apply an hourly GHG net export constraint in the Integrated Forward Market for EDAM Entity Balancing Authority Areas that do not overlap with a GHG Regulation Area. This constraint will limit the aggregate attribution of EDAM Resources within a specific EDAM Entity Balancing Authority Area such that the aggregate attribution does not exceed the net exports from that EDAM Entity Balancing Authority Area. This constraint will also limit the aggregate attribution of resources within a specific GHG Regulation Area to serve Demand in another GHG Regulation Area such that the attribution may not exceed the net exports from these resources' native Balancing Authority Areas. This constraint will not restrict the Integrated Forward Market from attributing capacity located outside of a specific GHG Regulation Area obligated to serve Demand within that GHG Regulation Area that is registered with the CAISO. In accordance with the applicable Business Practice manual, the CAISO will not enforce this constraint for any Balancing Authority Area in the EDAM Area and in any Trading Hour in which the CAISO Balancing Authority Area or an EDAM Entity Balancing Authority Area with Demand in a GHG Regulation Area is deficient in the upward direction in the EDAM Resource Sufficiency Evaluation.

33.32.6 Data Availability

33.32.6.1 Notification

The CAISO will notify EDAM Resource Scheduling Coordinators for EDAM Resource Facilities and Scheduling Coordinators for resources within the CAISO Balancing Authority Area of their resources' GHG reference pass schedules. The CAISO will notify an EDAM Resource Scheduling Coordinator through the results of the Integrated Forward Market of the MW quantity of any Energy of an EDAM Resource Facility located in an EDAM Entity Balancing Authority Area outside of a specific GHG Regulation Area that supports a GHG Transfer to serve Demand in that GHG Regulation Area.

The CAISO will notify an EDAM Resource Scheduling Coordinator through the results of the Integrated Forward Market of the MW quantity of any Energy of an EDAM Resource Facility located in the GHG Regulation Area of the State of Washington that supports a GHG Transfer to serve Demand in a GHG Regulation Area outside of the State of

Washington.

The CAISO will notify the Scheduling Coordinator for a resource located in the GHG Regulation Area of the State of California through the results of the Integrated Forward Market of the MW quantity of any Energy of a resource that supports a GHG Transfer to serve Demand in a GHG Regulation Area outside of the State of California.

33.32.6.2 Disclosure

The CAISO may disclose information related to GHG Transfers to a Governmental Authority, so long as such information does not disclose confidential information of any individual Market Participant.

33.33 [Not Used]

33.34 [Not Used]

33.35 Market Validation And Price Correction

The market validation and price correction provisions of Section 35 apply to the EDAM, except that, for a period not to exceed 180 days after an EDAM Entity Implementation Date, the time allowed for the CAISO's correction of Day-Ahead Market prices will be 10 Business Days.

33.36 Congestion Revenue Rights

Congestion Revenue Rights are not included in the Extended Day-Ahead Market, and the provisions of Section 36 will not apply to EDAM Market Participants.

33.37 Rules Of Conduct

All EDAM Market Participants will be subject to the provisions of Section 37 except for Section 37.2 and Section 37.4 to the extent it applies to Maintenance Outages.

33.38 Market Monitoring in EDAM

The CAISO Department of Market Monitoring is the market monitor for the EDAM and holds the same duties towards the EDAM as it holds under Appendix P, Section 5 towards the other CAISO Markets. Any referral to FERC of a potential Market Violation or market design flaw will be made under the procedures established in Appendix P, Section 11 and Appendix P, Section 12, respectively. The obligations the CAISO holds towards the Department of Market Monitoring under Appendix P, Sections 3 and 4 apply equally to the Department of Market Monitoring in its role as market monitor for the EDAM.

The CAISO Market Surveillance Committee holds the same duties towards the EDAM as it holds under Appendix O, Section 5 towards the CAISO Markets.

33.39 Local Market Power Mitigation in EDAM

The CAISO applies the Local Market Power Mitigation procedures set forth in Sections 31.2, 31.9, and 39.7 to the Extended Day-Ahead Market and uses the methods and standards for setting Default Energy Bids and Default Availability Bids in the Extended Day-Ahead Market as set forth in Section 39.7.

33.40 [Not Used]

33.41 [Not Used]

33.42 [Not Used]

33.43 [Not Used]

33.44 Flexible Ramping Product

The CAISO procures the Flexible Ramping Product in the EDAM Area as set forth in Section 44.

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Section 34

34. Real-Time Market

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34.1.4 Real-Time Validation of Schedules and Bids

After the Market Close of the Real-Time Market, the CAISO performs a validation process consistent with the provisions set forth in Section 30.7 and the following additional rules. The CAISO will insert a Generated Bid to cover any RUC Award or Day-Ahead Schedule in the absence of any Self-Schedule or Economic Bid components, or to fill in any gaps between Bid components to cover a RUC Award or Day-Ahead Schedule for use in the RTM. Schedules and Bids submitted to the RTM to supply Energy and Ancillary Services will be considered in the various RTM processes, including the MPM process, the HASP, the STUC, the RTUC, the FMM and the RTD.

34.1.5 Mitigating Bids in the RTM

34.1.5.1 Generally

After the Market Close of the RTM, after the CAISO has validated the Bids pursuant to Section 30.7 and Section 34.1.4, and prior to conducting any other RTM processes, the CAISO conducts a MPM process. The results are used in the RTM optimization processes. Bids on behalf of Demand Response Resources, Participating Load, and Hybrid Resources are considered in the MPM process but are not subject to Bid mitigation. Energy storage resources whose PMax is less than five (5) MW are considered in the MPM process, but not subject to Bid mitigation.

34.1.5.2 Fifteen-Minute MPM

The CAISO conducts the MPM process as the first pass of each fifteen-minute interval in the RTUC horizon starting with the unmitigated Bid set as validated pursuant to Section 30.7 and Section 34.1.4. The MPM process produces results for each fifteen-minute interval of the RTUC horizon and thus may produce mitigated Bids for any given resource for any fifteen-minute interval in the RTUC run horizon that applies to any CAISO Market Process that is based on a specific RTUC run. The determination as to whether a Bid is mitigated is made based on the non-competitive Congestion component of each LMP for each fifteen-minute interval of the RTUC run horizon, using the methodology set forth in Section 31.2.3 except that a resource may have a non-competitive Congestion component in a fifteen-minute interval based on a Transmission Constraint deemed non-competitive either in the base case for meeting Demand or in the separate cases of modeling the dispatch for Energy of all capacity awarded upward and downward Uncertainty Awards. If a Bid is mitigated in the MPM pass for a fifteen-minute interval in the RTUC run horizon, the mitigated Bid will be utilized in the corresponding binding HASP and FMM process for the fifteen-minute interval. If a Bid is not mitigated in a fifteen-minute MPM pass, the CAISO will still mitigate that Bid in subsequent fifteen-minute intervals of the RTUC horizon if the MPM pass for the subsequent intervals determine that mitigation is needed.

34.1.5.3 Real-Time Dispatch MPM

The RTD MPM process produces results for each five-minute interval of a Trading Hour. The determination as to whether a Bid is mitigated is made based on the non-competitive Congestion component of each LMP for each five-minute interval, using the methodology set forth in Section 31.2.3 except that a resource may have a non-competitive Congestion component in a five-minute interval

based on a Transmission Constraint deemed non-competitive either in the base case for meeting Demand or in the separate cases of modeling the dispatch for Energy of all capacity awarded upward and downward Uncertainty Awards. The RTD MPM process is performed for a configurable number of RTD advisory intervals after the binding RTD interval, and the mitigated Bids are used in the corresponding RTD intervals of the following RTD.

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Section 39

39. Market Power Mitigation Procedures

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39.7 Local Market Power Mitigation for Energy Bids

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39.7.2 Competitive Path Designation

39.7.2.1 Timing of Assessments

For the DAM and RTM, the CAISO will make assessments and designations of whether Transmission Constraints are competitive or non-competitive as part of the MPM runs associated with the DAM and RTM, respectively. Only binding Transmission Constraints determined by the MPM process will be assessed in the applicable market.

39.7.2.2 Criteria

(A) Notwithstanding the provisions in Section 39.7.2.2(B), when the CAISO enforces the natural gas constraint pursuant to Section 27.11, the CAISO may deem selected internal constraints to be non-competitive for specific days or hours based on its determination that actual electric supply conditions may be non-competitive due to anticipated electric supply conditions in the Southern

California Gas Company and San Diego Gas & Electric Company gas regions.

- (B) Subject to Section 39.7.3, for the DAM and RTM, a Transmission Constraint will be non-competitive only if the Transmission Constraint fails the dynamic competitive path assessment pursuant to this Section 39.7.2.2.
- (a) **Transmission Constraints for the IFM** - As part of the MPM process associated with the IFM, the CAISO separately evaluates Transmission Constraints for the base scenario for meeting Demand, for the scenario of modeling the dispatch of Energy for the capacity corresponding to IRU Awards, and for the scenario of modeling the dispatch of Energy for the capacity corresponding to IRD Awards. The CAISO also evaluates Transmission Constraints for the scenario of modeling the dispatch of Energy for the capacity corresponding to RCU Awards. The CAISO will designate a Transmission Constraint for the DAM as non-competitive when the fringe supply of counter-flow to the Transmission Constraint from all portfolios of suppliers that are not identified as potentially pivotal is less than the demand for counter-flow to the Transmission Constraint. For purposes of determining whether to designate a Transmission Constraint as non-competitive pursuant to this Section 39.7.2.2(B)(a):
- (i) Counter-flow to the Transmission Constraint means the delivery of Power from a resource to the system load distributed reference bus. If counter-flow to the Transmission Constraint is in the direction opposite to the market flow of Power to the Transmission Constraint, the counter-flow to the Transmission Constraint is calculated as the shift factor multiplied by the resource's scheduled Power. Otherwise, counter-flow to the Transmission Constraint is zero.
- (ii) Fringe supply of counter-flow to the Transmission Constraint means all available capacity from internal resources not controlled by the identified potentially pivotal suppliers and all internal Virtual Supply Awards not controlled by the identified potentially pivotal suppliers that provide counter-flow to the Transmission Constraint. Available capacity reflects the highest capacity of a resource's Energy Bid adjusted for Self-Provided Ancillary Services and derates.

- (iii) Demand for counter-flow to the Transmission Constraint means all internal dispatched Supply and Virtual Supply Awards that provide counter-flow to the Transmission Constraint.
- (iv) Potentially pivotal suppliers mean the three (3) portfolios of net sellers that control the largest quantity of counter-flow supply to the Transmission Constraint.
- (v) Portfolio means the effective available internal generation capacity under the control of the Scheduling Coordinator and/or Affiliate determined pursuant to Section 4.5.1.1.12 and all effective internal Virtual Supply Awards of the Scheduling Coordinator and/or Affiliate. Effectiveness in supplying counter-flow is determined by scaling generation capacity and/or Virtual Supply Awards by the shift factor from that location to the Transmission Constraint being tested.
- (vi) A portfolio of a net seller means any portfolio that is not a portfolio of a net buyer. A portfolio of a net buyer means a portfolio for which the average daily net value of Measured Demand minus Supply over a twelve (12) month period is positive. The average daily net value is determined for each portfolio by subtracting, for each Trading Day, Supply from Measured Demand and then averaging the daily value for all Trading Days over the twelve (12) month period. The CAISO will calculate whether portfolios are portfolios of net buyers in the third month of each calendar quarter and the calculations will go into effect at the start of the next calendar quarter. The twelve (12) month period used in this calculation will be the most recent twelve (12) month period for which data is available. The specific mathematical formula used to perform this calculation will be set forth in a Business Practice Manual. Market Participants without physical resources will be deemed to be net sellers for purposes of this Section 39.7.2.2(a)(vi).
- (vii) In determining which Scheduling Coordinators and/or Affiliates control the resources in the three (3) identified portfolios, the CAISO will include resources and Virtual Supply Awards directly associated with all Scheduling Coordinator ID Codes associated with the Scheduling Coordinators and/or Affiliates, as well as

all resources that the Scheduling Coordinators and/or Affiliates control pursuant to Resource Control Agreements registered with the CAISO as set forth Section 4.5.1.1.13. Resources identified pursuant to Resource Control Agreements will only be assigned to the portfolio of the Scheduling Coordinator that has control of the resource or whose Affiliate has control of the resource pursuant to the Resource Control Agreements.

- (b) **Transmission Constraints for the RTM** - As part of the MPM processes associated with the RTM, the CAISO separately evaluates Transmission Constraints for the base scenario for meeting Demand, for the scenario of modeling the dispatch of Energy for the capacity corresponding to upward Uncertainty Awards, and for the scenario of modeling the dispatch of Energy for the capacity corresponding to downward Uncertainty Awards. The CAISO will designate a Transmission Constraint for the RTM as non-competitive when the sum of the supply of counter-flow from all portfolios of potentially pivotal suppliers to the Transmission Constraint and the fringe supply of counter-flow to the Transmission Constraint from all portfolios of suppliers that are not identified as potentially pivotal is less than the demand for counter-flow to the Transmission Constraint. For purposes of determining whether to designate a Transmission Constraint as non-competitive pursuant to this Section 39.7.2.2(b):
- (i) Counter-flow to the Transmission Constraint has the meaning set forth in Section 39.7.2.2(B)(a)(i).
 - (ii) Supply of counter-flow from all portfolios of potentially pivotal suppliers to the Transmission Constraint means the minimum available capacity from internal resources controlled by the identified potentially pivotal suppliers that provide counter-flow to the Transmission Constraint. The minimum available capacity for the current market interval will reflect the greatest amount of capacity that can be physically withheld. The minimum available capacity is the lowest output level the resource could achieve in the current market interval given its dispatch in the last market interval and limiting factors including Minimum Load, Ramp Rate,

Self-Provided Ancillary Services, Ancillary Service Awards (in the Real-Time Market only), derates, and Uncertainty Awards.

- (iii) Potentially pivotal suppliers mean the three (3) portfolios of net sellers that control the largest quantity of counter-flow supply to the Transmission Constraint that can be withheld. Counter-flow supply to the Transmission Constraint that can be withheld reflects the difference between the highest capacity and the lowest capacity of a resource's Energy Bid (not taking into account the Ramp Rate of the resource), measured from the Dispatch Operating Point for the resource in the immediately preceding fifteen (15) minute FMM interval or the preceding five (5) minute RTD interval, as applicable (taking into account the Ramp Rate of the resource), adjusted for Self-Provided Ancillary Services/ Ancillary Service Awards, derates, and Uncertainty Awards in determining whether to designate a Transmission Constraint as non-competitive for the RTM. In determining whether to designate a Transmission Constraint as non-competitive for the RTM, counter-flow supply to the Transmission Constraint that can be withheld also reflects the PMin of each Short Start Unit with a Start-Up Time of sixty (60) minutes or less that was off-line in the immediately preceding fifteen (15) minute interval of the FMM. In determining whether to designate a Transmission Constraint as non-competitive for the FMM, counter-flow supply to the Transmission Constraint that can be withheld also reflects the PMin of each Short Start Unit with a Start-Up Time of fifteen (15) minutes or less that was off-line in the immediately preceding fifteen (15) minute interval.
- (iv) Portfolio means the effective available internal generation capacity under the control of the Scheduling Coordinator and/or Affiliate determined pursuant to Sections 4.5.1.1.12 and 39.7.2.2(a)(vii). Effectiveness in supplying counter-flow is determined by scaling generation capacity by the shift factor from that location to the Transmission Constraint being tested.
- (v) A portfolio of a net seller has the meaning set forth in Section 39.7.2.2(a)(vi).

- (vi) Fringe supply of counter-flow to the Transmission Constraint means all available capacity from internal resources not controlled by the identified potentially pivotal suppliers that provide counter-flow to the Transmission Constraint. Available capacity reflects the highest capacity of a resource's Energy Bid (not taking into account the Ramp Rate of the resource), measured from the Dispatch Operating Point for the resource in the immediately preceding fifteen (15) minute interval of the FMM or five (5) minute interval of the RTD, as applicable (taking into account the Ramp Rate of the resource), adjusted for Self-Provided Ancillary Services/ Ancillary Service Awards, derates, and Uncertainty Awards in determining whether to designate a Transmission Constraint as non-competitive for the RTM.
- (vii) Demand for counter-flow to the Transmission Constraint means all internal dispatched Supply that provides counter-flow to the Transmission Constraint.

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39.7.4 Default Availability Bid for Imbalance Reserves and Reliability Capacity

The CAISO applies separate IRU Default Availability Bids and RCU Default Availability Bids.

A resource's IRU Default Availability Bid is the higher of: (a) \$55/MWh; or (b) the IRU Negotiated Availability Bid.

A resource's RCU Default Availability Bid is the higher of: (a) \$55/MWh; or (b) the RCU Negotiated Availability Bid.

A Scheduling Coordinator may choose to pursue both an IRU Negotiated Availability Bid and an RCU Negotiated Availability Bid.

39.7.4.1 Process for Establishing an IRU or RCU Negotiated Availability Bid

Scheduling Coordinators that elect the option of pursuing a Negotiated Availability Bid must submit a proposed value to apply either for IRU or RCU, depending on which type of Negotiated Availability Bid they have chosen to pursue. The proposed value must represent the costs of providing the underlying product. Within ten (10) Business Days of receipt, the CAISO will provide a written response. If the

CAISO accepts the proposed Negotiated Availability Bid, it will generally become effective within eleven (11) Business Days from the date of acceptance by the CAISO and remain in effect until: (1) FERC modifies the Negotiated Availability Bid; (2) the CAISO and the Scheduling Coordinator modify the Negotiated Availability Bid by mutual agreement; or (3) the Negotiated Availability Bid expires, is terminated, or is modified pursuant to any agreed upon term or condition or pertinent FERC order.

If the CAISO does not accept the proposed Negotiated Availability Bid, the CAISO and the Scheduling Coordinator shall enter a period of good faith negotiations that terminates sixty (60) days following the date of submission of a proposed Negotiated Availability Bid by a Scheduling Coordinator. If at any time during this period, the CAISO and the Scheduling Coordinator agree upon the Negotiated Availability Bid, it will generally become effective within eleven (11) Business Days of the date of agreement and remain in effect as if the CAISO accepted it initially.

If by the end of the sixty (60)-day period the CAISO and the Scheduling Coordinator fail to agree on the Negotiated Availability Bid, the Scheduling Coordinator has the right to file a proposed Negotiated Availability Bid with FERC pursuant to Section 205 of the Federal Power Act.

During the sixty (60)-day period following the submission of a proposed Negotiated Availability Bid by a Scheduling Coordinator, and pending FERC's acceptance in cases where the Scheduling Coordinator filed a proposed Negotiated Availability Bid with FERC pursuant to Section 205 of the Federal Power Act, the IRU Default Availability Bid or RCU Default Availability Bid for the resource is \$55/MWh.

The CAISO may require the renegotiation of any Negotiated Availability Bids enacted pursuant to this Section 39.7.4.1 that have become outdated, are possibly erroneous, or for which the Scheduling Coordinator has changed. In the renegotiation process, the CAISO may review and propose modifications to such values, and may require the Scheduling Coordinator to provide updated information to support continuation of such values.

The CAISO shall make an informational filing with FERC of any Negotiated Availability Bids enacted pursuant to this Section 39.7.4.1 no later than seven (7) days after the end of the month in which the CAISO enacted the Negotiated Availability Bids.

39.7.4.2 Transition Period for Negotiated Availability Bids

The option to pursue a Negotiated Availability Bid will be unavailable until the CAISO certifies through a

market notice it has gained sufficient operational experience with Imbalance Reserves and Reliability Capacity to validate that proposed Negotiated Availability Bids correspond reasonably to the underlying costs of providing the products. Such certification is deemed to have occurred if the CAISO does not issue the market notice within 18 months of the effective date of this Section 39.7.4.

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Section 40

40. Resource Adequacy Demonstration for all SCs in the CAISO BAA

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40.6 Requirements for SCs and Resources for LSEs

This Section 40.6 does not apply to Resource Adequacy Resources of Load-following MSSs. 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 reporting month in accordance with this Section 40.6 and Section 9.3.1.3.

40.6.1 Day-Ahead Availability

Except as otherwise provided in Sections 40.6.1.1 and 40.6.4, Scheduling Coordinators supplying Resource Adequacy Capacity shall make such Resource Adequacy Capacity, available Day-Ahead to the CAISO as follows:

- (1) Resource Adequacy Resources physically capable of operating must submit: (a) Economic Bids for Energy and/or Self-Schedules for all their Resource Adequacy Capacity and (b) Economic Bids for Ancillary Services and/or a Submission to Self-Provide Ancillary Services in the IFM for all of their Resource Adequacy Capacity that is certified to provide Ancillary Services. For Resource Adequacy Capacity that is certified to provide Ancillary Services and is not covered by a Submission to Self-Provide Ancillary

Services, the resource must submit Economic Bids for each Ancillary Service for which the resource is certified. For Resource Adequacy Capacity subject to this requirement for which no Economic Energy Bid or Self-Schedule has been submitted, the CAISO shall insert a Generated Bid in accordance with Section 40.6.8. For Resource Adequacy Capacity subject to this requirement for which no Economic Bids for Ancillary Services or Submissions to Self-Provide Ancillary Services have been submitted, the CAISO shall insert a Generated Bid in accordance with Section 40.6.8 for each Ancillary Service the resource is certified to provide.

- (2) Resource Adequacy Resources must be available except for limitations specified in the Master File, legal or regulatory prohibitions or as otherwise required by this CAISO Tariff or by Good Utility Practice.
- (3) Through the IFM co-optimization process, the CAISO will utilize available Resource Adequacy Capacity to provide Energy, Imbalance Reserves, or Ancillary Services in the most efficient manner to clear the Energy market, manage congestion and procure required Ancillary Services. In so doing, the IFM will honor submitted Energy Self-Schedules of Resource Adequacy Capacity unless the CAISO is unable to satisfy one hundred percent (100%) of the Ancillary Services requirements. In such cases, the CAISO may curtail all or a portion of a submitted Energy Self-Schedule to allow Ancillary Service-certified Resource Adequacy Capacity to be used to meet the Ancillary Service requirements. The CAISO will not curtail for the purpose of meeting Ancillary Service requirements a Self-Schedule of a resource internal to a Metered Subsystem that was submitted by the Scheduling Coordinator for that Metered Subsystem. If the IFM reduces the Energy Self-Schedule of Resource Adequacy Capacity to provide an Ancillary Service, the Ancillary Service Marginal Price for that Ancillary Service will be calculated in accordance with Section 27.1.2 using the Ancillary Service Bids submitted by the Scheduling Coordinator for the Resource Adequacy Resource or inserted by the CAISO pursuant to this Section 40.6.1, and using the resource's Generated Energy Bid to determine the Resource Adequacy Resource's opportunity cost of Energy. If the

Scheduling Coordinator for the Resource Adequacy Resource believes that the opportunity cost of Energy based on the Resource Adequacy Resource's Generated Energy Bid is insufficient to compensate for the resource's actual opportunity cost, the Scheduling Coordinator may submit evidence justifying the increased amount to the CAISO and to the FERC no later than seven (7) days after the end of the month in which the submitted Energy Self-Schedule was reduced by the CAISO to provide an Ancillary Service.

The CAISO will treat such information as confidential and will apply the procedures in Section 20.4 of this CAISO Tariff with regard to requests for disclosure of such information. The CAISO shall pay any higher opportunity costs approved by FERC.

- (4) Resource Adequacy Resources must submit RUC Availability Bids for RCU for their Resource Adequacy Capacity.
- (5) Resource Adequacy Resources eligible to provide Imbalance Reserves must submit Bids for IRU and IRD for all RA Capacity that meets its obligation pursuant to 40.6.1(1)(a) by submitting an Economic Bid.

40.6.1.1 Day-Ahead Availability - Specific RA Resource Types

- (a) **Distributed Generation Facilities.** Distributed Generation Facilities shall comply with the IFM and RUC bidding requirements that apply to the same technology type of a resource connected to the CAISO Controlled Grid.
- (b) **Non-Generator Resources**
 - (1) Non-Generator Resources that do not use Regulation Energy Management shall submit:
 - (A) Economic Bids or Self-Schedules into the IFM for all RA Capacity for all hours of the month the resource is physically capable of operating; and
 - (B) RUC Availability Bids for both RCU and RCD for all RA Capacity for all hours of the month the resource is physically capable of operating,
 - (2) Non-Generator Resources using Regulation Energy Management shall submit Economic Bids or Self-Schedules into the IFM for all RA Capacity for Regulation

for all hours of the month the resource is physically capable of operating.

- (c) **Extremely Long-Start Resources.** Extremely Long-Start Resources that are Resource Adequacy Resources must make themselves available to the CAISO by complying with:
- (1) the Extremely Long-Start Commitment Process under Section 31.7 or otherwise committing the ELS Resource upon instruction from the CAISO, if physically capable; and
 - (2) the applicable provisions of Section 40.6.1 regarding Day-Ahead availability for the Trading Days for which it was committed.

40.6.2 Real-Time Availability

- (a) **General Requirement.** Except as otherwise provided in Section 40.6.4, for every Trading Hour in which a Resource Adequacy Resource receives a Day-Ahead Schedule for Energy, Imbalance Reserves, or Ancillary Services or a RUC Schedule, the Resource Adequacy Resource must submit Bids to the Real-Time Market for that Trading Hour that conform with the Resource Adequacy Resource's obligations under Section 40.6.1 for the Day-Ahead Market. Provided, however, that any reference in Section 40.6.1 to RUC bidding does not apply to the Real-Time Market bidding obligations.
- (b) **Short Start Units.** Irrespective of their Day-Ahead Schedule for Energy, Day-Ahead Schedule for Ancillary Services, or RUC Schedule, Short Start Units must, for each Trading Hour, submit Bids to the Real-Time Market that conform to their obligations under Section 40.6.1 for the Day-Ahead Market. Provided, however, that any reference in Section 40.6.1 to RUC bidding does not apply to the Real-Time Market bidding obligations for Short Start Units. The CAISO may waive these availability obligations for a resource that is not a Long Start Unit or an Extremely Long-Start Resource that does not have an Day-Ahead Schedule or a RUC Schedule based on a procedure to be published on the CAISO Website. The CAISO will insert Generated Bids in accordance with Section 40.6.8 for any Resource Adequacy Capacity subject to the above requirements for which the resource has failed to submit the appropriate bids to the RTM.
- (c) **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 submitting a Self-Schedule or Wheeling-Out in the RTM, unless precluded by terms of their contracts.

- (d) **Extremely Long-Start Resources.** Once an Extremely Long-Start Resource providing Resource Adequacy Capacity is committed by the CAISO, it shall comply, for the Trading Days for it was committed, with the Real-Time availability provisions in sub-sections (a) and (b) of this Section 40.6.2, including those provisions that otherwise apply only to Short Start Units.
- (e) **Self-Schedules.** The CAISO will honor submitted Energy Self-Schedules of Resource Adequacy Capacity unless the CAISO is unable to satisfy one hundred (100) percent of its Ancillary Services requirements. In such cases, the CAISO may curtail all or a portion of a submitted Energy Self-Schedule to allow Ancillary Service-certified Resource Adequacy Capacity to be used to meet the Ancillary Service requirements, as long as such curtailment does not lead to a real-time shortfall in energy supply. If the CAISO reduces a submitted Real-Time Energy Self-Schedule for Resource Adequacy Capacity when that capacity is needed to meet an Ancillary Services requirement, the Ancillary Service Marginal Price for that capacity will be calculated in accordance with Sections 27.1.2 and 40.6.1.
- (f) **Distributed Generation Facilities.** Distributed Generation Facilities shall comply with the RTM bidding requirements that apply to the same technology type of resource connected to the CAISO Controlled Grid.
- (g) **Non-Generator Resources**
 - (1) Non-Generator Resources that do not use Regulation Energy Management shall submit –
 - (A) Economic Bids or Self-Schedules into the RTM for any remaining RA Capacity scheduled in the IFM or RUC; and
 - (B) Economic Bids or Self-Schedules into the RTM for all RA Capacity not

scheduled in the IFM,

- (2) Non-Generator Resources using Regulation Energy Management that are not Use-Limited Resources under Section 40.4.6.1 shall submit Economic Bids or Self-Schedules into the RTM for any remaining RA Capacity from resource scheduled in IFM or RUC.

40.6.3 [Not Used]

40.6.4 Availability Requirements for Resources with Operational Limitations that are not Qualified Use-Limits

40.6.4.1 Must-Offer Obligation in DAM and RTM

Conditionally Available Resources (irrespective of Use-Limited Resource qualification) and Run-of-River Resources that provide Resource Adequacy Capacity and that are physically capable of operating must submit Self-Schedules or Bids in the Day-Ahead Market for their expected available Energy or their expected as-available Energy, as applicable, in the Day-Ahead Market and RTM up to the quantity of Resource Adequacy Capacity the resource is providing. Such resources shall also revise their Self-Schedules or submit additional Bids in RTM based on the most current information available regarding Expected Energy deliveries.

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

40.6.4.2 RUC Availability Bids

The following resource types providing Resource Adequacy Capacity are not required to submit RUC Availability Bids for that capacity: Pumping Load, Reliability Demand Response Resources, Combined Heat and Power Resources, Regulatory Must-Take Generation, Non-Generator Resources using Regulation Energy Management, Conditionally Available Resources, Run-of-River Resources, and Eligible Intermittent Resources.

40.6.4.3 Ancillary Services Bids from Participating Loads that is Pumping Load

The must-offer obligation for Participating Load that is Pumping Load is limited to submitting, for hours where underlying Load permits, Non-Spin Ancillary Services Bids and/or a Submission to Self-Provide Non-Spin Ancillary Services in the Day-Ahead Market for its Resource Adequacy Capacity that is certified

to provide Non-Spinning Reserve Ancillary Service, and Economic Bids for Energy in the Real-Time Market for its Non-Spinning Reserve Capacity that receives an Ancillary Service Award in the Day-Ahead Market.

40.6.4.4 Proxy Demand Resources

- (a) Short Start Proxy Demand Resources that provide Resource Adequacy Capacity shall submit RUC Availability Bids for all of their Resource Adequacy Capacity for all hours of the month the resource is physically available.
- (b) Long Start Proxy Demand Resources are not required to submit Bids or Self Schedules in the RUC for their Resource Adequacy Capacity.

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40.6.8 Use of Generated Bids

- (a) **Day-Ahead Market.** Prior to completion of the Day-Ahead Market, the CAISO will determine if Resource Adequacy Capacity subject to the requirements of Section 40.6.1 and for which the CAISO has not received notification of an Outage has not been reflected in a Bid for Energy, Reliability Capacity, and Ancillary Services and will insert a Generated Bid for such capacity into the CAISO Day-Ahead Market.
- (b) **Real-Time Market.** Prior to running the Real-Time Market, the CAISO will determine if Resource Adequacy Capacity subject to the requirements of Section 40.6.2 and for which the CAISO has not received notification of an Outage has not been reflected in a Bid and will insert a Generated Bid for such capacity into the Real-Time Market.
- (c) **Partial Bids for RA Capacity.** If a Scheduling Coordinator for an RA Resource submits a partial bid for the resource's RA Capacity, the CAISO will insert a Generated Bid only for the remaining RA Capacity. In addition, the CAISO will determine if all dispatchable Resource Adequacy Capacity from Short Start Units, not otherwise selected in the IFM or RUC, is reflected in a Bid into the Real-Time Market and will insert a Generated Bid for any remaining dispatchable Resource Adequacy Capacity for which the CAISO has not

received notification of an Outage.

- (d) **Exemptions.** Notwithstanding any of the provisions of Section 40.6.8, for the following resource types providing Resource Adequacy Capacity, the CAISO only inserts a Bid in the Day-Ahead Market or Real-Time Market where the generally applicable bidding rules in Section 30 call for bid insertion: Use-Limited Resource, Non-Generator Resource, Variable Energy Resource, Hydroelectric Generating Unit (including Run-of-River resources), Proxy Demand Resource, Reliability Demand Response Resource, Participating Load, including Pumping Load, Combined Heat and Power Resource, Conditionally Available Resource, Non-Dispatchable Resource, and resources providing Regulatory Must-Take Generation.
- (e) **NRS-RA Resources.** The CAISO will submit a Generated Bid in the Day-Ahead Market for a Non-Resource-Specific System Resource in each RAIM assessment hour, to the extent that the resource provides Resource Adequacy Capacity subject to the requirements of Section 40.6.1 and does not submit an outage request or Bid for the entire amount of that Resource Adequacy Capacity. Aside from where the generally applicable bidding rules in Section 30 call for Bid insertion, the CAISO will not submit a Generated Bid in the Real-Time Market for a Non-Resource-Specific System Resource that fails to meet its bidding obligations under Section 40.6.2. A Bid inserted for the Real-Time Market pursuant to the generally applicable bidding rules in Section 30 may not necessarily cover the full Real-Time Market obligation under Section 40.6.2 and the resource may thus remain exposed to Non-Availability Charges.
- (f) **Generated Bids for RUC.** The CAISO submits a Generated Bid for RUC Availability Bids for Resource Adequacy Resources for which a RUC Availability Bid was not submitted as required in Section 40.6.1(4). For RA Resources that submit a RUC Availability Bid for RCU with an insufficient quantity, the CAISO extends the quantity component of the Bid using the submitted price component of the Bid. For RA Resources that fail to submit any RUC Availability Bid for either RCU or RCD, the Generated Bid is for the required quantity at the Default Availability Bid.

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40.9.3 Availability Assessment

40.9.3.1 Local and System RA Capacity Availability

(a) Availability Assessment Hours

- (1) Prior to the start of each Resource Adequacy Compliance Year, the CAISO shall establish and publish in the Business Practice Manual the Availability Assessment Hours applicable for resources providing local and/or system Resource Adequacy Capacity for each month of that year.
- (2) The Availability Assessment Hours shall be a pre-defined set of five consecutive hours for each month that –
 - (A) correspond to the operating periods when high demand conditions typically occur and when the availability of Resource Adequacy Capacity is most critical to maintaining system reliability;
 - (B) vary by season as necessary so that the coincident peak load hour typically falls within the five-hour range each day during the month, based on historical actual load data; and
 - (C) apply to each Trading Day that is a weekday and not a federal holiday.

(b) **Must-Offer Availability Assessment.** The CAISO shall determine the extent to which each resource providing local and/or system Resource Adequacy Capacity made that capacity available to the CAISO each day during the Availability Assessment Hours by comparing –

- (1) the MWs of local and/or system Resource Adequacy Capacity for which the Scheduling Coordinator for the resource submitted Economic Bids or Self-Schedules in the Day-Ahead Market and the Real-Time Market on a given day; and

- (2) the MWs of local and/or system Resource Adequacy Capacity for which the Scheduling Coordinator for the resource had a performance obligation to submit Economic Bids or Self-Schedules in the CAISO Markets under the must-offer requirements applicable under Section 40.6 on a given day, provided that Conditionally Available Resources will have RAIM assessed as if the resource's performance obligation were defined in Sections 40.6.1 and 40.6.2 and irrespective of their expected available Energy or their expected as-available Energy.
- (3) The CAISO's availability assessment under this Section 40.9.3.1 does not consider a RA Resource's compliance with any Imbalance Reserves or Reliability Capacity bidding obligation it holds.

40.9.3.2 Flexible RA Capacity Availability

- (a) **Availability Assessment Hours.** The Availability Assessment Hours for a Flexible RA Resource shall be the same period as the must-offer obligation for the Flexible Capacity Category that is designated on the Resource Flexible RA Capacity Plan for that month, as set forth in Section 40.10.6.
- (b) **Must-Offer Availability Assessment.** The CAISO shall determine the extent to which each Flexible RA Resource made that capacity available in each Availability Assessment Hour of the day by comparing –
 - (A) the MWs of Flexible RA Capacity for which the Scheduling Coordinator for the resource submitted Economic Bids in the Day-Ahead Market and the Real-Time Market on a given day; and
 - (B) the MWs of Flexible RA Capacity for which the Scheduling Coordinator for the resource had a performance obligation to submit Economic Bids in the CAISO Markets under the must-offer requirements applicable under Section 40.10.6 on a given day.
 - (C) The CAISO's availability assessment under this Section 40.9.3.2 does not consider a Flexible RA Resource's compliance with any Imbalance Reserves or

Reliability Capacity bidding obligation it holds.

- (c) **Flexible Capacity Category.** If a Flexible RA Resource is designated to provide Flexible RA Capacity and/or RA Substitute Capacity in more than one Flexible Capacity Category on the same day, the CAISO will assess the availability of the resource using the must-offer obligation for the highest quality of Flexible Capacity Category designated.
- (d) **Start-Up Less Than 90 Minutes.** For resources with a start-up time less than 90 minutes, the CAISO will use the resource's MWs of capacity from zero to the EFC value to assess the availability of the designated Flexible RA Capacity; provided that the Scheduling Coordinator for the resource does not submit Self-Schedules for the capacity from zero to PMin or for any portion of the capacity under the must-offer obligation for Energy. If the Scheduling Coordinator for the resource submits a Self-Schedule, the CAISO will deduct the MW value of PMin from the calculation of the resource's Flexible RA Capacity availability,
- (e) **Start-Up Greater Than 90 Minutes.** For resources with a start-up time greater than 90 minutes, the CAISO will use the MWs of capacity between the resource's PMin and EFC value in the availability assessment and validate whether the Scheduling Coordinator for the resource submitted Economic Bids for all MWs designated on the Resource Flexible RA Capacity Plan.
- (f) **Variable Energy Resources**
 - (1) **Flexible RA Capacity Equal to EFC.** If the Flexible RA Capacity designated on the monthly Resource Flexible RA Capacity Plan is equal to the resource's EFC value, the CAISO will assess the availability of the designated Flexible RA Capacity based on the Economic Bids for Flexible RA Capacity the Scheduling Coordinator for the resource submitted up to the MWs in the Variable Energy Resource forecast applicable under Section 4.8.2.
 - (2) **Flexible RA Capacity Less Than EFC.** If the Flexible RA Capacity designated in the monthly Resource Flexible RA Capacity Plan is less than the EFC value for

the resource, the CAISO will assess availability using the ratio of the amount shown on the monthly plan to the relevant EFC value, and applies that ratio to the MWs of Economic Bids and the Variable Energy Resource forecast.

- (3) **VER Forecast Less Than Flexible RA Capacity.** If the MWs in the Variable Energy Resource forecast are less than the MWs of Flexible RA Capacity designated in the monthly Resource Flexible RA Capacity Plan, and the Economic Bids are greater than or equal to the forecast amount for that hour, the resource is 100 percent available up to the forecast amount.
- (4) **VER Forecast Greater Than Flexible RA Capacity.** If the MWs in the Variable Energy Resource forecast are greater than the MWs of Flexible RA Capacity designated in the monthly Resource Flexible RA Capacity Plan, the Scheduling Coordinator for the resource must submit Economic Bids equal to the forecast amount. If the Scheduling Coordinator for the resource submits Economic Bids for MWs above the forecast, or the resource generates above the forecast, the CAISO will limit the calculated availability to the forecast amount.
- (5) **No Day-Ahead Market Obligation.** For Variable Energy Resources that do not have an obligation to submit Economic Bids into the Day-Ahead Market, the CAISO will base the availability assessment of the Flexible RA Capacity only on the resource's Economic Bids in the Real-Time Market.

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40.9.6.2 Determination of Availability Incentive Payment

- (a) **Self-Funding.** The Availability Incentive Payment will be funded entirely through the monthly Non-Availability Charges assessed. Availability Incentive Payments for Resource Adequacy Resources providing Flexible RA Capacity will be funded exclusively by Non-Availability Charges assessed against Resource Adequacy Resources providing Flexible RA Capacity.

- (b) **Eligible Capacity.** The capacity of a Resource Adequacy Resource providing local, system or Flexible RA Capacity that is eligible to receive an Availability Incentive Payment shall be the resource's average monthly MWs of capacity that exceed the upper bound of the Availability Standard.
- (c) **Calculation.**
- (1) The monthly Availability Incentive Payment rate will equal the total Non-Availability Charges assessed for the month plus any unpaid funds under Section 40.9.6.2(d), divided by the total Resource Adequacy Capacity eligible to receive the Availability Incentive Payment that month.
 - (2) The Availability Incentive Payment rate shall not exceed three times the Non-Availability Charge rate.
 - (3) The Availability Incentive Payment the CAISO shall pay to each eligible resource shall equal the product of its eligible capacity and the Availability Incentive Payment rate.
- (d) **Unpaid Funds.** Any Non-Availability Charge funds that are not distributed to Resource Adequacy Resources eligible to receive Availability Incentive Payments in a month will be added to the funds available for Availability Incentive Payments in the next month and will continue to roll over to successive months until the end of the year. The CAISO distributes any unallocated funds remaining after the CAISO settles December monthly RAAIM Non-Availability Charges and Non-Availability Incentive Payments. The separate pool of undistributed Non-Availability Charge funds collected for local and/or system Resource Adequacy Capacity will be distributed to Load Serving Entities based on their load ratio share for the year. The separate pool of undistributed Non-Availability Charge funds collected for Flexible RA Capacity will be distributed to Load Serving Entities based on their overall ratio of obligation to demonstrate Flexible RA Capacity for the year.

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40.10.6 Flexible RA Capacity Must-Offer Obligation

40.10.6.1 Day-Ahead and Real-Time Availability

- (a) **Must-Offer Obligation.** The Scheduling Coordinator for a resource supplying Flexible RA Capacity must submit Economic Bids for Energy for the full amount of the resource's Flexible RA Capacity, Bids for IRU and IRD for the full amount of the resource's Flexible RA Capacity that is eligible to Bid for Imbalance Reserves, and Economic Bids for Ancillary Services that are not flagged as Contingency Only in the Day-Ahead Market for the full amount of the resource's Flexible RA Capacity that is certified to provide Ancillary Services, in the Day-Ahead Market and the Real-Time Market for the applicable Trading Hours that is capable of being economically dispatched as follows, except as provided in Section 40.10.6.1(e) through(h) –
- (1) Flexible Capacity Category for base ramping resources - the 17-hour period from 5:00 a.m. to 10:00 p.m., seven days a week;
 - (2) Flexible Capacity Category for peak ramping resources - the five-hour period determined for each season by the CAISO's Flexible Capacity Needs Assessment, seven days a week; and
 - (3) Flexible Capacity Category for super-peak ramping resources – the five-hour period determined for each season by the CAISO's Flexible Capacity Needs Assessment, weekdays, except holidays and as provided in Section 40.10.6.1(h), until the resource receives during the five-hour period of the must offer obligation and responds to five CAISO dispatches for Start-Up during the month, after which the resource will not be subject to a must-offer obligation as a super-peak ramping resource for the remainder of that month; however, any other must-offer obligations for Resource Adequacy Capacity will still apply.
- (b) **Availability Requirement.** During the period of the applicable must-offer obligation, a Flexible RA Capacity Resource must be operationally available except for limitations specified in the Master File, legal or regulatory prohibitions or as otherwise required by this CAISO Tariff or by Good Utility Practice.

- (c) **Co-optimization.** Through the IFM co-optimization process, the CAISO will utilize available Flexible RA Capacity to provide Energy, Imbalance Reserves, or Ancillary Services in the most efficient manner to clear the Energy market, manage congestion and procure required Ancillary Services.
- (d) **Participation in RUC.** The Scheduling Coordinator for a Flexible RA Capacity Resource must submit RUC Availability Bids for RCU for their Flexible RA Capacity.
- (e) **Use-Limited Resources.**
 - (1) A Use-Limited Resource providing Flexible RA Capacity must be capable of responding to Dispatch Instructions and, consistent with its use-limitations, must submit Economic Bids for Energy for the full amount of its Flexible RA Capacity in the Day-Ahead Market and the Real-Time Market for the Trading Hours applicable to the resource's Flexible Capacity Category for that month for the Trading Hours that it is capable of being economically dispatched.
 - (2) The Scheduling Coordinator for the Use-Limited Resources designated as a combined resource under Section 40.10.3.2(b), 40.10.3.3(b) or 40.10.3.4(b) must submit Economic Bids for Energy for either resource for the full amount of the Flexible RA Capacity required by the applicable must-offer obligation; however, Economic Bids for Energy must be submitted for only one resource in the combination per Trade Day.
- (f) **Short or Long Start Units.**
 - (1) Short Start Units providing Flexible RA Capacity that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour are required to participate in the Real-Time Market consistent with the provisions in Section 40.6.2 that apply to Short Start Units providing RA Capacity.
 - (2) Long Start Units providing Flexible RA Capacity that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour are required to participate in the Real-Time Market consistent

with the provisions in Section 40.6.2 that apply to Long Start Units providing RA Capacity.

(3) If availability is required under Section 40.6.2, the Scheduling Coordinator for the resource must submit to the RTM for that Trading hour for which the resource is capable of responding to Dispatch Instructions: (i) Economic Bids for Energy for the full amount of the available Flexible RA Capacity, including capacity for which it has submitted Economic Bids for Ancillary Services; and (ii) Economic Bids for Ancillary Services for the full amount of its Flexible RA Capacity that is certified to provide Ancillary Services and that did not receive a day-ahead award, and for each Ancillary Service for which the resource is certified, including capacity for which it has submitted Economic Bids for Energy.

(g) **Extremely Long-Start Resources.** Flexible RA Capacity Resources that are Extremely Long-Start Resources must be available to the CAISO by complying with the Extremely Long-Start Commitment Process under Section 31.7 or otherwise committing the resource upon instruction from the CAISO, if physically capable. Once an Extremely Long-Start Resource is committed by the CAISO, it is subject to the provisions of Section 40.10.6 regarding Day-Ahead Availability and Real-Time Availability for the Trading Days for which it was committed.

(h) **Non-Generator Resources, Regulation Energy Management.** Non-Generator Resources providing Flexible RA Capacity and Regulation Energy Management must submit Economic Bids for Regulation Up and Regulation Down for Trading Hours in the 17-hour period from 5:00 a.m. to 10:00 p.m., seven days a week and shall not submit Bids for Energy or other Ancillary Services.

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Section 44

44. Flexible Ramping Product

*NOT CURRENT TARIFF LANGUAGE.
This document contains language that is approved by FERC but not yet effective.*

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44.3 Forecasted Movement

44.3.1 Generally

The CAISO will determine the Forecasted Movement for each EIM Participating Resource, Generating Unit, System Resource, Pumped Storage, Pseudo-Tie, Non-generating Resource, PDR, Participating Load, and any other resource that has a schedule or dispatch change in the Day-Ahead Market or Real-Time Market as described below.

44.3.2 RTD Forecasted Movement

For the RTD, the Forecasted Movement for the resource is the MW difference between the resource's non-binding dispatch instruction in the first five-minute advisory RTD interval and its Dispatch Instruction in the financially binding RTD interval, in the same RTD run.

44.3.3 FMM Forecasted Movement

For FMM, the Forecasted Movement is the difference between the resource's advisory FMM schedule in the first advisory FMM interval and its FMM Schedule in the financially binding FMM interval for the same applicable FMM run.

44.3.4 DAM Forecasted Movement

For DAM, the Forecasted Movement is the algebraic difference of the Day-Ahead Schedule between consecutive hours.

44.3.5 Virtual Forecasted Movement

For Virtual Awards, the Forecasted Movement is the algebraic difference of the Virtual Award between consecutive hours.

44.3.6 Base Schedule Forecasted Movement

For EIM Base Schedules, the Forecasted Movement is the algebraic difference of the submitted EIM Base Schedule, as adjusted in real time, between consecutive hours.

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Appendix A

Potential New Definitions

- Competitive Locational IRU Price

The Locational IRU Price minus the non-competitive Congestion components in the upward deployment scenario, as calculated pursuant to Section 31.2.1.

- Competitive RUC Price for RCU

The RUC Price for RCU minus the non-competitive Congestion components in the upward deployment scenario, as calculated pursuant to Section 31.9.1.

- DAME Transition Period

The three-year period that starts on the first Trading Day for which the CAISO procures either Imbalance Reserves or Reliability Capacity.

- DAME Transitional Measures

As specified in Section 11.2.6, the settlement provisions through which the CAISO shares the revenue of an Imbalance Reserves Award or Reliability Capacity Award to a Resource Adequacy Resource with the Scheduling Coordinator of the resource and the Scheduling Coordinator for the LSE that showed that resource on its Supply Plan

- Day-Ahead Marginal GHG Cost Offset

The amount calculated pursuant to Section 33.11.3.9.2 for purposes of determining the non-zero offset amount allocation.

- Default Generation Aggregation Point (DGAP)

The aggregation of Supply PNodes in a Balancing Authority Area outside of the Market Area, with Generation Distribution Factors that are proportional to the maximum capacity of the Supply resources at the Supply PNodes.

- Deployment Factor

NOT CURRENT TARIFF LANGUAGE.
This document contains language that is approved by FERC but not yet effective.

As specified in Section 31.3.1.6.3.1 and further specified in the Business Practice Manual, the percentage of Imbalance Reserves Awards the CAISO models as being deployed for Energy for the purpose of modeling the deployment of Imbalance Reserves against Transmission Constraints. The CAISO establishes distinct Deployment Factors for Imbalance Reserves Up and Imbalance Reserves Down.

- Diversity Benefit

The quantity by which procurement requirements for Balancing Authority Areas that pass either the EDAM RSE or the EIM RSE can be relaxed, as described in Section 31.3.1.6.1 and Section 29.34(m)(2)-(5), respectively.

- Downward Imbalance Reserves Requirement

The extreme percentile of downward forecast error of the confidence interval described in Section 31.3.1.6.1.

- EDAM Access Charge

The Access Charge that balances historical transmission revenue cost allocation through the Extended Day-Ahead Market pursuant to Section 33.26.

- EDAM Addendum to EIM Entity Agreement

An addendum to an EIM Entity Agreement between an EDAM Entity and the CAISO that constitutes an agreement to join and participate in the EDAM. A *pro forma* version of the EDAM Addendum to EIM Entity Agreement is set forth in Appendix B.

- EDAM Addendum to EIM Entity Scheduling Coordinator Agreement

An addendum to an EIM Entity Scheduling Coordinator Agreement that constitutes an agreement between an EDAM Entity Scheduling Coordinator and the CAISO. A *pro forma* version of the EDAM Addendum to EIM Entity Scheduling Coordinator Agreement is set forth in Appendix B.

- EDAM Addendum to EIM Participating Resource Agreement

An addendum to an EIM Participating Resource Agreement that constitutes an agreement between an EDAM Resource and the CAISO. A *pro forma* version of the EDAM Addendum to

EIM Participating Resource Agreement is set forth in Appendix B.

- EDAM Addendum to EIM Participating Resource Scheduling Coordinator Agreement

An addendum to an EIM Participating Resource Scheduling Coordinator Agreement that constitutes an agreement between an EDAM Resource Scheduling Coordinator and the CAISO.

A *pro forma* version of the EDAM Addendum to EIM Participating Resource Scheduling Coordinator Agreement is set forth in Appendix B.

- EDAM Administrative Charge

The fee imposed on transactions in the EDAM, as described in Section 33.11.6.

- EDAM Area

The combined CAISO Balancing Authority Area and all EDAM Entity Balancing Authority Areas.

- EDAM Demand

Energy delivered to Load in an EDAM Entity Balancing Authority Area.

- EDAM Downward Pool

A pool comprised of each Balancing Authority Area in the EDAM Area that satisfies the downward components of the EDAM Resource Sufficiency Evaluation described in Section 33.31.1.3 in each hour of the Day-Ahead Market, together with each Balancing Authority Area in the EDAM Area that has cured its downward failure of the EDAM Resource Sufficiency Evaluation through the IFM and incurred the EDAM RSE Downward Failure Surcharge.

- EDAM Entity

A Balancing Authority that enters into an EDAM Addendum to EIM Entity Agreement with the CAISO to enable the operation of the Day-Ahead Market in addition to the Real-Time Market in the EDAM Entity Balancing Authority Area. The CAISO is not an EDAM Entity.

- EDAM Entity Implementation Agreement

An agreement between an EIM Entity seeking to become an EDAM Entity, or a Balancing Authority seeking to become an EDAM Entity concurrently with participation in the Energy Imbalance Market as an EIM Entity, and the CAISO, a *pro forma* version of which is set forth in Appendix B.

- EDAM Entity Implementation Date

The first Trading Day for an EDAM Entity in the Day-Ahead Market.

- EDAM Entity Scheduling Coordinator

An EDAM Entity, or a third party designated by the EDAM Entity, that is certified by the CAISO and has entered into an EDAM Entity Addendum to EIM Entity Scheduling Coordinator Agreement under which it is a Scheduling Coordinator and Market Participant and is responsible for meeting the requirements specified in Section 33 on behalf of the EDAM Entity.

- EDAM External Intertie

A point of interconnection between the CAISO Balancing Authority Area or an EDAM Entity Balancing Authority Area and a Balancing Authority Area other than a Balancing Authority Area in the EDAM Area.

- EDAM Internal Intertie

A point of interconnection between the CAISO Balancing Authority Area or an EDAM Entity Balancing Authority Area and another Balancing Authority Area in the EDAM Area.

- EDAM Intertie

An EDAM Internal Intertie or EDAM External Intertie.

- EDAM Legacy Contract

A transmission service contract entered into with the EDAM Transmission Service Provider prior to the effective date of the EDAM Transmission Service Provider tariff or otherwise not governed by the terms of that tariff (including any contract entered into pursuant to such transmission service contract) as may be amended in accordance with its terms or by agreement between the parties thereto from time to time.

- EDAM Load Serving Entity

A Load Serving Entity other than the EDAM Entity within an EDAM Entity Balancing Authority Area that enters into an EDAM Load Serving Entity Agreement with the CAISO.

- EDAM Load Serving Entity Agreement

An agreement between an EDAM Load Serving Entity and the CAISO, a *pro forma* version of which is set forth in Appendix B.

- EDAM Load Serving Entity Scheduling Coordinator

An EDAM Load Serving Entity, or a third party designated by the EDAM Load Serving Entity, that is certified by the CAISO and has entered into a Scheduling Coordinator Agreement under which it is a Scheduling Coordinator and Market Participant and is responsible for meeting the requirements specified in Section 33 on behalf of the EDAM Entity.

- EDAM Market Participant

An EDAM Entity, EDAM Entity Scheduling Coordinator, EDAM Resource, EDAM Resource Scheduling Coordinator, EDAM Load Serving Entity, EDAM Load Serving Entity Scheduling Coordinator, or EDAM Transmission Service Provider.

- EDAM Measured Demand

The metered CAISO Demand and metered EDAM Demand plus Real-Time Interchange Export Schedules from the Balancing Authority Areas in the EDAM Area, excluding that portion of Demand of Non-Generator Resources dispatched as Regulation through Regulation Energy Management and EDAM Transfers out of a Balancing Authority Area.

- EDAM Recoverable Revenue

Eligible revenues recovered by EDAM Entities through the EDAM Access Charge pursuant to Section 33.26.

- EDAM Resource

An owner of, operator of, or seller of Energy from an EDAM Resource Facility located in an EDAM Entity Balancing Authority Area.

- EDAM Resource Facility

A resource that (1) can deliver Energy, Curtailable Demand, Demand Response Services, or similar services; (2) is a Generating Unit, a Load of a Participating Load, or a Demand Response Resource or other CAISO-qualified resource; (3) is located within an EDAM Entity Balancing Authority Area; and (4) is listed in, and subject to, an EDAM Addendum to EIM Participating Resource Agreement.

- EDAM Resource Scheduling Coordinator

The EDAM Resource, or a third party designated by the EDAM Resource, that is certified by the CAISO and enters into an EDAM Resource Scheduling Coordinator Agreement under which it is

a Scheduling Coordinator and Market Participant and is responsible for meeting the requirements specified in Section 33 on behalf of the EDAM Resource.

- EDAM Resource Sufficiency Evaluation (EDAM RSE)

A set of tests that determines whether a Balancing Authority Area in the EDAM Area, including the CAISO Balancing Authority Area, has sufficient supply and reserves to satisfy the resource sufficiency requirements described in Section 33.31.1.

- EDAM RSE Downward Failure Insufficiency Surcharge

The surcharge assessed to a Balancing Authority Area in the EDAM Area due to a failure of the EDAM RSE in the downward direction on any day and in any hour, as provided in Section 33.31.1.5.3.

- EDAM RSE Failure Multiplier

A tiered component of the EDAM RSE On-Peak Upward Failure Insufficiency Surcharge. Where a Balancing Authority Area's EDAM RSE Hourly Upward Deficiency Quantity is *de minimis* (a tier 1 EDAM RSE failure), such threshold determined as the higher of 10 MW or one percent of the Balancing Authority Area's upward imbalance reserve requirement for that hour, the EDAM RSE Failure Multiplier is zero. Where a Balancing Authority Area's EDAM RSE Hourly Upward Deficiency Quantity is less than or equal to fifty percent of the Balancing Authority Area's upward Imbalance Reserve requirement (a tier 2 EDAM RSE failure), the EDAM RSE Failure Multiplier is 1.25. Where a Balancing Authority Area's EDAM RSE Hourly Upward Deficiency Quantity is greater than fifty percent of the Balancing Authority Area's upward Imbalance Reserve requirement (a tier 3 EDAM RSE failure), the EDAM RSE Failure Multiplier is 2. With respect to tier 2 or tier 3 EDAM RSE failure in the upward direction, the EDAM RSE Failure Multiplier is subject to an adder consisting of the EDAM RSE Failure Scaling Factor.

- EDAM RSE Failure Scaling Factor

An adder to the EDAM RSE Failure Multiplier calculated on a rolling basis to account for hours in which a Balancing Authority Area in the EDAM Area persistently fails the EDAM RSE in the upward direction over the preceding thirty days, with the EDAM RSE Failure Scaling Factor adding one percent to the EDAM RSE Failure Multiplier for every additional day during the

preceding thirty-day period in which the Balancing Authority Area experienced a tier 2 or tier 3 failure of the EDAM RSE in the upward direction.

- EDAM RSE Hourly Downward Deficiency Quantity

The MW sum total of the downward failures during any single operating hour inclusive of the downward demand deficiency described in Section 33.31.1.3, the downward imbalance reserve deficiency described in Section 33.31.1.2, or the downward Ancillary Services deficiency described in Section 33.31.1.4.

- EDAM RSE Hourly Upward Deficiency Quantity

The MW sum total of the upward failures during any single operating hour inclusive of the upward demand deficiency described in Section 33.31.1.3.1, the upward imbalance reserve deficiency described in Section 33.31.1.2, or the upward ancillary services deficiency described in Section 33.31.1.4.

- EDAM RSE Off-Peak Upward Failure Insufficiency Surcharge

The surcharge assessed to a Balancing Authority Area in the EDAM Area due to a tier 2 or tier 3 failure of the EDAM RSE in the upward direction on any day Monday through Saturday in the off-peak hours of midnight to 6 a.m. or 10 p.m. to midnight, pacific time, and all hours on Sunday or any legal public holiday, as provided in Section 33.31.1.5.2.

- EDAM RSE On-Peak Upward Credit

A component of the EDAM RSE On-Peak Upward Failure Insufficiency Surcharge to account for hours during the sixteen-hour on-peak period in which the Balancing Authority Area satisfies the upward requirements of the demand evaluation described in Section 33.31.1.3.1, the Imbalance Reserve evaluation described in Section 33.31.1.3.2, and the ancillary services evaluation described in Section 33.31.1.3.3, and determined as the product of the highest EDAM RSE Hourly Upward Deficiency Quantity of the day and the load-weighted average LMP of the LAP within that Balancing Authority Area in each passed hour.

- EDAM RSE On-Peak Upward Failure Insufficiency Surcharge

The surcharge assessed to a Balancing Authority Area in the EDAM Area due to a tier 2 or tier 3 failure of the EDAM RSE in the upward direction on any day Monday through Saturday during the

sixteen-hour on-peak block from 6 a.m. to 10 p.m., pacific time, as provided in Section 33.31.1.5.1.

- EDAM System Operations Charge

The System Operations Charge for the Extended Day-Ahead Market described in Section 33.11.6.

- EDAM Trade Location

The major bilateral trading hubs where energy is traded day-ahead for sixteen-hour on-peak blocks and at which there is sufficient liquidity to allow the CAISO to utilize the day-ahead hub price for the sixteen-hour on-peak block as a means to index the EDAM RSE On-Peak Upward Failure Insufficiency Surcharge, as identified in the Business Practice Manuals for the Extended Day-Ahead Market.

- EDAM Transfer

The scheduled transfer of Energy, Imbalance Reserves, or Reliability Capacity in the Day-Ahead Market between an EDAM Entity Balancing Authority Area and the CAISO Balancing Authority Area, or between EDAM Entity Balancing Authority Areas, using transmission capacity made available through the Extended Day-Ahead Market.

- EDAM Transfer System Resource

A Transfer System Resource used to model an Energy and/or capacity Market Transfer between two Balancing Authority Areas in the Extended Day-Ahead Market.

- EDAM Transmission Ownership Right

Ownership rights by a third-party on transmission facilities within an EDAM Entity Balancing Authority Area that are not subject to an EDAM Transmission Service Provider tariff.

- EDAM Transmission Service Information

Information provided by an EDAM Entity to the CAISO about transmission capacity available for use in the Extended Day-Ahead Market.

- EDAM Transmission Service Provider

An EDAM Entity or other party that owns transmission or has transmission service rights on an EDAM Intertie or within an EDAM Entity Balancing Authority Area, provides transmission service,

and that makes transmission service available for use in the Day-Ahead Market through an EDAM Entity. This definition does not include network integration transmission service customers or other transmission customers of an EDAM Transmission Service Provider, EDAM Legacy Contract Rights or EDAM Transmission Ownership Rights.

- EDAM Transmission Service Provider Agreement

An agreement between an EDAM Transmission Service Provider and the CAISO, a *pro forma* version of which is set forth in Appendix B.

- EDAM Upward Pool

A pool comprised of each Balancing Authority Area in the EDAM Area that satisfies the upward components of the EDAM Resource Sufficiency Evaluation described in Section 33.31.1.3 in each hour of the Day-Ahead Market, together with each Balancing Authority Area in the EDAM Area that has cured its upward failure of the EDAM Resource Sufficiency Evaluation through the IFM and incurred the EDAM RSE On-Peak Upward Failure Surcharge or the EDAM RSE Off-Peak Upward Failure Surcharge. The CAISO Balancing Authority Area will be included in the EDAM Upward Pool upon satisfaction of the upward components of the EDAM Resource Sufficiency Evaluation described in Section 33.31.1.3 in each hour of the Day-Ahead Market or upon cure through the IFM and incurrence of the EDAM RSE On-Peak Upward Failure Surcharge or the EDAM RSE Off-Peak Upward Failure Surcharge.

- EIM Resource Sufficiency Evaluation

A test that determines whether the CAISO Balancing Authority Area and each EIM Entity Balancing Authority Areas has sufficient supply and reserves to meet forecasted Demand and uncertainty for the EIM, as described in Section 29.34(l)-(n).

- Extended Day-Ahead Market (EDAM)

The Day-Ahead Market for EDAM Market Participants, as set forth in Section 33 of the CAISO Tariff.

- Five-Minute Imbalance Reserve Quantity

For a resource with an Imbalance Reserves Award, the five-minute ramp capable portion of the

award measured as the MW quantity of the resource's ramp capability above the Day-Ahead hourly Energy schedule, in the case of IRU, or below that schedule, in the case of IRD. The ramp capability is determined based on the Master File-registered ramp rate used to optimize the day-ahead market.

- Flexible Ramping Product

The product procured pursuant to Section 44 to meet flexible ramping needs to meet Forecasted Movement and Uncertainty Requirements.

- Generic Generation Aggregation Point (GGAP)

The aggregation of the Default Generation Aggregation Points of Balancing Authority Areas outside the Market Area. The CAISO uses a northwest GGAP for Scheduling Points in the northwestern U.S. and a southwest GGAP for Scheduling Points in the southwestern U.S.

- Greenhouse Gas (GHG)

Carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and other fluorinated greenhouse gases as defined by regulations of the California Air Resources Board and the Washington Department of Ecology.

- GHG Bid Adder

A component of a Bid from a Supply resource located outside of a GHG Regulation Area composed of a MW quantity and price that provides the Supply resource an opportunity to recover costs of compliance with GHG regulations adopted by the California Air Resources Board and the Washington Department of Ecology. There can be different GHG Bid Adders for different GHG Regulation Areas.

- GHG Regulation Area

The Nodes of the CAISO Balancing Authority Area, an EDAM Entity Balancing Authority Area, or an EIM Entity Balancing Authority Area within the GHG boundary as defined by a state jurisdiction that has priced greenhouse gas emissions as part of a state carbon reduction law or regulation.

- GHG Transfer

The algebraic difference (positive for imports and negative for exports) between Energy Demand and Supply in a GHG Regulation Area as modeled by the CAISO in its Integrated Forward Market, Fifteen-Minute Market, and Real-Time Dispatch.

- IFM Imbalance Reserves Bid Cost

The Bid Costs of a Bid for Imbalance Reserves, as calculated pursuant to Section 11.8.2.1.8.

- Imbalance Reserves

IRU and IRD

- Imbalance Reserves Award

IRD and IRU awarded to a resource for a given fifteen-minute interval.

- Imbalance Reserves Bid

The quantity (MW) and price (\$/MW per hour) at or above which a Generating Unit, System Resource, System Unit, Participating Load, or Proxy Demand Resource has agreed to sell IRU or IRD for a specified interval of time to the CAISO to meet the Imbalance Reserves Requirement.

- Imbalance Reserves Cost

The costs included in a bid to provide Imbalance Reserves submitted per Section 30.5.2.9 and as modified pursuant to Section 30.7.3

- Imbalance Reserves Down (IRD)

Decremental capacity procured to meet the Downward Imbalance Reserves Requirement.

- Imbalance Reserves Requirement

The Upward Imbalance Reserves Requirement and the Downward Imbalance Reserves Requirement- Imbalance Reserves Up (IRU)

Incremental capacity procured to meet the Upward Imbalance Reserves Requirement.

- IRU Default Availability Bid

The price to which an Imbalance Reserves Bid for IRU is mitigated, as specified in Section 39.7.4.

- IRU Negotiated Availability Bid

A method of calculating an IRU Default Availability Bid based on a negotiation with the CAISO pursuant to Section 39.7.4.1.

- Locational IRD Price

The marginal cost (\$/MWh) of providing the next increment of IRD at a PNode consistent with binding Transmission Constraints.

- Locational IRU Price

The marginal cost (\$/MWh) of providing the next increment of IRU at a PNode consistent with binding Transmission Constraints.

- Locational RCD Price

The marginal cost (\$/MWh) of providing the next increment of RCD at a PNode consistent with binding Transmission Constraints.

- Locational RCU Price

The marginal cost (\$/MWh) of providing the next increment of RCU at a PNode consistent with binding Transmission Constraints.

- Lower Economic Limit

The higher of a resource's Self-Schedule quantity or Minimum Load. For a Non-Generator Resource, the Lower Economic Limit is the MW quantity at the bottom of the submitted Energy Bid Curve.

- Market Area

The EDAM Area for purposes of the Day-Ahead Market and the EIM Area for purposes of the Real-Time Market.

- Market Area Intertie

An EDAM Intertie or EIM Intertie.

- Market Transfer

The exchange of Energy or a capacity product (Regulation, contingency reserves, Imbalance Reserves, or Reliability Capacity) in the Market Area. A Market Transfer is modeled as a pair of

logical intertie resources at the relevant intertie that consist of an export resource on the source Balancing Authority Area side of the Market Transfer and an import resource on the sink Balancing Authority Area side of the Market Transfer. Market Transfers include EDAM Transfers and EIM Transfers.

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- Net Market Transfer

The net of all import and export Market Transfers between a Balancing Authority Area in the Market Area and all other Balancing Authority Areas in the Market Area. Each Net Market Transfer consists of a positive net export amount and a corresponding negative net import amount, with the sum of the Net Market Transfers of all Balancing Authority Areas in the Market Area netting to zero. A Net Market Transfer does not include imports from or exports to Balancing Authority Areas outside of the Market Area.

- Negotiated Availability Bid

Either an IRU Negotiated Availability Bid or an RCU Negotiated Availability Bid.

- Net Load Forecast

The demand forecast for a BAA minus the forecast of wind and solar output for the BAA during the interval.

- Non-VER Physical Supply

The physical supply of Energy available to the CAISO net of potential Supply from VERs electrically located in a BAA in the EDAM Area.

- RCD Availability Quantity

A RCD Award (MW) excluding any RCD Capacity that is actually unavailable due to a unit derate or Outage.

- RCU Availability Quantity

A RCU Award (MW) excluding any RCU Capacity that is actually unavailable due to a unit derate or Outage.

- RCU Default Availability Bid

The price to which an RUC Availability Bid for RCU is mitigated, as specified in Section 39.7.4.

- RCU Negotiated Availability Bid

A method of calculating an RCU Default Availability Bid based on a negotiation with the CAISO pursuant to Section 39.7.4.1.

- Real-Time Marginal GHG Cost Offset

The amount calculated pursuant to Section 11.5.4.1.4 for purposes of determining the non-zero offset amount allocation.

- Reliability Capacity

RCU and RCD

- Reliability Capacity Down (RCD)

Decremental capacity procured to meet any negative difference between Net Load Forecast and Non-VER Physical Supply with a market award.

- Reliability Capacity Up (RCU)

Incremental capacity procured to meet any positive difference between the Net Load Forecast and Non-VER Physical Supply with a market award.

- RUC Procurement Target

The quantity of either RCU or RCD the CAISO procures of behalf of each EDAM Entity or the CAISO, as specified in Sections 31.5.3 and 31.5.4.

- Transfer Location

A PNode at a boundary between Balancing Authority Areas in the Market Area where Market Transfers are defined.

- Transfer System Resource (TSR)

A System Resource used to model an Energy and/or capacity Market Transfer between two Balancing Authority Areas in the Market Area which is modeled by a pair of export and import Transfer System Resources, one for each Balancing Authority Area on either side of the Market Transfer, with equal Energy Schedules and/or capacity awards.

- Upper Economic Limit

The highest operating level submitted in a resource's Energy Bid.

- Upward Imbalance Reserves Requirement

The extreme percentile of upward forecast error of the confidence interval described in Section 31.3.1.6.1.

Appendix A

Potential Amended Definitions

- Aggregate Capability Constraint

A constraint that reflects the combined maximum and the combined minimum capability of Generating Units that comprise a single Generating Facility so that the capability does not exceed the Generating Facility's Interconnection Service Capacity or charging capacity specified in its Generator Interconnection Agreement. For EDAM Resource Facilities, a constraint that reflects the combined maximum and the combined minimum capability of individual EDAM Resource Facilities that constitute a single resource. In the case of EIM Resources, a constraint that reflects the combined maximum and the combined minimum capability of individual EIM Resources or non-participating resources that constitute a single resource.

- Base Market Model

A computer based model of the CAISO Controlled Grid, and for purposes of the Extended Day-Ahead Market, including the prospective EDAM Entity and EDAM Entity Balancing Authority

Area(s), and for purposes of the Energy Imbalance Market, including the prospective EIM Entity and EIM Entity Balancing Authority Area(s), that is derived from the Full Network Model as described in Section 27.5.1 and that, as described further in Section 27.5.6, is used as the basis for formulating the market models used in the operation of each of the CAISO Markets.

- Bid

Either (1) an offer, including a Self-Schedule, submitted by a Scheduling Coordinator for a specific resource, conveyed through several components that apply differently to the different types of service offered to or demanded from any of the CAISO Markets for the Demand of Energy or the supply of Energy, Imbalance Reserves, Reliability Capacity, or Ancillary Services ; or (2) a Virtual Bid.

- Bid Costs

The costs for resources manifested in the Bid components submitted, which include the Start-Up Bid Cost, Minimum Load Bid Cost, Energy Bid Cost, Transition Bid Cost, Pump Shut-Down Cost, Pumping Cost, Ancillary Services Bid Cost, RUC Availability Payment, and Imbalance Reserves Costs.

- CAISO Forecast of BAA Demand

The forecast of a Balancing Authority Area's Demand for the CAISO and EDAM Entities made by the CAISO in conjunction with EDAM Entities for use in the CAISO Markets.

- CAISO Markets

Any of the markets administered by the CAISO under the CAISO Tariff, including, without limitation, the DAM, EDAM, RTM, EIM, transmission, and Congestion Revenue Rights market.

- CAISO Metered Entity

Pursuant to Section 10.1, an eligible entity that has elected that the CAISO will collect and process its Revenue Quality Meter Data directly from CAISO certified revenue quality meters.

Eligible entities include:

- (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 Station Power that is netted pursuant to Section 10.1.3) and Ancillary Services to the Utility Distribution Company or Small Utility Distribution Company in whose Service Area it is located;
 - ii. an MSS Operator; or
 - iii. a Utility Distribution Company or Small Utility Distribution Company; 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 Balancing Authority Areas;
 - iii. a Participating Load;
 - iv. a Participating Intermittent Resource;
 - v. an EDAM Resource;
 - vi. an EIM Participating Resource; or
 - vii. a utility that requests that Unaccounted For Energy for its Service Area be calculated separately, in relation to its meters at points of connection of its Service Area with the systems of other utilities.

- CAISO Protocols

The rules, protocols, procedures and standards promulgated by the CAISO (as amended from time to time) to be complied with by the CAISO, Scheduling Coordinators, Participating TOs and all other Market Participants in relation to the operation of the CAISO Controlled Grid and the participation in the CAISO Markets in accordance with the CAISO Tariff.

- Co-located Resources

A Generating Unit with a unique Resource ID that is part of a Generating Facility with other Generating Units, an EDAM Resource Facility with a unique Resource ID that is part of a single resource with other EDAM Resource Facilities, or an EIM Resource with a unique Resource ID that is part of a single resource with other EIM Resources.

- Connected Entity

A Participating TO or any party that owns or operates facilities that are electrically interconnected with the CAISO Controlled Grid, or, for purposes of scheduling and operating the Day-Ahead Market only, electrically connected with the transmission system of an EDAM Transmission Service Provider, or, for purposes of scheduling and operating the Real-Time Market only, electrically connected with the transmission system of an EIM Transmission Service Provider.

- Contingency

A potential Outage that is unplanned, viewed as possible or eventually probable, which is taken into account when considering approval of other requested Outages or while operating the CAISO Balancing Authority Area, an EDAM Entity Balancing Authority Area, or an EIM Entity Balancing Authority Area. Contingencies include potential Outages due to Remedial Action Schemes.

- Curtailable Demand

Demand from a Participating Load or Aggregated Participating Load that can be curtailed at the direction of the CAISO in the Real-Time Dispatch of the CAISO Controlled Grid, or, for purposes of scheduling and operating the Day-Ahead Market only, in the EDAM Area, or, for purposes of scheduling and operating the Real-Time Market only, in the EIM Area.

* * * * *

- EIM Administrative Charge

The fee imposed on transactions in the Energy Imbalance Market as described in Section 29.11(i)(1).

- [Not Used]

- EIM Demand

Energy delivered to Load internal to an EIM Entity Balancing Authority Area.

- EIM Downward Available Balancing Capacity

Any downward capacity from an EIM Resource or a non-participating resource that an EIM Entity Scheduling Coordinator or EIM Sub-Entity Scheduling Coordinator has identified in the EIM Resource Plan as available to address power balance and transmission constraint violations in the EIM Balancing Authority Area.

- EIM Manual Dispatch

A Dispatch by an EIM Entity or EIM Sub-Entity to an EIM Resource or a non-participating resource for which it is responsible, outside of Market Clearing of the Real-Time Market.

- EIM Mirror System Resource

A System Resource at a Scheduling Point registered to an EIM Entity for mirroring CAISO or EDAM Entity intertie schedules at that Scheduling Point, when the associated Energy is generated at, wheeled through, or consumed at the corresponding EIM Entity Balancing Authority Area.

- EIM Resource Plan

The combination of EIM Base Schedules for Demand, Generation, and Interchange, the ancillary services plans of the EIM Entity, and the Bid ranges of EIM Resources, as specified in more

detail in Section 29.34(e)(4).

- EIM Upward Availability Balancing Capacity

Any upward capacity from an EIM Resources or a non-participating resource that an EIM Entity Scheduling Coordinator or EIM Sub-Entity Scheduling Coordinator has identified in the EIM Resource Plan as available to address power balance and transmission violations in the EIM Balancing Authority Area.

- End-Use Customer or End-User

A consumer of electric power who consumes such power to satisfy a Load directly connected to the CAISO Controlled Grid, a Distribution System, or, for purposes of scheduling and operating the Day-Ahead Market only, the transmission system of an EDAM Transmission Service Provider who does not resell the power, or, for purposes of scheduling and operating the Real-Time Market only, the transmission system of an EIM Transmission Service Provider who does not resell the power.

- Forecasted Movement

A resource's change or Virtual Award's change in forecasted output between market intervals as described in Section 44.3.

- Generating Unit

An individual electric generator and its associated plant and apparatus whose electrical output is capable of being separately identified and metered or a Physical Scheduling Plant that, in either case, is: (a) located within the CAISO Balancing Authority Area (which includes a Pseudo-Tie of a generating unit to the CAISO Balancing Authority Area), or, for purposes of scheduling and operating the Day-Ahead Market only, an EDAM Entity Balancing Authority Area, or, for purposes of scheduling and operating the Real-Time Market only, an EIM Entity Balancing Authority Area; (b) connected to the CAISO Controlled Grid, either directly or via interconnected transmission, or

distribution facilities or via a Pseudo-Tie; and (c) capable of producing and delivering net Energy (Energy in excess of a generating station's internal power requirements).

- Generator

The seller of Energy, Imbalance Reserves, Reliability Capacity, or Ancillary Services produced by a Generating Unit.

- Greenhouse Gas Emission Cost Revenue

The revenues associated with the MWh compensation paid to a resource that has Energy supporting a GHG Transfer to a GHG Regulation Area priced at the Marginal Greenhouse Gas Cost multiplied by -1.

- Gross Load

Demand (adjusted for distribution losses) of End-Use Customer Loads directly connected to the transmission facilities or directly connected to the Distribution System of a Utility Distribution Company or MSS Operator located in a PTO Service Territory, or End Use Customer Loads directly connected to the Distribution System or transmission facilities of an EDAM Transmission Service Provider in an EDAM Entity Balancing Authority Area. Gross Load includes Load served by Excess Behind the Meter Production. Excess Behind the Meter Production shall not be netted against End-Use Customer Load in determining Gross Load. Gross Load excludes:

- (1) Load with respect to which the Wheeling Access Charge is payable;
- (2) Load that is exempt from the Access Charge pursuant to Section 4.1 of Appendix I;
- (3) Load of an individual retail customer served by its own onsite Generating Unit or energy storage device, or as authorized by Section 218 of the California Public Utilities Code;
- (4) Onsite Load served by a qualifying small power production facility or qualifying cogeneration facility, as those terms are defined in the FERC's regulations implementing Section 201 of the Public Utility Regulatory Policies Act of 1978; and

(5) Load secured by Standby Service from a Participating TO under terms approved by a Local Regulatory Authority or FERC, as applicable, or can be curtailed concurrently with an Outage of the Generating Unit serving the Load.

Gross Load forecasts consistent with filed Transmission Revenue Requirements will be provided by each Participating TO to the CAISO. For purposes of this definition, Generating Units, storage devices, and Loads will be considered onsite where they share, or are sub-metered behind, the same meter.

- IFM Bid Cost

The sum of a BCR Eligible Resource's IFM Start-Up Cost, IFM Minimum Load Cost , IFM Pump Shut-Down Cost, IFM Transition Cost, IFM Pumping Cost, IFM Energy Bid Cost, IFM AS Bid Cost and IFM Imbalance Reserves Bid Cost.

- Interchange

Imports and exports between the CAISO Balancing Authority Area and other Balancing Authority Areas, and, for purposes of scheduling and operating the Day-Ahead Market only, between an EDAM Entity Balancing Authority Area and another Balancing Authority Area, and, for purposes of scheduling and operating the Real-Time Market only, between an EIM Entity Balancing Authority Area and another Balancing Authority Area.

- Interchange Schedule

A final agreed-upon schedule of Energy to be transferred between the CAISO Balancing Authority Area and another Balancing Authority Area, including an EDAM Entity Balancing Authority Area or an EIM Entity Balancing Authority Area, and, for purposes of scheduling and operating the Day-Ahead Market only, between an EDAM Entity Balancing Authority Area and another EDAM Entity Balancing Authority Area, and, for purposes of scheduling and operating the Real-Time Market only, between an EIM Entity Balancing Authority Area and another Balancing Authority Area.

- Interconnection Facilities

Collectively, Interconnection Facilities include all facilities and equipment between the Generating Facility and the Point of Interconnection, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the Generating Facility to the transmission system. Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades, Stand Alone Network Upgrades or Network Upgrades.

- 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 Balancing Authority Area or the EDAM Area and (ii) has been granted authority or has an obligation pursuant to state or local law, regulation, or franchise to sell electric energy to End Users located within the CAISO Balancing Authority Area or the EDAM Area; (b) (i) is an End User, (ii) has been granted authority pursuant to state or local law or regulation to serve its own Load through the purchase of electric energy from an entity that does not qualify as a Load Serving Entity, and (iii) serves its own Load through purchases of electric energy from an entity that does not qualify as a Load Serving Entity with respect to such purchases of electric energy, or (c) is a federal power marketing authority that serves End Users. Notwithstanding the above, an entity is not a Load Serving Entity under this definition solely because it provides electric energy at no cost to its tenants or because it purchases or sells electric energy from a generating resource pursuant to a state or local law or regulation that permits the generating resource to make direct sales of electric energy to an End User, the rates, terms, and conditions of which sale are not subject to regulation by a Local Regulatory Authority.

- Marginal Cost of Congestion (MCC)

The component of LMP, Locational IRU Price, Locational IRD Price, Locational RCU Price, or Locational RCD Price at a PNode that accounts for the cost of congestion, as measured between

that Node and a Reference Bus.

- Marginal Greenhouse Gas Cost (Marginal GHG Cost)The marginal cost of compliance with GHG regulations for a GHG Transfer into a GHG Regulation Area.

- Market Participant

An entity, including a Scheduling Coordinator, who: (1) participates in the CAISO Markets through the buying, selling, transmission, or distribution of Energy, capacity, or Ancillary Services into, out of, or through the CAISO Controlled Grid; (2) is a CRR Holder or Candidate CRR Holder; (3) is a Convergence Bidding Entity; (4) for purposes of scheduling and operating the Day-Ahead Market only, is an EDAM Market Participant; or (5) for purposes of scheduling and operating the Real-Time Market only, is an EIM Market Participant.

- Net Imbalance Energy Export

The Net Imbalance Energy Export is the net Imbalance Energy imported into the CAISO Balancing Authority Area from EDAM Entity Balancing Authority Areas or EIM Entity Balancing Authority Areas.

- Network Upgrades

The additions, modifications, and upgrades to the CAISO Controlled Grid or EDAM transmission system at or beyond the Point of Interconnection and Distribution System. Network Upgrades do not include Distribution Upgrades or Interconnection Facilities.

- Node

A point in the Full Network Model representing a physical location within the CAISO Balancing Authority Area, the CAISO Controlled Grid, the EDAM Area, or the EIM Area, which includes the Load and Generating Unit busses in the EDAM Area or EIM Area (which includes a Pseudo-Tie of a Generating Unit to a Balancing Authority Area in the EDAM Area or EIM Area), and at the

Intertie busses between (i) the CAISO Balancing Authority Area, an EDAM Entity Balancing Authority Area, or an EIM Entity Balancing Authority Area and (ii) an interconnected Balancing Authority Area.

- Notional CRR Value

For a given CRR in a Settlement Period, the sum of: (1) the product of: (a) the MCC of Energy at the CRR Sink minus the MCC of Energy at the CRR Source and (b) the MW quantity for that Settlement Period; (2) the product of (a) the MCC of Locational IRU Price at the CRR Sink minus the MCC of Locational IRU Price at the CRR Source and (b) the MW quantity for that Settlement Period; and (3) the product of (a) the MCC of Locational IRD Price at the CRR Sink minus the MCC of Locational IRD Price at the CRR Source and (b) the MW quantity for that Settlement Period. The Notional CRR Value for a CRR Obligation can be a non-positive value for a Settlement Period but cannot be less than zero (0) for a CRR Option.

- Participating Generator

A Generator or other seller of Energy, Imbalance Reserves, Reliability Capacity, or Ancillary Services through a Scheduling Coordinator over the CAISO Controlled Grid (1) from a Generating Unit with a rated capacity of 1 MW or greater, (2) from a Generating Unit with a rated capacity of 500 kW up to 1 MW for which the Generator elects to be a Participating Generator, (3) from a storage resource with a rated capacity of 100 kW or greater, or (4) from a Generating Unit providing Ancillary Services 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, Net Scheduled PGA, or Pseudo-Tie Participating Generator Agreement.

- Point of Interconnection

The point, as set forth in Appendix A to the Large Generator Interconnection Agreement or Attachment 3 to the Small Generator Interconnection Agreement, where the Interconnection Facilities connect to the CAISO Controlled Grid. For Generating Facilities connected to the

Distribution System, the Point of Interconnection is the point at which the Generating Facility connects to the CAISO Controlled Grid. For an EDAM Resource Facility, the Point of Interconnection is the point at which the EDAM Resource Facility connects to the EDAM Transmission Service Provider's transmission facilities. For an EIM Resource or non-participating resource, the Point of Interconnection is the point at which the EIM Resource or non-participating resource connects to an EIM Transmission Service Provider's transmission facilities.

- Point(s) of Delivery (POD) or Withdrawal

Point(s) within the CAISO Balancing Authority Area, or for purposes of scheduling and operating the Day-Ahead Market only, the EDAM Area where Energy and Ancillary Services are made available to a receiving party under this CAISO Tariff, or, for purposes of scheduling and operating the Real-Time Market only, the EIM Area where Energy and Ancillary Services are made available to a receiving party under this CAISO Tariff.

- Point(s) of Receipt (POR) or Injection

Point(s) within the CAISO Balancing Authority Area, or for purposes of scheduling and operating the Day-Ahead Market only, the EDAM Area where Energy and Ancillary Services are made available to a delivering party under this CAISO Tariff, or, for purposes of scheduling and operating the Real-Time Market only, the EIM Area where Energy and Ancillary Services are made available by a delivering party under this CAISO Tariff.

- Real-Time Congestion Offset

The amount calculated pursuant to Section 11.5.4.1.2 for purposes of determining the non-zero offset amount allocation.

- Reference Bus

The Location(s) in the EDAM Area or the EIM Area relative to which mathematical quantities relating to a powerflow solution will be calculated.

- Residual Unit Commitment (RUC)

The process conducted by the CAISO in the Day-Ahead Market after the IFM has been executed to address mismatches between the CAISO Forecast of BAA Demand and the physical capacity committed in the IFM.

- RMR Dispatch

The quantity of Energy, Imbalance Reserves, Reliability Capacity, or Ancillary Services that is mandated by the CAISO to be delivered in a given market for a resource by a Legacy RMR Unit under a Legacy RMR Contract or by an RMR Resource under an RMR Contract.

- RUC Availability Bid

The quantity (MW) and price (\$/MW per hour) at or above which a Generating Unit, System Resource, System Unit, Participating Load, or Proxy Demand Resource has agreed to sell RUC Capacity for a specified interval of time to the CAISO to meet the Residual Unit Commitment requirement.

- RUC Award

The quantity of RCU or RCD awarded to a resource by the RUC for a Settlement Period.

- RUC Capacity

RCU or RCD.

- RUC Price

The Locational RCU Price or Locational RCD Price.

- RUC Schedule

The net of the Day-Ahead Schedule and the RUC Award in a given hour.- RUC Zone

A forecast region representing a UDC or MSS Service Area, Local Capacity Area, or other collection of Nodes for which the CAISO has developed sufficient historical CAISO Demand and relevant weather data to perform a Demand Forecast for such area, for which as further provided in Section 31.5.3.2 the CAISO may adjust the CAISO Forecast of BAA Demand to ensure that the RUC process produces adequate local capacity procurement.

- Scheduling Coordinator

An entity certified by the CAISO for the purposes of undertaking the functions specified in Section 4.5.3, including any entity certified by the CAISO as an EDAM Entity Scheduling Coordinator, EDAM Resource Scheduling Coordinator, EDAM Load Serving Entity Scheduling Coordinator, or a Scheduling Coordinator for the purposes of undertaking the functions specified in Section 33, and including any entity certified by the CAISO as an EIM Entity Scheduling Coordinator or an EIM Participating Resource Scheduling Coordinator for the purposes of undertaking the functions specified in Section 29.

- Scheduling Coordinator Metered Entity

Pursuant to Section 10.1, an eligible entity that has elected that its Scheduling Coordinator will process and submit its Settlement Quality Meter Data to the CAISO. Eligible entities include:

- i. a Generator, including Participating Generators and QFs;
- ii. a Utility Distribution Company or Small Utility Distribution Company;
- iii. a Participating Intermittent Resource;
- iv. an EDAM Entity, EDAM Resource, or EDAM Load Serving Entity;
- v. an EIM Entity or EIM Participating Resource;
- vi. a Proxy Demand Resource or Reliability Demand Response Resource;
- vii. a Distributed Energy Resource;
- viii. an End User; and
- ix. Tie Point Meters with other Transmission Owners or Balancing Authority Areas.

- Scheduling Point

A Location in the Base Market Model at which Scheduling Coordinators may submit intertie Bids in the CAISO Markets.

- State Estimator

A computer software program that provides the CAISO with a near Real-Time assessment of system conditions within the CAISO Balancing Authority Area, including portions of the CAISO Balancing Authority Area where Real-Time information is unavailable, and, for purposes of the

Extended Day-Ahead Market, including the prospective EDAM Entity and EDAM Entity Balancing Authority Area(s), and, for purposes of the Energy Imbalance Market, including the prospective EIM Entity and EIM Entity Balancing Authority Area(s).

- Marginal Energy Cost (MEC)

The component of the LMP that reflects the marginal cost of providing Energy from a designated reference Location.

- System Resource

A group of resources, single resource, or a portion of a resource located outside of the Market Area, or an allocated portion of a Balancing Authority Area's portfolio of generating resources that are either a static Interchange Schedule or directly responsive to that Balancing Authority Area's Automatic Generation Control (AGC) capable of providing Energy and/or Ancillary Services to the CAISO Balancing Authority Area, or, for purposes of the Extended Day-Ahead Market only, to an EDAM Entity Balancing Authority Area(s), or, for purposes of scheduling and operating the Real-Time Market only, to an EIM Entity Balancing Authority Area, provided that if the System Resource is providing Regulation to the CAISO it is directly responsive to AGC.

- Transmission Revenue Credit

The proceeds a Participating TO received from the CAISO for Wheeling service, plus (a) the revenues received from any LCRIG with respect to an LCRIF, unless FERC has approved an alternative mechanism to credit such revenues against the Participating TO's TRR, (b) the shortfall or surplus resulting from any cost differences between Transmission Losses and Ancillary Service requirements associated with Existing Rights and the CAISO's rules and protocols, minus any Local Access Charge amounts paid for the use of the Local Transmission Facilities of a Non-Load-Serving Participating TO pursuant to Section 26.1 and Appendix F, Schedule 3, Section 13, and (c) EDAM recoverable revenue provided for in Section 26.2.

- Undelivered Capacity

Ancillary Services capacity that was dispatched by the CAISO to provide Energy but where a certain percentage or more of the Expected Energy was not provided in Real-Time, which percentage is determined as specified in the applicable Business Practice Manual.

- Undispatchable Capacity

Ancillary Services capacity that receives an AS Award and Self-Provided Ancillary Services capacity, or capacity committed in RUC, that is not available for use due to a derate or Outage of the resource. Undispatchable Capacity includes AS Awards for Spinning Reserve and Non-Spinning Reserve capacity that are not available for use due to Ramp Rate constraints (e.g., operational Ramping ability is lower than Operating Reserve Ramp Rate). For RUC Capacity, Undispatchable Capacity also includes RUC Capacity for which the resource does not have Bids to the Real-Time Market required of the RUC Award.

- Wholesale Customer

A person wishing to purchase Energy, Imbalance Reserves, Reliability Capacity, and Ancillary Services at a Bulk Supply Point or a Scheduling Point for resale.

- Wholesale Sales

The sale of Energy, Imbalance Reserves, Reliability Capacity, and Ancillary Services at a Bulk Supply Point or a Scheduling Point for resale.

* * * * *

APPENDIX B.27

EDAM ADDENDUM TO EIM ENTITY AGREEMENT

Effective [Date], [Full Legal Name] (“[Short Legal Name]”) and the California Independent System Operator Corporation (“CAISO”) (collectively the “Parties”) make and enter into this EDAM Addendum to the Parties’ [Date] EIM Entity Agreement (the “Agreement”).

NOT CURRENT TARIFF LANGUAGE.
This document contains language that is approved by FERC but not yet effective.

WHEREAS:

A. Pursuant to the Agreement, [Short Legal Name] participates as an EIM Entity in the CAISO's Real-Time Market and provides Energy Imbalance Market services within the EIM Entity Balancing Authority Area, including Real-Time transfers of Energy among the CAISO Balancing Authority Area and other EIM Entity Balancing Authority Areas;

B. The CAISO also operates the Day-Ahead Market pursuant to the CAISO Tariff, which the CAISO will extend to an EIM Entity that enters into an EDAM Entity Implementation Agreement; and

C. [Short Legal Name] has entered into an EDAM Entity Implementation Agreement to extend its participation to the CAISO's Day-Ahead Market and to provide Extended Day-Ahead Market services within the EDAM Entity Balancing Authority Area, including Day-Ahead transfers of Energy, Reliability Capacity, and Imbalance Reserves among the CAISO Balancing Authority Area and other EDAM Entity Balancing Authority Areas.

NOW, THEREFORE, for good and sufficient consideration, the receipt of which is hereby acknowledged, the Parties agree that the Agreement is hereby supplemented as follows:

- 1. Agreement to be Bound by CAISO Tariff.** Section 33 of the CAISO Tariff is incorporated into the Agreement and made a part thereof.
- 2. Interpretation.** All references in the Agreement to the "EIM" or the "Energy Imbalance Market" will also be read as references to the "EDAM" or the "Extended Day-Ahead Market." All references in the Agreement to the "Real-Time Market" will also be read as references to the "Day-Ahead Market." All references in the Agreement to an "EIM Entity" will also be read as references to an "EDAM Entity." All references in the

*NOT CURRENT TARIFF LANGUAGE.
This document contains language that is approved by FERC but not yet effective.*

Agreement to “EIM Entity Scheduling Coordinator(s)” will also be read as references to the “EDAM Entity Scheduling Coordinator(s).” All references to “non-participating resources” will also be read as references to “EDAM Resources.” All references in the Agreement to Sections 29 or 29.1(d) of the CAISO Tariff will also be read as references to Sections 33 or 33.1.1 of the CAISO Tariff, respectively.

3. **Effective Date and Termination.** This EDAM Addendum will be effective as of the later of the date it is executed by the Parties and shall remain in full force and effect until terminated pursuant to the same process as is set forth in Section 3.2 of the Agreement. If [Short Legal Name] terminates its participation as an EDAM Entity, it may continue to participate as an EIM Entity under the terms of the Agreement.
4. **Miscellaneous.** Except as expressly modified by this EDAM Addendum, all other terms and conditions of the Agreement shall remain unchanged and in full force and effect.

[Full Legal Name]

**California Independent
System Operator Corporation**

By: _____

By: _____

Printed Name: _____

Printed Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

* * * * *

APPENDIX B.28

EDAM ADDENDUM TO EIM ENTITY SCHEDULING COORDINATOR AGREEMENT

Effective [Date], [Full Legal Name] (“[Short Legal Name]”) and the California Independent

*NOT CURRENT TARIFF LANGUAGE.
This document contains language that is approved by FERC but not yet effective.*

System Operator Corporation (“CAISO”) (collectively the “Parties”) make and enter into this EDAM Addendum to the Parties’ [Date] EIM Entity Scheduling Coordinator Agreement (the “Agreement”).

WHEREAS:

A. Pursuant to the Agreement, [Short Legal Name] is certified as an EIM Entity Scheduling Coordinator by the CAISO under the certification procedure referenced in Section 29 of the CAISO Tariff;

B. The CAISO also operates the Day-Ahead Market pursuant to the CAISO Tariff;

C. [Short Legal Name] has chosen to extend its role as a Scheduling Coordinator in the EIM to the CAISO Day-Ahead Market so that it can represent an EDAM Entity under the terms and conditions set forth in Section 33 of the CAISO Tariff; and

D. [Short Legal Name] has applied for certification or has been certified as an EDAM Entity Scheduling Coordinator by the CAISO under the certification procedure referenced in Section 33 of the CAISO Tariff.

NOW, THEREFORE, for good and sufficient consideration, the receipt of which is hereby acknowledged, the Parties agree that the Agreement is hereby supplemented as follows:

- 1. Agreement to be Bound by CAISO Tariff.** Section 33 of the CAISO Tariff is incorporated into the Agreement and made a part thereof.
- 2. Interpretation.** All references in the Agreement to the “EIM” or the “Energy Imbalance Market” will also be read as references to the “EDAM” or the “Extended Day-Ahead

NOT CURRENT TARIFF LANGUAGE.
This document contains language that is approved by FERC but not yet effective.

Market.” All references in the Agreement to “EIM Entity Scheduling Coordinator(s)” will also be read as references to the “EDAM Entity Scheduling Coordinator(s).” All references in the Agreement to Section 29 of the CAISO Tariff will also be read as references to Section 33 of the CAISO Tariff.

3. **Effective Date and Termination.** This EDAM Addendum will be effective as of the later of the date it is executed by the Parties and shall remain in full force and effect until terminated pursuant to the same process as is set forth in Section 3.2 of the Agreement. If [Short Legal Name] terminates its participation as an EDAM Entity Scheduling Coordinator, it may continue to participate as an EIM Entity Scheduling Coordinator under the terms of the Agreement.
4. **Miscellaneous.** Except as expressly modified by this EDAM Addendum, all other terms and conditions of the Agreement shall remain unchanged and in full force and effect.

[Full Legal Name]

California Independent

System Operator Corporation

By: _____

By: _____

Printed Name: _____

Printed Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

* * * * *

APPENDIX B.29

EDAM ADDENDUM TO EIM PARTICIPATING RESOURCE AGREEMENT

Effective [Date], [Full Legal Name] (“[Short Legal Name]”) and the California Independent

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System Operator Corporation (“CAISO”) (collectively the “Parties”) make and enter into this EDAM Addendum to the Parties’ [Date] EIM Participating Resource Agreement (the “Agreement”).

WHEREAS:

A. Pursuant to the Agreement, [Short Legal Name] has participated or will participate as an EIM Participating Resource in the CAISO’s Real-Time Market and is located in an EDAM Entity Balancing Authority Area;

B. The CAISO also operates the Day-Ahead Market pursuant to the CAISO Tariff; and

C. [Short Legal Name] extends its participation to the CAISO’s Day-Ahead Market in accordance with the EDAM Entity’s open access transmission tariff or the tariff of another transmission service provider within the EDAM Entity Balancing Authority Area.

NOW, THEREFORE, for good and sufficient consideration, the receipt of which is hereby acknowledged, the Parties agree that the Agreement is hereby supplemented as follows:

- 1. Agreement to be Bound by CAISO Tariff.** Section 33 of the CAISO Tariff is incorporated herein and made a part hereof.
- 2. Interpretation.** All references in the Agreement to the “EIM” or the “Energy Imbalance Market” will also be read as references to the “EDAM” or the “Extended Day Ahead Market.” All references in the Agreement to an “EIM Entity” will also be read as references to an “EDAM Entity.” All references in the Agreement to “EIM Participating Resource(s)” will also be read as references to the “EDAM Resource(s).” All references

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in the Agreement to “EIM Resources” will also be read as references to “EDAM Resource Facilities.” All references in the Agreement to an “EIM Participating Resource Scheduling Coordinator” will also be read as references to an “EDAM Resource Scheduling Coordinator.” All references in the Agreement to Section 29 of the CAISO Tariff will also be read as references to Section 33 of the CAISO Tariff.

3. **EDAM Resource Facilities.** Schedule 1 of the Agreement will be updated to include all EDAM Resource Facilities not already included in Schedule 1 as an EIM Resource.

4. **Effective Date and Termination.** This EDAM Addendum will be effective as of the later of the date it is executed by the Parties and shall remain in full force and effect until terminated pursuant to the same process as is set forth in Section 3.2 of the Agreement, or until the EDAM Entity for the Balancing Authority Area in which the EDAM Resource is located ceases its participation in EDAM. If [Short Legal Name] terminates its participation as an EDAM Resource, it may continue to participate as an EIM Participating Resource under the terms of the Agreement.

5. **Miscellaneous.** Except as expressly modified by this EDAM Addendum, all other terms and conditions of the Agreement shall remain unchanged and in full force and effect.

[Full Legal Name]

California Independent

System Operator Corporation

By: _____

By: _____

Printed Name: _____

Printed Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

* * * * *

APPENDIX B.30
EDAM ADDENDUM TO EIM PARTICIPATING RESOURCE SCHEDULING COORDINATOR
AGREEMENT

Effective [Date], [Full Legal Name] (“[Short Legal Name]”) and the California Independent System Operator Corporation (“CAISO”) (collectively the “Parties”) make and enter into this EDAM Addendum to the Parties’ [Date] EIM Participating Resource Scheduling Coordinator Agreement (the “Agreement”).

WHEREAS:

A. Pursuant to the Agreement, [Short Legal Name] is certified as an EIM Participating Resource Scheduling Coordinator by the CAISO under the certification procedure referenced in Section 29 of the CAISO Tariff and represents EIM Participating Resources in an EDAM Entity Balancing Authority Area;

B. [Short Legal Name] extends its role as an EIM Participating Resource Scheduling Coordinator to the CAISO Day-Ahead Market so that it can represent EDAM Resources under the terms and conditions set forth in Section 33 of the CAISO Tariff; and

C. [Short Legal Name] has applied for certification or has been certified as an EDAM Resource Scheduling Coordinator by the CAISO under the certification procedure referenced in Section 33 of the CAISO Tariff.

NOW, THEREFORE, for good and sufficient consideration, the receipt of which is hereby acknowledged, the Parties agree that the Agreement is hereby supplemented as follows:

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This document contains language that is approved by FERC but not yet effective.

1. **Agreement to be Bound by CAISO Tariff.** Section 33 of the CAISO Tariff is incorporated into the Agreement and made a part thereof.

2. **Interpretation.** All references in the Agreement to the “EIM” or the “Energy Imbalance Market” will also be read as references to the “EDAM” or the “Extended Day-Ahead Market.” All references in the Agreement to the “Real-Time Market” will also be read as references to the “Extended Day-Ahead Market.” All references in the Agreement to “EIM Participating Resources” will also be read as references to “EDAM Resources.” All references in the Agreement to “EIM Participating Resource Scheduling Coordinator(s)” will also be read as references to the “EDAM Resource Scheduling Coordinator(s).” All references in the Agreement to Section 29 of the CAISO Tariff will also be read as references to Section 33 of the CAISO Tariff.

3. **Effective Date and Termination.** This EDAM Addendum will be effective as of the later of the date it is executed by the Parties and shall remain in full force and effect until terminated pursuant to the same process as is set forth in Section 3.2 of the Agreement. If [Short Legal Name] terminates its participation as an EDAM Resource Scheduling Coordinator, it may continue to participate as an EIM Participating Resource Scheduling Coordinator under the terms of the Agreement.

4. **Miscellaneous.** Except as expressly modified by this EDAM Addendum, all other terms and conditions of the Agreement shall remain unchanged and in full force and effect.

[Full Legal Name]

**California Independent
System Operator Corporation**

By: _____

By: _____

Printed Name: _____

Title: _____

Printed Name: _____

Date: _____

Title: _____

Date: _____

* * * * *

Appendix B.31 EDAM Entity Implementation Agreement

THIS EXTENDED DAY-AHEAD MARKET ENTITY IMPLEMENTATION AGREEMENT

("Agreement") is established this ____ day of _____, _____, and is accepted by and between:

(1) [Full legal name] having its registered and principal executive office at [address] ("[Short Legal Name]" or "EDAM Entity"),

and

(2) California Independent System Operator Corporation, a California nonprofit public benefit corporation having a principal executive office located at such place in the State of California as the CAISO Governing Board may from time to time designate, ("CAISO").

The EDAM Entity and the CAISO each are hereinafter referred to as the "Parties."

Whereas:

- A. The CAISO operates the Day-Ahead Market pursuant to the CAISO Tariff, and will extend the Day-Ahead Market to an EIM Entity that executes and performs in accordance with an EDAM Entity Implementation Agreement.
- B. [Short Legal Name] is an EIM Entity, or is in a concurrent implementation process to become an EIM Entity, and has requested to participate in the CAISO's Day-Ahead Market as an EDAM Entity.
- C. The Parties acknowledge that the rules and procedures governing participation in the CAISO's Day-Ahead Market as an EDAM Entity are set forth in the provisions of the CAISO Tariff as filed with the Federal Energy Regulatory Commission ("FERC") and that implementation as an EDAM Entity requires corresponding revisions to [Short Legal Name's] Open Access Transmission Tariff/retail distribution tariff and the execution of associated service agreements;
- D. Implementation of participation by [Short Legal Name] in the CAISO's Day-Ahead Market as an EDAM Entity requires the CAISO to incur costs to set up its business and software systems on behalf of [Short Legal Name].
- E. [Short Legal Name] has requested the CAISO to conduct or cause to be performed work to implement [Short Legal Name] as an EDAM Entity into the CAISO systems, and [Short Legal Name] will reimburse the CAISO for the actual costs incurred.

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- F. The Parties are entering into this Agreement to set forth the terms upon which the CAISO will timely configure its systems to incorporate [Short Legal Name] as an EDAM Entity on or before [date] ("EDAM Entity Implementation Date").

NOW, THEREFORE, in consideration of the mutual covenants contained herein, the Parties agree as follows:

ARTICLE I

DEFINITIONS AND INTERPRETATION

- 1.1 Master Definitions Supplement.** 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 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,

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organization or other entity, in each case whether or not having separate legal personality;

- (i) unless the context otherwise requires, any reference to a Party includes a reference to its permitted successors and assigns;
- (j) any reference to a day, week, month or year is to a calendar day, week, month or year;
- (k) unless the context requires otherwise, “or” is used in the conjunctive sense; and
- (l) the captions and headings in this Agreement are inserted solely to facilitate reference and shall have no bearing upon the interpretation of any of the terms and conditions of this Agreement.

ARTICLE II

RESPONSIBILITIES OF EDAM ENTITY AND CAISO

2.1 Scope of Responsibilities. The CAISO shall conduct or cause to be performed changes to the CAISO business and software systems, in accordance with the CAISO Tariff, to allow [Short Legal Name] to participate in the CAISO’s Day-Ahead Market as an EDAM Entity. The scope of the implementation will include planning and project management; full network modeling of resources; system integration and testing; metering and settlements; and operations readiness and training. The CAISO shall also provide [Short Legal Name] a project plan of implementation activities, including a schedule by which information and data will be required to be sent to the CAISO; testing to be performed by [Short Legal Name]; and training to meet the EDAM Entity Implementation Date.

2.2 Implementation Deposit and Cost Allocation. Consistent with Section 33.11.5 of the CAISO tariff, [Short Legal Name] will provide a deposit and pay the actual costs of the

implementation, including any actual amounts in excess of the initial deposit. The CAISO will provide invoices and refunds on a timely basis. Any difference between the deposit(s) made toward the implementation of [Short Legal Name] and associated administrative costs, and the actual cost of the implementation of [Short Legal Name] shall be paid by or refunded to [Short Legal Name], in accordance with Article V of this Agreement.

2.3 Technical Data. [Short Legal Name] will provide the CAISO technical data to facilitate the implementation in the Day-Ahead Market as an EDAM Entity and assumptions used for the data, such as system conditions, existing and planned generation, and unit modeling. The CAISO shall not be responsible for any additional costs, including, without limitation, costs of new or additional facilities, system upgrades, or schedule changes, that may be incurred by [Short Legal Name] as a result of implementation in the Day-Ahead Market as an EDAM Entity.

2.4 Compliance with CAISO Tariff Requirements for an EDAM Entity. Prior to the EDAM Entity Implementation Date, [Short Legal Name] will satisfy all requirements of the CAISO Tariff applicable to an EDAM Entity, including: (1) demonstrating that [Short Legal Name] satisfies all qualifications for participation as an EDAM Entity; (2) showing that [Short Legal Name] is authorized to make transmission available in its Balancing Authority Area consistent with the CAISO Tariff and the applicable transmission service tariffs, contracts, rules, procedures or other arrangements; (3) entering into an addendum to its EIM Entity Agreement with the CAISO governing [Short Legal Name's] participation in the Extended Day-Ahead Market; and (4) securing representation by an EDAM Entity Scheduling Coordinator.

ARTICLE III

TERM AND TERMINATION

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3.1 Effective Date. This Agreement shall be effective as of the later of the date it is executed by the Parties or the date it is accepted for filing and made effective by FERC (if applicable) and shall remain in full force and effect until terminated pursuant to Section 3.2 of this Agreement.

3.2 Termination

3.2.1 Termination by CAISO. The CAISO may terminate this Agreement by giving written notice of termination pursuant to Section 33.1 of the CAISO Tariff or in the event that [Short Legal Name] commits any material default under this Agreement or Section 33 of the CAISO Tariff that, if capable of being remedied, is not remedied within thirty (30) days after the CAISO has given [Short Legal Name] written notice of the default, unless the default is excused by reason of Uncontrollable Forces in accordance with Article IX of this Agreement. With respect to any notice of termination given pursuant to this Section, the CAISO must file a timely notice of termination with FERC or must otherwise comply with the requirements of FERC Order No. 2001 and related FERC orders. The filing of the notice of termination by the CAISO with FERC will be considered timely if (1) the filing of the notice of termination is made after the preconditions for termination have been met, and the CAISO files the notice of termination within sixty (60) days after issuance of the notice of default; or (2) the CAISO files the notice of termination in accordance with the requirements of FERC Order No. 2001. This Agreement shall terminate upon acceptance by FERC of such a notice of termination or thirty (30) days after the date of the CAISO's notice of default, if terminated in accordance with the requirements of FERC Order No. 2001 and related FERC orders.

3.2.2 Termination by EDAM Entity. In the event that [Short Legal Name] no longer wishes to participate in the CAISO's Extended Day-Ahead Market as an EDAM Entity pursuant to the CAISO Tariff, it may terminate this Agreement on giving the CAISO not less than thirty (30) 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 or must otherwise comply with

the requirements of FERC Order No. 2001 and related FERC orders. The filing of the notice of termination by the CAISO with FERC 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 the CAISO files the notice of termination within thirty (30) days of receipt of such request; or (2) the CAISO files the notice of termination in accordance with the requirements of FERC Order No. 2001. This Agreement shall terminate upon acceptance by FERC of such a notice of termination or upon the next production date of the Full-Network Model release following the thirty (30) days after the CAISO's receipt of [Short Legal Name]'s notice of termination, if terminated in accordance with the requirements of FERC Order No. 2001 and related FERC orders.

- 3.3 No Termination Charge.** With the exception of the implementation costs, the CAISO shall not levy an exit fee or other charge associated with CAISO systems, procedures, or other changes required by the termination of [Short Legal Name]'s participation in the Extended Day-Ahead Market as of the effective date of such notice, provided that [Short Legal Name] obligations incurred under this Agreement shall survive termination until satisfied.

ARTICLE IV

CAISO TARIFF

- 4.1 Agreement Subject to CAISO Tariff.** This Agreement shall be subject to Section 33 of the CAISO Tariff and all other provisions of the CAISO Tariff applicable to an EDAM Entity.

ARTICLE V

COSTS AND ACCOUNTING

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This document contains language that is approved by FERC but not yet effective.*

5.1 Costs. The CAISO shall maintain records and accounts of all costs incurred in performing the implementation of the EDAM Entity in sufficient detail to allow verification of all costs incurred, including associated overheads.

5.2 Settlement of Deposit(s). The deposit provided in accordance with Section 2.2 of this Agreement shall be applied to the prudent costs of the CAISO in implementing [Short Legal Name] as an EDAM Entity in the Day-Ahead Market. If the actual costs of the implementation of [Short Legal Name] are greater than the initial deposit provided by [Short Legal Name], the CAISO will invoice [Short Legal Name] for an additional deposit amount to cover expenses. Payment of invoices shall be due no later than thirty (30) days after the date of receipt. Any invoice payment past due will accrue interest, per annum, calculated in accordance with 5 C.F.R. 1315.10.

At the end of the implementation, the CAISO will provide a report that details deposit(s) received, actual costs incurred, and applicable interest earnings (on deposit balance) for each implementation project. Interest will be calculated at the end of the implementation project, from the time the deposit(s) was received until the implementation is completed. The calculation will be based on the average earning of the bank account, in which the deposit is held, on the remaining amount of the deposit. Any unused deposit remaining after the implementation is completed plus interest on the remaining deposit will be returned to [Short Legal Name] within ninety (90) calendar days after the implementation is completed; the CAISO and [Short Legal Name] approve the completion; and all required documents for the refund are received by the CAISO. All refunds will be processed following the CAISO's generally accepted accounting practices. Any deadline for CAISO action will be tolled to the extent [Short Legal Name] has not provided the CAISO with the appropriate documents to facilitate an eligible refund.

In the event this agreement is terminated by either party or both parties after [Short Legal Name]'s implementation has begun, then the CAISO will make every attempt to halt work and related costs on the implementation as soon as practical and begin the refund process for any

payments provided by [Short Legal Name] in excess of costs incurred by the CAISO, if applicable.

- 5.3 Audit.** [Short Legal Name] shall have the right, upon reasonable notice, within a reasonable time at the CAISO's offices and at its own expense, to audit the CAISO's records as necessary and as appropriate in order to verify costs incurred by the CAISO. Any audit requested by [Short Legal Name] shall be completed, and written notice of any audit dispute provided to the CAISO representative, within one hundred eighty (180) calendar days following receipt by [Short Legal Name] of the CAISO's notification of the final costs of the implementation of [Short Legal Name].

ARTICLE VI

DISPUTE RESOLUTION

- 6.1 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 any reference in Section 13 of the CAISO Tariff to Market Participants shall be read as a reference to [Short Legal Name] and references to the CAISO Tariff shall be read as references to this Agreement.

ARTICLE VII

REPRESENTATIONS AND WARRANTIES

- 7.1 Representation and Warranties.** Each Party represents and warrants that the execution, delivery and performance of this Agreement has been duly authorized by all necessary

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corporate and/or governmental actions, to the extent authorized by law.

- 7.2 Necessary Approvals.** [Short Legal Name] represents that all necessary rights, leases, approvals, permits, licenses, easements, access to operate in compliance with this Agreement have been or will be obtained by [Short Legal Name] prior to the effective date of this Agreement, including any arrangement with any third party Balancing Authorities.

ARTICLE VIII

LIABILITY

- 8.1 Liability.** The provisions of Section 14 of the CAISO Tariff will apply to liability arising under this Agreement, except that all references in Section 14 of the CAISO Tariff to Market Participants shall be read as references to [Short Legal Name] and references to the CAISO Tariff shall be read as references to this Agreement.

ARTICLE IX

UNCONTROLLABLE FORCES

- 9.1 Uncontrollable Forces Tariff Provisions.** Section 14.1 of the CAISO Tariff shall be incorporated by reference into this Agreement except that all references in Section 14.1 of the CAISO Tariff to Market Participants shall be read as a reference to [Short Legal Name] and references to the CAISO Tariff shall be read as references to this Agreement.

ARTICLE X

MISCELLANEOUS

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10.1 Assignments. Either Party may assign or transfer any or all of its rights or obligations under this Agreement with the other Party's prior written consent in accordance with Section 22.2 of the CAISO Tariff and no Party may assign or transfer any or all of its rights or obligations under this Agreement without such consent. Such consent shall not be unreasonably withheld. Any such transfer or assignment shall be conditioned upon the successor in interest accepting the rights or obligations under this Agreement as if said successor in interest were an original Party to this Agreement.

10.2 Notices. Any notice, demand or request which may be given to or made upon either Party regarding this Agreement shall be made in accordance with Section 22.4 of the CAISO Tariff, provided that all references in Section 22.4 of the CAISO Tariff to Market Participants shall be read as a reference to [Short Legal Name] and references to the CAISO Tariff shall be read as references to this Agreement, and unless otherwise stated or agreed shall be made to the representative of the other Party indicated in Schedule 1. A Party must update the information in Schedule 1 of this Agreement as information changes. Such changes shall not constitute an amendment to this Agreement.

10.3 Waivers. Any waiver at any time by either Party of its rights with respect to any default under this Agreement, or with respect to any other matter arising in connection with this Agreement, shall not constitute or be deemed a waiver with respect to any subsequent default or other matter arising in connection with this Agreement. Any delay, short of the statutory period of limitations, in asserting or enforcing any right under this Agreement shall not constitute or be deemed a waiver of such right.

10.4 Governing Law and Forum. This Agreement shall be deemed to be a contract made under, and for all purposes shall be governed by and construed in accordance with, the laws of the State of California, except its conflict of law provisions. The Parties irrevocably consent that

any legal action or proceeding arising under or relating to this Agreement to which the CAISO ADR Procedures do not apply shall be brought in any of the following forums, as appropriate: any court of the State of California, any federal court of the United States of America located in the State of California, or, where subject to its jurisdiction, before the Federal Energy Regulatory Commission.

- 10.5 Consistency with Federal Laws and Regulations.** This Agreement shall incorporate by reference Section 22.9 of the CAISO Tariff as if the references to the CAISO Tariff were referring to this Agreement.
- 10.6 Merger.** This Agreement constitutes the complete and final agreement of the Parties with respect to the subject matter hereof and supersedes all prior agreements, whether written or oral, with respect to such subject matter.
- 10.7 Severability.** If any term, covenant, or condition of this Agreement or the application or effect of any such term, covenant, or condition is held invalid as to any person, entity, or circumstance, or is determined to be unjust, unreasonable, unlawful, imprudent, or otherwise not in the public interest by any court or government agency of competent jurisdiction, then such term, covenant, or condition shall remain in force and effect to the maximum extent permitted by law, and all other terms, covenants, and conditions of this Agreement and their application shall not be affected thereby, but shall remain in force and effect and the Parties shall be relieved of their obligations only to the extent necessary to eliminate such regulatory or other determination unless a court or governmental agency of competent jurisdiction holds that such provisions are not separable from all other provisions of this Agreement.
- 10.8 Amendments.** This Agreement and the Schedules attached hereto may be amended from time to time by the mutual agreement of the Parties in writing. Amendments that require FERC approval shall not take effect until FERC has accepted such amendments for filing and

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made them effective. Nothing contained herein shall be construed as affecting in any way the right of the CAISO to unilaterally make application to FERC for a change in the rates, terms and conditions of this Agreement under Section 205 of the Federal Power Act (“FPA”) and pursuant to FERC’s rules and regulations promulgated thereunder, and [Short Legal Name] shall have the right to make a unilateral filing with FERC to modify this Agreement pursuant to Section 206 or any other applicable provision of the FPA and FERC’s rules and regulations thereunder; provided that each Party shall have the right to protest any such filing by the other Party and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this Agreement shall limit the rights of the Parties or of FERC under Sections 205 or 206 of the FPA and FERC’s rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein.

10.9 Electronic Signatures. The Parties agree that this Agreement may be executed by either handwritten signature or digitally signed using Adobe Sign, Adobe E-Sign, or DocuSign. A digital signature is the same as a handwritten signature and shall be considered valid and acceptable.

10.10 Counterparts. This Agreement may be executed in one or more counterparts at different times, each of which shall be regarded as an original and all of which, taken together, shall constitute one and the same Agreement.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be duly executed on behalf of each by and through their authorized representatives as of the date hereinabove written.

California Independent System Operator Corporation

By: _____
Name: _____
Title: _____
Date: _____

[NAME OF PROSPECTIVE EDAM ENTITY]

By: _____
Name: _____
Title: _____
Date: _____

**SCHEDULE 1
NOTICES
[Section 10.2]**

[Short Legal Name]

Name of Primary

Representative:

Title:

Company:

Address:

City/State/Zip Code:

Email Address:

Phone:

Fax No:

Name of Alternative

Representative:

Title:

Company:

Address:

City/State/Zip Code:

Email Address:

Phone:

Fax No:

CAISO

Name of Primary

Representative: Regulatory Contracts
Title: N/A
Address: 250 Outcropping Way
City/State/Zip Code: Folsom, CA 95630
Email address: RegulatoryContracts@caiso.com
Phone: (916) 351-4400
Fax: (916) 608-5063

Name of Alternative

Representative: Christopher J. Sibley
Title: Manager, Regulatory Contracts
Address: 250 Outcropping Way
City/State/Zip Code: Folsom, CA 95630
Email address: csibley@caiso.com
Phone: (916) 608-7030
Fax: (916) 608-5063

* * * * *

Appendix B.32 EDAM Load Serving Entity Agreement (EDAMLSEA)

THIS EXTENDED DAY-AHEAD MARKET LOAD SERVING ENTITY AGREEMENT (“AGREEMENT”) is established this ____ day of _____, ____ and is accepted by and between:
[Full legal name] (“EDAM Load Serving Entity”), **[legal description]** having its registered and principal executive office at **[address]**,

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and

California Independent System Operator Corporation (“CAISO”), a California nonprofit public benefit corporation having a principal executive office located at such place in the State of California as the CAISO Governing Board may from time to time designate.

The EDAM Load Serving Entity and the CAISO are hereinafter referred to as the “Parties.”

Whereas:

- A.** The CAISO operates the Day-Ahead Market and Real-Time Market pursuant to the CAISO Tariff.
- B.** The EDAM Load Serving Entity is responsible for Load within an EDAM Entity Balancing Authority Area not represented by an EDAM Entity and authorized by the EDAM Entity to represent its Load in the Day-Ahead Market and Real-Time Market; and
- C.** The Parties wish to enter into this Agreement to establish the terms and conditions for participation in the CAISO’s Day-Ahead Market and Real-Time Market by the EDAM Load Serving Entity in accordance with Section 33 and Section 29 of the CAISO Tariff.

NOW THEREFORE, in consideration of the mutual covenants set forth herein, the Parties agree as follows:

ARTICLE I

DEFINITIONS AND INTERPRETATION

1.1 Master Definitions Supplement. 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 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

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This document contains language that is approved by FERC but not yet effective.

- 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;
 - (i) unless the context otherwise requires, any reference to a Party includes a reference to its permitted successors and assigns;
 - (j) unless the context otherwise requires, “or” is used in the conjunctive sense;
 - (k) any reference to a day, week, month or year is to a calendar day, week, month or year;
- and
- (l) the captions and headings in this Agreement are inserted solely to facilitate reference and shall have no bearing upon the interpretation of any of the terms and conditions of this Agreement.

[1.3 ***EDAM Load Serving Entity’s Non-Jurisdictional Status.*** *The CAISO acknowledges that the EDAM Load Serving Entity is a exempt/non-jurisdictional entity as described in section 201(f) of the Federal Power Act, 16 U.S.C. 824(f), and understands that this Agreement does not extend the authority that FERC has over the EDAM Load Serving Entity apart from any authority it has to interpret or enforce this Agreement.*]

ARTICLE II

RESPONSIBILITIES OF EDAM LOAD SERVING ENTITY

2.1 EDAM Load Serving Entity Scheduling Coordinator. The EDAM Load Serving Entity shall be represented by an EDAM Load Serving Entity Scheduling Coordinator, which may be the EDAM

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Load Serving Entity or another entity certified by the CAISO to perform the functions of an EDAM Load Serving Entity Scheduling Coordinator.

- 2.2 EDAM Load Serving Entity Information.** The EDAM Load Serving Entity shall provide information regarding its Load to the CAISO for Extended Day-Ahead Market purposes, in accordance with the CAISO Tariff and applicable Business Practice Manuals. The EDAM Load Serving Entity is responsible for the accuracy and completeness of this information.

ARTICLE III

TERM AND TERMINATION

- 3.1 Effective Date.** This Agreement shall be effective as of the later of the date it is executed by the Parties or the date it is accepted for filing and made effective by FERC, if such FERC filing is required, and shall remain in full force and effect until terminated pursuant to Section 3.2 of this Agreement.

3.2 Termination

- 3.2.1 Termination by CAISO.** Subject to Section 10.2, the CAISO may terminate this Agreement by giving written notice of termination in the event that (i) the EDAM Load Serving Entity commits any material 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 written notice of the default, unless excused by reason of Uncontrollable Forces in accordance with Article IX of this Agreement, or (ii) the EDAM Entity for the Balancing Authority Area in which the EDAM Load Serving Entity is located terminates participation in the CAISO's Extended Day-Ahead Market. With respect to any notice of termination given pursuant to this Section, the CAISO must file a timely notice of termination with FERC, if this Agreement was filed with FERC, or must otherwise comply with the requirements of FERC Order No. 2001 and related FERC orders. The filing of the notice of termination by the CAISO with FERC will be considered timely if: (1) the filing of the notice of termination is made after the preconditions for termination have been met, and the CAISO files the notice of termination within sixty (60) days after issuance of the notice of default; or (2) the CAISO files the notice of termination in accordance with the requirements of FERC Order No. 2001. This Agreement shall terminate upon acceptance by FERC of such a notice of

termination, if filed with FERC, or thirty (30) days after the date of the CAISO's notice of default, if terminated in accordance with the requirements of FERC Order No. 2001 and related FERC orders.

3.2.2 Termination by EDAM Load Serving Entity. In the event that the EDAM Load Serving Entity no longer wishes to participate in the CAISO's Extended Day-Ahead Market, it may terminate this Agreement, on giving the CAISO not less than 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, if this Agreement has been filed with FERC, or must otherwise comply with the requirements of FERC Order No. 2001 and related FERC orders. The filing of the notice of termination by the CAISO with FERC 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 the CAISO files the notice of termination within thirty (30) days of receipt of such request; or (2) the CAISO files the notice of termination in accordance with the requirements of FERC Order No. 2001. This Agreement shall terminate upon acceptance by FERC of such a notice of termination, if such notice is required to be filed with FERC, or upon ninety (90) days after the CAISO's receipt of the EDAM Load Serving Entity's notice of termination, if terminated in accordance with the requirements of FERC Order No. 2001 and related FERC orders.

ARTICLE IV

CAISO TARIFF

4.1 Agreement Subject to CAISO Tariff. This Agreement shall be subject to Section 33 and Section 29 of the CAISO Tariff, which shall be deemed to be incorporated herein. The EDAM Load Serving Entity shall abide by, and shall perform all of the obligations under the CAISO Tariff placed on EDAM Load Serving Entities in respect of all matters set forth therein.

ARTICLE V

COSTS

- 5.1 Operating and Maintenance Costs.** The EDAM Load Serving Entity shall be responsible for all its costs incurred in connection with meeting its obligations under this Agreement.

ARTICLE VI

DISPUTE RESOLUTION

- 6.1 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 any reference in Section 13 of the CAISO Tariff to Market Participants shall be read as a reference to the EDAM Load Serving Entity and references to the CAISO Tariff shall be read as references to this Agreement.

ARTICLE VII

REPRESENTATIONS AND WARRANTIES

- 7.1 Representation and Warranties.** Each Party represents and warrants that the execution, delivery and performance of this Agreement has been duly authorized by all necessary corporate and/or governmental actions, to the extent authorized by law.
- 7.2 Necessary Approvals.** The EDAM Load Serving Entity represents that all necessary rights, leases, approvals, permits, licenses, easements, access to operate in compliance with this Agreement have been or will be obtained by the EDAM Load Serving Entity prior to the effective date of this Agreement, including any arrangement with the EDAM Entity for the Balancing Authority Area in which the EDAM Load Serving Entity is located and any third party Balancing Authorities.

ARTICLE VIII

LIABILITY

- 8.1 Liability.** The provisions of Section 14 of the CAISO Tariff will apply to liability arising under this Agreement, except that all references in Section 14 of the CAISO Tariff to Market Participants shall be read as references to the EDAM Load Serving Entity and references to the CAISO Tariff shall be read as references to this Agreement.

ARTICLE IX

UNCONTROLLABLE FORCES

- 9.1 Uncontrollable Forces Tariff Provisions.** Section 14.1 of the CAISO Tariff shall be incorporated by reference into this Agreement except that all references in Section 14.1 of the CAISO Tariff to Market Participants shall be read as a reference to the EDAM Load Serving Entity and references to the CAISO Tariff shall be read as references to this Agreement.

ARTICLE X

MISCELLANEOUS

- 10.1 Assignments.** Either Party may assign or transfer any or all of its rights or obligations under this Agreement with the other Party's prior written consent in accordance with Section 22.2 of the CAISO Tariff and no Party may assign or transfer any or all of its rights or obligations under this Agreement without such consent. Such consent shall not be unreasonably withheld. Any such transfer or assignment shall be conditioned upon the successor in interest accepting the rights and/or obligations under this Agreement as if said successor in interest were an original Party to this Agreement.
- 10.2 Notices.** Any notice, demand or request which may be given to or made upon either Party regarding this Agreement shall be made in accordance with Section 22.4 of the CAISO Tariff, provided that all references in Section 22.4 of the CAISO Tariff to Market Participants shall be read as a reference to the EDAM Load Serving Entity and references to the CAISO Tariff shall be read as references to this Agreement, and unless otherwise stated or agreed shall be made to the representative of the other Party indicated in Schedule 1 of this Agreement. A Party must update the information in Schedule 1 of this Agreement as information changes. Such changes shall not

constitute an amendment to this Agreement.

- 10.3 Waivers.** Any waiver at any time by either Party of its rights with respect to any default under this Agreement, or with respect to any other matter arising in connection with this Agreement, shall not constitute or be deemed a waiver with respect to any subsequent default or other matter arising in connection with this Agreement. Any delay, short of the statutory period of limitations, in asserting or enforcing any right under this Agreement shall not constitute or be deemed a waiver of such right.
- 10.4 Governing Law and Forum.** This Agreement shall be deemed to be a contract made under, and for all purposes shall be governed by and construed in accordance with, the laws of the State of California, except its conflict of law provisions. The Parties irrevocably consent that any legal action or proceeding arising under or relating to this Agreement to which the CAISO ADR Procedures do not apply shall be brought in any of the following forums, as appropriate: any court of the State of California, any federal court of the United States of America located in the State of California, or, where subject to its jurisdiction, before the Federal Energy Regulatory Commission.
- 10.5 Consistency with Federal Laws and Regulations.** This Agreement shall incorporate by reference Section 22.9 of the CAISO Tariff as if the references to the CAISO Tariff were referring to this Agreement.
- 10.6 Merger.** This Agreement constitutes the complete and final agreement of the Parties with respect to the subject matter hereof and supersedes all prior agreements, whether written or oral, with respect to such subject matter.
- 10.7 Severability.** If any term, covenant, or condition of this Agreement or the application or effect of any such term, covenant, or condition is held invalid as to any person, entity, or circumstance, or is determined to be unjust, unreasonable, unlawful, imprudent, or otherwise not in the public interest by any court or government agency of competent jurisdiction, then such term, covenant, or condition shall remain in force and effect to the maximum extent permitted by law, and all other terms, covenants, and conditions of this Agreement and their application shall not be affected thereby, but shall remain in force and effect and the Parties shall be relieved of their obligations

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This document contains language that is approved by FERC but not yet effective.

only to the extent necessary to eliminate such regulatory or other determination unless a court or governmental agency of competent jurisdiction holds that such provisions are not separable from all other provisions of this Agreement.

10.8 Amendments. This Agreement and the Schedules attached hereto may be amended from time to time by the mutual agreement of the Parties in writing. Amendments that require FERC approval shall not take effect until FERC has accepted such amendments for filing and made them effective. Nothing contained herein shall be construed as affecting in any way the right of the CAISO to unilaterally make application to FERC for a change in the rates, terms and conditions of this Agreement under Section 205 of the FPA and pursuant to FERC's rules and regulations promulgated thereunder, and the EDAM Load Serving Entity shall have the right to make a unilateral filing with FERC to modify this Agreement pursuant to Section 206 or any other applicable provision of the FPA and FERC's rules and regulations thereunder; provided that each Party shall have the right to protest any such filing by the other Party and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this Agreement shall limit the rights of the Parties or of FERC under Sections 205 or 206 of the FPA and FERC's rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein.

[10.9 Federal Provisions. The CAISO hereby affirmatively agrees to incorporate into this Agreement the federal law provisions as provided by the EDAM Load Serving Entity and previously agreed to by the CAISO.]

10.10 Electronic Signatures. The Parties agree that this Agreement may be executed by either handwritten signature or digitally signed using Adobe Sign, Adobe E-Sign, or DocuSign. A digital signature is the same as a handwritten signature and shall be considered valid and acceptable.

10.11 Counterparts. This Agreement may be executed in one or more counterparts at different times, each of which shall be regarded as an original and all of which, taken together, shall constitute one and the same Agreement.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be duly executed on behalf of each by and through their authorized representatives as of the date hereinabove written.

California Independent System Operator Corporation

By: _____

Name: _____

Title: _____

Date: _____

[NAME OF EDAM LOAD SERVING ENTITY]

By: _____

Name: _____

Title: _____

Date: _____

SCHEDULE 1

NOTICES

[Section 10.2]

EDAM Load Serving Entity

Name of Primary

Representative: _____

Title: _____

Company: _____

Address: _____

City/State/Zip Code: _____

Email Address: _____

Phone: _____

Fax No: _____

Name of Alternative

Representative: _____

Title: _____

Company: _____

Address: _____

City/State/Zip Code: _____

Email Address: _____

Phone: _____

Fax No: _____

CAISO

Name of Primary

Representative: _____

Title: _____

Address: _____

City/State/Zip Code: _____

Email Address: _____

Phone: _____

Fax No: _____

Name of Alternative

Representative: _____

Title: _____

Address: _____

City/State/Zip Code: _____

Email Address: _____

Phone: _____

Fax No: _____

* * * * *

Appendix B.33 EDAM Transmission Service Provider Agreement (EDAMTSPA)

THIS EXTENDED DAY-AHEAD MARKET TRANSMISSION SERVICE PROVIDER AGREEMENT

(“**AGREEMENT**”) is established this ____ day of _____, ____ and is accepted by and between:

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[Full legal name] (“EDAM Transmission Service Provider”), **[legal description]** having its registered and principal executive office at **[address]**,

and

California Independent System Operator Corporation (“CAISO”), a California nonprofit public benefit corporation having a principal executive office located at such place in the State of California as the CAISO Governing Board may from time to time designate.

The EDAM Transmission Service Provider and the CAISO are hereinafter referred to as the “Parties.”

Whereas:

- B.** The CAISO operates the Day-Ahead Market for Energy pursuant to the CAISO Tariff;
- B.** The EDAM Transmission Service Provider is a transmission service provider that owns transmission or has transmission service rights on an EDAM Intertie or within an EDAM Entity Balancing Authority Area, provides transmission service, and that makes transmission service available for use in the Day-Ahead Market through an EDAM Entity. (The term “EDAM Transmission Provider” does not include network integration transmission service customers or other transmission customers of an EDAM Transmission Service Provider, EDAM Legacy Contract Rights or EDAM Transmission Ownership Rights); and
- C.** The Parties wish to enter into this Agreement to establish the terms and conditions for participation in the CAISO’s Day-Ahead Market by the EDAM Transmission Service Provider in accordance with Section 33 of the CAISO Tariff.

NOW THEREFORE, in consideration of the mutual covenants set forth herein, the Parties agree as follows:

ARTICLE I

DEFINITIONS AND INTERPRETATION

- 1.1 Master Definitions Supplement.** 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 Rules of Interpretation.** The following rules of interpretation and conventions shall apply to this

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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;
- (i) unless the context otherwise requires, any reference to a Party includes a reference to its permitted successors and assigns;
- (j) unless the context otherwise requires, “or” is used in the conjunctive sense;
- (k) any reference to a day, week, month or year is to a calendar day, week, month or year; and
- (l) the captions and headings in this Agreement are inserted solely to facilitate reference and shall have no bearing upon the interpretation of any of the terms and conditions of this Agreement.

ARTICLE II

RESPONSIBILITIES OF EDAM TRANSMISSION SERVICE PROVIDER

2.1 Agreement Subject to CAISO Tariff. This Agreement shall be subject to Section 33 of the

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CAISO Tariff, which shall be deemed to be incorporated herein. The EDAM Transmission Service Provider shall abide by, and shall perform all of the obligations under the CAISO Tariff placed on EDAM Transmission Service Providers in respect of all matters set forth therein.

ARTICLE III

TERM AND TERMINATION

3.1 Effective Date. This Agreement shall be effective as of the later of the date it is executed by the Parties or the date it is accepted for filing and made effective by FERC, if such FERC filing is required, and shall remain in full force and effect until terminated pursuant to Section 3.2 of this Agreement.

3.2 Termination

3.2.1 Termination by CAISO. Subject to Section 9.2, the CAISO may terminate this Agreement by giving written notice of termination in the event that (i) the EDAM Transmission Service Provider commits any material 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, to the EDAM Transmission Service Provider, written notice of the default, unless excused by reason of Uncontrollable Forces in accordance with Article VII of this Agreement, or (ii) the EDAM Entity for the Balancing Authority Area in which the EDAM Transmission Service Provider is located terminates participation in the CAISO's Extended Day-Ahead Market. With respect to any notice of termination given pursuant to this Section, the CAISO must file a timely notice of termination with FERC, if this Agreement was filed with FERC, or must otherwise comply with the requirements of FERC Order No. 2001 and related FERC orders. The filing of the notice of termination by the CAISO with FERC will be considered timely if: (1) the filing of the notice of termination is made after the preconditions for termination have been met, and the CAISO files the notice of termination within sixty (60) days after issuance of the notice of default; or (2) the CAISO files the notice of termination in accordance with the requirements of FERC Order No. 2001. This Agreement shall terminate upon acceptance by FERC of such a notice of termination, if filed with FERC, or thirty (30) days after the date of the CAISO's notice of default, if terminated in accordance with the requirements of FERC Order No. 2001 and related FERC orders.

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3.2.2 Termination by EDAM Transmission Service Provider. In the event that the EDAM Transmission Service Provider no longer wishes to make transmission service available for use in the Day-Ahead Market through an EDAM Entity, it may terminate this Agreement on giving the CAISO not less than one-hundred and eighty (180) days written notice and so long as such termination is concurrent with the termination of participation in the Day-Ahead Market by the EDAM Entity for the Balancing Authority Area within which the EDAM Transmission Service Provider operates or holds transmission rights. With respect to any notice of termination given pursuant to this Section, the CAISO must file a timely notice of termination with FERC, if this Agreement has been filed with FERC, or must otherwise comply with the requirements of FERC Order No. 2001 and related FERC orders. The filing of the notice of termination by the CAISO with FERC 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 the CAISO files the notice of termination within thirty (30) days of receipt of such request; or (2) the CAISO files the notice of termination in accordance with the requirements of FERC Order No. 2001. This Agreement shall terminate upon acceptance by FERC of such a notice of termination, if such notice is required to be filed with FERC, or upon ninety (90) days after the CAISO's receipt of the EDAM Transmission Service Provider's notice of termination, if terminated in accordance with the requirements of FERC Order No. 2001 and related FERC orders.

ARTICLE IV

COSTS

4.1 Operating and Maintenance Costs. The EDAM Transmission Service Provider shall be responsible for all its costs incurred in connection with meeting its obligations under this Agreement.

ARTICLE V

DISPUTE RESOLUTION

5.1 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

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incorporated by reference, except that any reference in Section 13 of the CAISO Tariff to Market Participants shall be read as a reference to the EDAM Transmission Service Provider, and references to the CAISO Tariff shall be read as references to this Agreement.

ARTICLE VI

REPRESENTATIONS AND WARRANTIES

- 6.1 Representation and Warranties.** Each Party represents and warrants that the execution, delivery and performance of this Agreement by it have been duly authorized by all necessary corporate and/or governmental actions, to the extent authorized by law.
- 6.2 Necessary Approvals.** The EDAM Transmission Service Provider represents that all necessary rights, leases, approvals, permits, licenses, easements, access to operate in compliance with this Agreement have been or will be obtained by the EDAM Transmission Service Provider prior to the effective date of this Agreement, including any arrangement with the EDAM Entity within which the EDAM Transmission Service provider operates or holds transmission rights or third party Balancing Authorities.

ARTICLE VII

LIABILITY

- 7.1 Liability.** The provisions of Section 14 of the CAISO Tariff will apply to liability arising under this Agreement, except that all references in Section 14 of the CAISO Tariff to Market Participants shall be read as references to the EDAM Transmission Service Provider, and references to the CAISO Tariff shall be read as references to this Agreement.

ARTICLE VIII

UNCONTROLLABLE FORCES

- 8.1 Uncontrollable Forces Tariff Provisions.** Section 14.1 of the CAISO Tariff shall be incorporated by reference into this Agreement except that all references in Section 14.1 of the CAISO Tariff to Market Participants shall be read as a reference to the EDAM Transmission Service Provider, and references to the CAISO Tariff shall be read as references to this Agreement.

ARTICLE IX

MISCELLANEOUS

*NOT CURRENT TARIFF LANGUAGE.
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- 9.1 Assignments.** Either Party may assign or transfer any or all of its rights or obligations under this Agreement with the other Party's prior written consent in accordance with Section 22.2 of the CAISO Tariff and no Party may assign or transfer any or all of its rights or obligations under this Agreement without such consent. Such consent shall not be unreasonably withheld. Any such transfer or assignment shall be conditioned upon the successor in interest accepting the rights and/or obligations under this Agreement as if said successor in interest were an original Party to this Agreement.
- 9.2 Notices.** Any notice, demand or request which may be given to or made upon either Party regarding this Agreement shall be made in accordance with Section 22.4 of the CAISO Tariff, provided that all references in Section 22.4 of the CAISO Tariff to Market Participants shall be read as a reference to the EDAM Transmission Service Provider, and references to the CAISO Tariff shall be read as references to this Agreement, and unless otherwise stated or agreed shall be made to the representative of the other Party indicated in Schedule 1. A Party must update the information in Schedule 1 of this Agreement as information changes. Such changes shall not constitute an amendment to this Agreement.
- 9.3 Waivers.** Any waiver at any time by either Party of its rights with respect to any default under this Agreement, or with respect to any other matter arising in connection with this Agreement, shall not constitute or be deemed a waiver with respect to any subsequent default or other matter arising in connection with this Agreement. Any delay, short of the statutory period of limitations, in asserting or enforcing any right under this Agreement shall not constitute or be deemed a waiver of such right.
- 9.4 Governing Law and Forum.** This Agreement shall be deemed to be a contract made under, and for all purposes shall be governed by and construed in accordance with, the laws of the State of California, except its conflict of law provisions. The Parties irrevocably consent that any legal action or proceeding arising under or relating to this Agreement to which the CAISO ADR Procedures do not apply shall be brought in any of the following forums, as appropriate: any court of the State of California, any federal court of the United States of America located in the State of California, or, where subject to its jurisdiction, before the Federal Energy Regulatory

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Commission.

- 9.5 Consistency with Federal Laws and Regulations.** This Agreement shall incorporate by reference Section 22.9 of the CAISO Tariff as if the references to the CAISO Tariff were referring to this Agreement.
- 9.6 Merger.** This Agreement constitutes the complete and final agreement of the Parties with respect to the subject matter hereof and supersedes all prior agreements, whether written or oral, with respect to such subject matter.
- 9.7 Severability.** If any term, covenant, or condition of this Agreement or the application or effect of any such term, covenant, or condition is held invalid as to any person, entity, or circumstance, or is determined to be unjust, unreasonable, unlawful, imprudent, or otherwise not in the public interest by any court or government agency of competent jurisdiction, then such term, covenant, or condition shall remain in force and effect to the maximum extent permitted by law, and all other terms, covenants, and conditions of this Agreement and their application shall not be affected thereby, but shall remain in force and effect and the Parties shall be relieved of their obligations only to the extent necessary to eliminate such regulatory or other determination unless a court or governmental agency of competent jurisdiction holds that such provisions are not separable from all other provisions of this Agreement.
- 9.8 Amendments.** This Agreement and the Schedules attached hereto may be amended from time to time by the mutual agreement of the Parties in writing. Amendments that require FERC approval shall not take effect until FERC has accepted such amendments for filing and made them effective. Nothing contained herein shall be construed as affecting in any way the right of the CAISO to unilaterally make application to FERC for a change in the rates, terms and conditions of this Agreement under Section 205 of the FPA and pursuant to FERC's rules and regulations promulgated thereunder, and the EDAM Transmission Service Provider shall have the right to make a unilateral filing with FERC to modify this Agreement pursuant to Section 206 or any other applicable provision of the FPA and FERC's rules and regulations thereunder; provided that each Party shall have the right to protest any such filing by the other Party and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in

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this Agreement shall limit the rights of the Parties or of FERC under Sections 205 or 206 of the FPA and FERC's rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein.

9.9 Electronic Signatures. The Parties agree that this Agreement may be executed by either handwritten signature or digitally signed using Adobe Sign, Adobe E-Sign, or DocuSign. A digital signature is the same as a handwritten signature and shall be considered valid and acceptable.

9.10 Counterparts. This Agreement may be executed in one or more counterparts at different times, each of which shall be regarded as an original and all of which, taken together, shall constitute one and the same Agreement.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be duly executed on behalf of each by and through their authorized representatives as of the date hereinabove written.

California Independent System Operator Corporation

By: _____

Name: _____

Title: _____

Date: _____

[NAME OF EDAM TRANSMISSION SERVICE PROVIDER]

By: _____

Name: _____

Title: _____

Date: _____

SCHEDULE 1

NOTICES

[Section 9.2]

EDAM Transmission Service Provider

Name of Primary

Representative: _____

Title: _____

Company: _____

Address: _____

City/State/Zip Code: _____

Email Address: _____

Phone: _____

Fax No: _____

Name of Alternative

Representative: _____

Title: _____

Company: _____

Address: _____

City/State/Zip Code: _____

Email Address: _____

Phone: _____

Fax No: _____

CAISO

Name of Primary

Representative: _____

Title: _____

Address: _____

City/State/Zip Code: _____

Email Address: _____

Phone: _____

Fax No: _____

Name of Alternative

Representative: _____

Title: _____

Address: _____

City/State/Zip Code: _____

Email Address: _____

Phone: _____

Fax No: _____

* * * * *

Appendix C

Locational Marginal Price

A. Locational Marginal Price for Energy

The CAISO shall calculate the price of Energy at Generation PNodes, Scheduling Points, and Aggregated Pricing Nodes, as provided in the CAISO Tariff. The CAISO establishes Trading Hub prices and LAPs as provided in the CAISO Tariff. The LMPs at PNodes, Scheduling Points, and Aggregated Pricing Nodes

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include separate components for the Marginal Energy Cost, Marginal Cost of Congestion, Marginal Cost of Losses, and Marginal GHG Cost. As provided in Sections 6.5.3.2.2 and 6.5.5.2.4, LMPs are calculated and posted for each hour of the Day-Ahead Market and for each interval of the Real-Time Market.

A.1 LMP Composition in the Day-Ahead Market and the Real-Time Market

In each hour of the Day-Ahead Market, each 15-minute interval of the Fifteen-Minute Market, and each 5-minute interval of the Real-Time Dispatch, the CAISO calculates the LMP for each PNode, which is based on the Bids of sellers and buyers selected in the Day-Ahead or Real-Time Market as calculated below.

The CAISO uses a Reference Bus for the calculation of the Locational Marginal Prices. The Reference Bus in the base scenario is the distributed load in the Market Area used in the AC power flow solution to distribute the deviations for Transmission Losses between iterations, and in sensitivity calculations that yield rates for Marginal Losses and the Power Transfer Distribution Factors. If the CAISO Market solution reverts to a DC power flow solution, the Reference Bus is not used because Transmission Losses are not included. Nevertheless, the CAISO reflects the Transmission Losses for the Market Area in the DC power flow solution by adjusting the load by the average loss factor. The Locational Marginal Prices are not determined by resources that are not eligible to set the Locational Marginal Price as defined in Sections 31.3.1.4 and 34.20.2.3. For each PNode, the CAISO determines separate components of the LMP for the Marginal Energy Cost, Marginal Cost of Congestion, Marginal Cost of Losses, and Marginal GHG Cost, as follows:

$$LMP_i = MEC_i + MCC_i + MCL_i + MCG_i$$

where:

- i is the PNode index.
- MEC_i is the LMP component representing the Marginal Energy Cost at PNode i .
- MCC_i is the LMP component representing the Marginal Cost of Congestion at PNode i .
- MCL_i is the LMP component representing the Marginal Cost of Losses at PNode i .
- MCG_i is the LMP component representing the Marginal GHG Cost at PNode i .

A.2 Marginal Energy Cost Component of the LMP

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The MEC is the same for all PNodes in each Balancing Authority Area in the Market Area. The MEC is the Shadow Price of the power balance constraint for the respective Balancing Authority Area at the optimal solution. The power balance constraint for each Balancing Authority Area in the Market Area ensures that the physical law of conservation of Energy (the sum of Generation and imports equals the sum of Demand, including exports and Transmission Losses, plus the Net Market Transfer) is accounted for in the market solution. The MEC for the Transfer System Resources (TSRs) on each side of the Market Transfer that they model is the MEC of the respective Balancing Authority Area. The MEC may be different between two Balancing Authority Areas in the Market Area when Market Transfers between these Balancing Authority Areas are scheduled at their respective scheduling limits. The MEC difference between the Balancing Authority Areas on either side of a specific Market Transfer generates Market Transfer revenue.

A.3 Marginal Congestion Component of the LMP

The CAISO calculates the Marginal Cost of Congestion at each PNode as the net contribution of the Shadow Prices of the binding Transmission Constraints at the optimal solution, weighed by the respective Power Transfer Distribution Factors, as follows:

$$MCC_i = - \sum_{k=0}^K \sum_{m=1}^M \sum_{j=1}^{J_m} c_{j,m} PTDF_{i,j,m,k} \mu_{m,k} - \sum_{k=0}^K \sum_{m=1}^M \sum_{j=1}^{J_m} c_{j,m} PTDF_{i,j,m,k}^{(IRU)} \mu_{m,k}^{(IRU)} - \sum_{k=0}^K \sum_{m=1}^M \sum_{j=1}^{J_m} c_{j,m} PTDF_{i,j,m,k}^{(IRD)} \mu_{m,k}^{(IRD)}$$

Where:

- i is the PNode index.
- m is the Transmission Constraint index in the Market Area; transmission constraints outside the Market Area are not enforced.
- k is the constraint case index; zero (0) indicates the base case where all transmission and generation facilities are in service, whereas a positive case indicates a preventive transmission or generation contingency case, as applicable.
- j is the transmission component index of Transmission Constraint m . When Transmission

Constraint m is a Nomogram, there can be more than one transmission components in it; otherwise, there is only one transmission component.

- K is the number of constraint cases, besides the base case.
- M is the number of Transmission Constraints.
- J_m is the number of transmission components of Transmission Constraint m .
- $PTDF_{i,j,m,k}$, $PTDF_{i,j,m,k}^{(IRU)}$, and $PTDF_{i,j,m,k}^{(IRD)}$ is the Power Transfer Distribution Factor (PTDF) for PNode i on transmission component j of Transmission Constraint m in constraint case k in the base, IRU deployment, or IRD deployment scenario, respectively; it is the flow contribution on that transmission component j when an increment of power is injected at PNode i and an equivalent amount of power is withdrawn at the Reference Bus. For Market Area Intertie Resources at a Scheduling Point, and TSRs at a Transfer Location, the PTDF to an intertie constraint or intertie scheduling limit at that Scheduling Point is +1 for an import and -1 for an export. The CAISO does not consider the effect of Transmission Losses in the calculation of PTDFs; they depend only on the network configuration. Furthermore, the difference between the PTDFs at two PNodes with respect to any binding Transmission Constraint, and thus the difference between the MCCs of the LMPs at these PNodes, is independent from the selection of the Reference Bus.
- $C_{j,m}$ is the constraint coefficient for transmission component j of Transmission Constraint m when Transmission Constraint m is a Nomogram; otherwise, this constraint coefficient is always one.
- $\mu_{m,k}$, $\mu_{m,k}^{(IRU)}$, and $\mu_{m,k}^{(IRD)}$ is the Shadow Price of Transmission Constraint m in constraint case k in the base, IRU deployment, or IRD deployment scenario, respectively.

A.4 Marginal Losses Component of the LMP

The CAISO calculates the Marginal Cost of Losses at each PNode as the product of the MEC and the rate for Marginal Losses at that PNode, as follows:

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$$MCL_i = -MEC_i \frac{\partial L}{\partial P_i}$$

Where the rate for Marginal Losses at PNode i ($\partial L/\partial P_i$) is the sensitivity (partial derivative) of system losses (L) to an increment of power injected at that PNode (P_i) and absorbed by the Reference Bus. This calculation reflects the area interchange control feature of the AC power flow where the net scheduled interchange (NSI) of a Balancing Authority Area in the FNM is kept constant while the iterative solution distributes loss deviation from the previous iteration to the Reference Bus. Consequently, the rate for Marginal Losses of the TSRs that model a Market Transfer at a Transfer Location between two Balancing Authority Areas in the Market Area may be different because these TSRs belong to different Balancing Authority Areas. The CAISO sets the MCL for both of these TSRs to the average rate for Marginal Losses between the two so that there is no MCL difference between the TSRs on either side of a specific Market Transfer. The Marginal Losses on transmission facilities outside the Market Area are ignored in the calculation of the MCL.

A.5 Marginal Greenhouse Gas Cost Component of the LMP

The CAISO employs a GHG model in the DAM and RTM as described in Sections 29.32 and 33.32. The GHG model calculates an optimal GHG Transfer for each GHG Regulation Area. If the GHG Transfer for a GHG Regulation Area is an import, it is allocated optimally to resources outside that GHG Regulation Area based on those resources' GHG Bid Adders. In that case, the Marginal GHG Cost for all PNodes in a specific GHG Regulation Area is the Shadow Price of the GHG Transfer allocation constraint for that GHG Regulation Area and it represents the marginal cost of GHG regulation for net import transfer into that GHG Regulation Area. If the GHG Transfer is an export, the GHG Transfer allocation constraint is not binding, all GHG attributions are zero for that GHG Regulation Area, and the Marginal GHG Cost for all PNodes in that GHG Regulation Area is zero. The Marginal GHG Cost outside of all GHG Regulation Areas is always zero. Furthermore, the Marginal GHG Cost of a TSR is always zero, even when its Transfer Location is within or at the border of a GHG Regulation Area, because the associated GHG regulation cost is collected from the LMP settlement of all physical resources within the GHG Regulation Area and paid explicitly to the respective resources outside the GHG Regulation Area with GHG

Attributions for that GHG Regulation Area.

A.6 Trading Hub Price Calculation

The CAISO calculates Existing Zone Generation Trading Hub prices, as provided in Section 27.3, based on the LMP calculations described in this Attachment and in Section 27.2.

A.7 Load Aggregation Point Price Calculation

The CAISO calculates LAP prices as described in Section 27.2.2.

A.8 Intertie Scheduling Point Price Calculation

The CAISO calculates LMPs for intertie resources at Scheduling Points, which are represented in the FNM as PNodes or aggregations of PNodes external to the Market Area (*i.e.*, at the boundary of a Balancing Authority Area inside the Market Area with a Balancing Authority Area outside the Market Area), through the same process that is used to calculate LMPs for PNodes within the Market Area. In some cases, facilities that are part of the CAISO Controlled Grid but are external to the CAISO Balancing Authority Area connect some intertie Scheduling Points to the CAISO Balancing Authority Area, and in these cases, the Scheduling Points are within external Balancing Authority Areas. In these cases, the Scheduling Points are represented in the FNM at the relevant Locations and used to schedule imports and exports to/from the CAISO Balancing Authority Area. The MCC of the LMP at a Scheduling Point includes contributions from binding intertie constraints and intertie scheduling limits that constrain import/export Schedules at the relevant Scheduling Point. Normally, System Resources are registered at a Scheduling Point to a Balancing Authority Area in the Market Area to model Energy or capacity imports/exports from/to a Balancing Authority Area outside the Market Area. In this case, the CAISO distributes the import/export Energy Schedule or capacity award of the System Resource to the Default Generation Aggregation Point (DGAP) of the Balancing Authority Area outside the Market Area that is the source/sink. If the source/sink Balancing Authority Area is unknown at the time the CAISO Market runs, the CAISO distributes the import/export Energy Schedule or capacity award of the relevant System Resource to the Generic Generation Aggregation Point (GGAP) for the relevant Scheduling Point, and the MCL and MCC of the LMP of the System Resource reflect the Marginal Losses and Congestion at the relevant DGAP or GGAP, respectively.

In certain cases, System Resources are registered at a Scheduling Point to a Balancing Authority Area in

the Market Area to model Energy imports/exports from/to another Balancing Authority Area inside the Market Area. This occurs because of differences in the Market Area between the Day-Ahead Market and the Real-Time Market when a Balancing Authority Area is outside the EDAM Area in the Day-Ahead Market, but inside the EIM Area in the Real-Time Market. In this case, the day-ahead Energy schedule of the relevant System Resource is distributed in the Real-Time Market to the DGAP of the source/sink Balancing Authority Area that is in the EIM Area, but cancelled with an opposite base Energy schedule of an EIM Mirror System Resource at the same Scheduling Point with the same distribution. The EIM Mirror System Resource belongs to the source/sink Balancing Authority Area and its base Energy schedule matches the day-ahead Energy schedule of the System Resource it mirrors. The EIM Mirror System Resource that mirrors a System Resource has an export base schedule that matches the day-ahead import schedule of its mirrored System Resource, or a base import schedule that matches the day-ahead export schedule of its mirrored System Resource. The LMPs of the EIM Mirror System Resource and the System Resource it mirrors are different in general because the MEC, MCL, and MCC components differ since the two resources belong to different Balancing Authority Areas in the Market Area.

A.8.1 Intertie Scheduling Point Price Calculation for IBAA

A.8.1.1 Scheduling Point Prices

As described in Section 27.5.3, the CAISO's FNM includes a full model of the network topology of each IBAA. The CAISO will specify Resource IDs that associate Intertie Scheduling Point Bids and Schedules with supporting injection and withdrawal locations on the FNM. These Resource IDs may be specified by the CAISO based on the information available to it, or developed pursuant to a Market Efficiency Enhancement Agreement. Once these Resource IDs are established, the CAISO will determine Intertie Scheduling Point LMPs based on the injection and withdrawal locations associated with each Intertie Scheduling Point Bid and Schedule by the appropriate Resource ID. In calculating these LMPs the CAISO follows the provisions specified in Section 27.5.3 regarding the treatment of Transmission Constraints and losses on the IBAA network facilities. Unless otherwise required pursuant to an effective MEEA, the default pricing for all imports from the IBAA(s) to the CAISO Balancing Authority Area will be based on the SMUD/TID IBAA Import LMP and all exports to the IBAA(s) from the CAISO Balancing Authority Area will be based on the SMUD/TID IBAA Export LMP. The SMUD/TID IBAA Import LMP will

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be calculated based on modeling of supply resources that assumes all supply is from the Captain Jack substation as defined by WECC. The SMUD/TID IBAA Export LMP will be calculated based on the Sacramento Municipal Utility District hub that reflects Intertie distribution factors developed from a seasonal power flow base case study of the WECC region using an equivalencing technique that requires the Sacramento Municipal Utility District hub to be equivalenced to only the buses that comprise the aggregated set of load resources in the IBAA, with all generation also being retained at its buses within the IBAA. The resulting load distribution within each aggregated set of load resources within the IBAA defines the Intertie distribution factors for exports from the CAISO Balancing Authority Area.

A.8.1.2 Applicable Marginal Losses Adjustment

For import Schedules to the CAISO Balancing Authority Area at the southern terminus of the California-Oregon Transmission Project at the Tracy substation or at the applicable Scheduling Point that connects the CAISO Balancing Authority and the Western Area Power Administration system, the CAISO will replace the Marginal Cost of Losses at the otherwise applicable source for such Schedules with the Marginal Cost of Losses at the Tracy substation or at the applicable Scheduling point that connects the CAISO Balancing Authority Area and the Western Area Power Administration system, provided that the Scheduling Coordinators certify as discussed further below that the Schedules originate from transactions that use: (a) the California-Oregon Transmission Project; or (b) transmission facilities owned by the Western Area Power Administration within the SMUD/TID IBAA. In addition, as described further below, the Scheduling Coordinator must certify that the Schedules are subject to: (a) charges for losses by the Western Area Power Administration for the use of transmission facilities owned by the Western Area Power Administration within the SMUD/TID IBAA; or (b) charges for losses by the Transmission Agency of Northern California for the use of the California-Oregon Transmission Project. The CAISO will establish Resource IDs that are to be used only to submit Bids, including Self-Schedules, for the purpose of establishing Schedules that are eligible for this loss adjustment.

Prior to obtaining such Resource IDs, the relevant Scheduling Coordinator shall certify that it will only use this established Resource ID for Bids, including Self-Schedules, that originate from transactions that use: (a) the California-Oregon Transmission Project; or (b) transmission facilities owned by the Western Area Power Administration within the SMUD/TID IBAA. In addition, the Scheduling Coordinator must certify

that the Schedules are subject to: (a) charges for losses by the Western Area Power Administration for the use of transmission facilities owned by the Western Area Power Administration within the SMUD/TID IBAA; or (b) Transmission Agency of Northern California for the use of the California-Oregon Transmission Project. Further, by actually using such Resource ID, the Scheduling Coordinator represents that such Bids, including Self-Schedules, that originate from transactions that use: (a) the California-Oregon Transmission Project; or (b) transmission facilities owned by the Western Area Power Administration within the SMUD/TID IBAA. In addition, the Scheduling Coordinator must certify that the Schedules are subject to: (a) charges for losses by the Western Area Power Administration for the use of transmission facilities owned by the Western Area Power Administration within the SMUD/TID IBAA; or (b) Transmission Agency of Northern California for the use of the California-Oregon Transmission Project. Schedules and Dispatches settled under such Resource IDs shall be subject to an LMP which has accounted for the Marginal Cost of Losses as if there were an actual physical generation facility at the Tracy Scheduling Point or at the applicable Scheduling Point that connects the CAISO Balancing Authority Area and the Western Area Power Administration system as opposed to the Marginal Cost of Losses under the IBAA LMPs specified in Section I.1.1 of this Appendix. The CAISO may request information on a monthly basis from such Scheduling Coordinators to verify these certifications. Any such request shall be limited to transactions that use the designated Resource IDs during the six month prior period to the date of the request. The CAISO will calculate a re-adjustment of the Marginal Cost of Losses at the Tracy substation or at the applicable Scheduling Point that connects the CAISO Balancing Authority Area and the Western Area Power Administration system to reflect the otherwise applicable source for such Schedules for any Settlement Interval in which the CAISO has determined that the Scheduling Coordinator's payments did not reflect transactions that meet the above specified certification requirements. Any amounts owed to the CAISO for such Marginal Cost of Losses re-adjustments will be recovered by the CAISO from the affected Scheduling Coordinator by netting the amounts owed from payments due in subsequent Settlements Statements until the outstanding amounts are fully recovered. For export Schedules from the CAISO Balancing Authority Area at the southern terminus of the California-Oregon Transmission Project at the Tracy substation or at the applicable Scheduling Point that connects the CAISO Balancing Authority Area and the Western Area Power Administration system, the

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CAISO will replace the Marginal Cost of Losses at the otherwise applicable sink for such Schedules with the Marginal Cost of Losses at the Tracy substation or at the applicable Scheduling Point that connects the CAISO Balancing Authority Area and the Western Area Power Administration system, provided that the Scheduling Coordinator certifies, as discussed below, where the export Schedules use: (a) the California-Oregon Transmission Project; or (b) any transmission facilities owned by the Western Area Power Administration within the SMUD/TID IBAA. In addition, the Scheduling Coordinator must certify that the affected Schedules are charged losses by: (a) the Western Area Power Administration for the use of transmission facilities owned by the Western Area Power Administration within the SMUD/TID IBAA; or (b) Transmission Agency of Northern California for the use of the California-Oregon Transmission Project. The CAISO will establish Resource IDs that are to be used only to submit Bids, including Self-Schedules, for the purpose of establishing Schedules that are eligible for this loss adjustment. Prior to obtaining such Resource IDs, the relevant Scheduling Coordinator shall certify that it will only use this established Resource ID for Bids, including Self-Schedules, where the export Schedules use: (a) the California-Oregon Transmission Project; or (b) any transmission facilities owned by the Western Area Power Administration within the SMUD/TID IBAA. In addition the Scheduling Coordinator must certify that the affected Schedules are charged losses by: (a) the Western Area Power Administration for the use of transmission facilities owned by the Western Area Power Administration within the SMUD/TID IBAA; or (b) Transmission Agency of Northern California for the use of the California-Oregon Transmission Project. Further, by actually using such Resource ID, the Scheduling Coordinator represents that such Bids, including Self-Schedules, are used for the above specified conditions.

Schedules and Dispatches settled under such Resource IDs shall be subject to an LMP which has accounted for the Marginal Cost of Losses as if there were an actual physical generation facility at the Tracy Scheduling Point or at the applicable Scheduling Point that connects the CAISO Balancing Authority Area and the Western Area Power Administration system as opposed to the Marginal Cost of Losses under the IBAA LMPs specified in Section I.1.1 of this Appendix. The CAISO may request information on a monthly basis from such Scheduling Coordinators to verify that schedules for such Resource IDs meet the above specified conditions. Any such request shall be limited to transactions that use the designated Resource IDs during the six month prior period to the date of the request.

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The CAISO will calculate a re-adjustment of the Marginal Cost of Losses at the Tracy substation or at the applicable Scheduling Point that connects the CAISO Balancing Authority Area and the Western Area Power Administration system to reflect the otherwise applicable sink for such Schedules for any Settlement Interval in which the CAISO has determined that the Scheduling Coordinator's payments did not reflect transactions that met the above specified conditions. Any amounts owed to the CAISO for such Marginal Cost of Losses re-adjustments will be recovered by the CAISO from the affected Scheduling Coordinator by netting the amounts owed from payments due in subsequent Settlements Statements until the outstanding amounts are fully recovered.

B. Locational Marginal Price for Imbalance Reserves

The CAISO shall calculate the Locational IRU Price and Locational IRD Price at Generation PNodes, Scheduling Points, and Aggregated Pricing Nodes, as provided in the CAISO Tariff. The Locational IRU Price and Locational IRD Price at PNodes, Scheduling Points, and Aggregated Pricing Nodes include separate components for the Marginal IRU or IRD Cost, and the Marginal IRU or IRD Cost of Congestion, respectively. As provided in Section 6.5.3.2.2, Locational IRU Prices and Locational IRD Prices are calculated and posted for each hour of the Day-Ahead Market. There are different Locational Marginal Prices for IRU and IRD at any given Location in the Market Area.

B.1. Locational IRU and IRD Price Composition

In each hour of the Day-Ahead Market, the CAISO calculates the Locational IRU Price and Locational IRD Price for each PNode, which is based on the IRU and IRD Bids of sellers selected in the Day-Ahead Market as calculated below. The CAISO uses a Reference Bus for the calculation of the Locational IRU Price and Locational IRD Price. The Reference Bus for the Locational IRU Price is the distributed IRU requirement in the Market Area, whereas the Reference Bus for the Locational IRD Price is the distributed IRD requirement in the Market Area. The Reference Bus is used in sensitivity calculations that yield the Power Transfer Distribution Factors. The CAISO does not employ an AC power flow in the IRU and IRD deployment scenarios in the IFM. The Transmission Constraints in the IRU and IRD deployment scenarios are formulated as linear extensions of the Transmission Constraints in the base scenario using the AC power flow solution for the base scenario. Therefore, there is no marginal loss component in the Locational IRU Price and Locational IRD Price. For each PNode, the CAISO determines separate

components of the Locational IRU Price and Locational IRD Price for the Marginal IRU and IRD Cost, and the Marginal Cost of Congestion for IRU and IRD, as follows:

$$LMP_i^{(IRU)} = MEC_i^{(IRU)} + MCC_i^{(IRU)}$$

$$LMP_i^{(IRD)} = MEC_i^{(IRD)} + MCC_i^{(IRD)}$$

where:

- i is the PNode index.
- $MEC_i^{(IRU)}$ is the Locational IRU Price component representing the Marginal IRU Cost at PNode i .
- $MCC_i^{(IRU)}$ is the Locational IRU Price component representing the Marginal Cost of Congestion for IRU at PNode i .
- $MEC_i^{(IRD)}$ is the Locational IRD Price component representing the Marginal IRD Cost at PNode i .
- $MCC_i^{(IRD)}$ is the Locational IRD Price component representing the Marginal Cost of Congestion for IRD at PNode i .

B.2. Marginal IRU and IRD Cost Component

The Marginal IRU and IRD Cost Component is the same for all PNodes in each Balancing Authority Area in the Market Area. It is the Shadow Price of the power balance constraint in the IRU or IRD deployment scenario for the respective Balancing Authority Area at the optimal solution in the IFM. The power balance constraint for each Balancing Authority Area in the Market Area ensures that the physical law of conservation of Energy and deployed capacity (the sum of physical resource energy schedules from the base scenario plus the deployed IRU or IRD awards equals the IRU or IRD requirement minus the IRU or IRD demand relaxation plus the Net IRU or IRD Transfer) is accounted for in the solution of the IRU or IRD deployment scenario. The Marginal IRU or IRD Cost for the Transfer System Resources (TSRs) on each side of an EDAM Transfer is the Marginal IRU or IRD Cost of the respective Balancing Authority Area. The Marginal IRU or IRD Cost may be different between two Balancing Authority Areas in the Market Area when EDAM Transfers between these Balancing Authority Areas are scheduled at their respective scheduling limits. The Marginal IRU or IRD Cost difference between the Balancing Authority Areas on either side of a specific EDAM Transfer generates EDAM Transfer revenue.

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B.3. Marginal Congestion Component for IRU and IRD

The CAISO calculates the Marginal Cost of Congestion for IRU and IRD at each PNode as the net contribution of the Shadow Prices of the binding Transmission Constraints in the IRU or IRD deployment scenarios at the optimal solution for IFM, weighed by the respective Power Transfer Distribution Factors, as follows:

$$MCC_i^{(IRU)} = - \sum_{k=0}^K \sum_{m=1}^M \sum_{j=1}^{J_m} c_{j,m} PTDF_{i,j,m,k}^{(IRU)} \mu_{m,k}^{(IRU)}$$

$$MCC_i^{(IRD)} = - \sum_{k=0}^K \sum_{m=1}^M \sum_{j=1}^{J_m} c_{j,m} PTDF_{i,j,m,k}^{(IRD)} \mu_{m,k}^{(IRD)}$$

Where:

- i is the Pnode index.
- m is the Transmission Constraint index in the Market Area; transmission constraints outside the Market Area are not enforced.
- k is the constraint case index; zero (0) indicates the base case where all transmission and generation facilities are in service, whereas a positive case indicates a preventive transmission or generation contingency case, as applicable.
- j is the transmission component index of Transmission Constraint m . When Transmission Constraint m is a Nomogram, there can be more than one transmission components in it; otherwise, there is only one transmission component.
- K is the number of constraint cases, besides the base case.
- M is the number of Transmission Constraints.
- J_m is the number of transmission components of Transmission Constraint m .
- $PTDF_{i,j,m,k}^{(IRU)}$ and $PTDF_{i,j,m,k}^{(IRD)}$ is the Power Transfer Distribution Factor (PTDF) for PNode i on transmission component j of Transmission Constraint m in constraint case k in the IRU or IRD deployment scenario; it is the power flow contribution on that transmission component j when an increment of power is injected at PNode i and an equivalent amount of power is withdrawn at the Reference Bus. For Market Area Intertie resources

at a Scheduling Point, and TSRs at a Transfer Location, the PTDF to an intertie constraint or intertie scheduling limit at that Scheduling Point is +1 for an import and -1 for an export. The CAISO does not consider the effect of Transmission Losses in the calculation of PTDFs; they depend only on the network configuration. Furthermore, the difference between the PTDFs at two PNodes with respect to any binding Transmission Constraint, and thus the difference between the Marginal Cost of Congestion for IRU or IRD at these PNodes, is independent from the selection of the Reference Bus. The PTDFs in the IRU or IRD deployment scenarios are different from the ones in the base scenario of the IFM because although the network configuration is the same, the Reference Bus is different; furthermore, the binding constraints in the base and the IRU or IRD deployment scenarios may be different.

- $c_{j,m}$ is the constraint coefficient for transmission component j of Transmission Constraint m when Transmission Constraint m is a Nomogram; otherwise, this constraint coefficient is always one.
- $\mu_{m,k}^{(IRU)}$ and $\mu_{m,k}^{(IRD)}$ is the Shadow Price of Transmission Constraint m in constraint case k at the IRU or IRD deployment scenario in the optimal solution of the IFM.

C. Locational Marginal Price for Reliability Capacity

The CAISO shall calculate the Locational RCU Price and Locational RCD Price at Generation PNodes, Scheduling Points, and Aggregated Pricing Nodes, as provided in the CAISO Tariff. The Locational RCU Price and Locational RCD Price at PNodes, Scheduling Points, and Aggregated Pricing Nodes include separate components for the Marginal RCU or RCD Cost, Marginal RCU or RCD Cost of Congestion, and Marginal RCU or RCD Cost of Losses, respectively. As provided in Section 6.5.3.2.2, Locational RCU Prices and Locational RCD Prices are calculated and posted for each hour of the Day-Ahead Market. There is a single Locational Marginal Price for Reliability Capacity that applies to both Reliability Capacity Up and Reliability Capacity Down at any given Location in the Market Area.

C.1. Locational RCU and RCD Price Composition

In each hour of the Day-Ahead Market, the CAISO calculates the Locational RCU Price and Locational

RCD Price for each PNode, which is based on the RCU and RCD Bids of sellers selected in the Day-Ahead Market as calculated below. The CAISO uses a Reference Bus for the calculation of the Locational RCU Price and Locational RCD Price. The Reference Bus is the distributed demand forecast in the Market Area, used in the AC power flow solution in RUC to distribute the deviations for Transmission Losses between iterations, and in sensitivity calculations that yield rates for Marginal Losses and the Power Transfer Distribution Factors. If the CAISO Market solution reverts to a DC power flow solution, the Reference Bus is not used because Transmission Losses are not included. Nevertheless, the CAISO reflects the Transmission Losses for the Market Area in the DC power flow solution by adjusting the load by the average loss factor. For each PNode, the CAISO determines separate components of the Locational RCU Price and Locational RCD Price for the Marginal RCU and RCD Cost, Marginal Cost of Congestion for RCU and RCD, and Marginal Cost of Losses for RCU and RCD, as follows:

$$LMP_i^{(RUC)} = MEC_i^{(RUC)} + MCC_i^{(RUC)} + MCL_i^{(RUC)}$$

where:

- i is the PNode index.
- $MEC_i^{(RUC)}$ is the Locational RCU Price and Locational RCD Price component representing the Marginal Reliability Capacity Cost at PNode i .
- $MCC_i^{(RUC)}$ is the Locational RCU Price and Locational RCD Price component representing the Marginal Cost of Congestion for RCU and RCD at PNode i .
- $MCL_i^{(RUC)}$ is the Locational RCU Price and Locational RCD Price component representing the Marginal Cost of Losses for RCU and RCD at PNode i .

C.2. Marginal Reliability Capacity Cost Component

The Marginal Reliability Capacity Cost Component is the same for all PNodes in each Balancing Authority Area in the Market Area. It is the Shadow Price of the power balance constraint for the respective Balancing Authority Area at the optimal solution in the RUC. The power balance constraint for each Balancing Authority Area in the Market Area ensures that the physical law of conservation of Energy (the

sum of physical resource energy schedules from the IFM plus the deployed Reliability Capacity awards equals the demand forecast plus the Net Reliability Capacity Transfer) is accounted for in the RUC solution. The Marginal Reliability Capacity Cost for the Transfer System Resources (TSRs) on each side of an EDAM Transfer is the Marginal Reliability Capacity Cost of the respective Balancing Authority Area. The Marginal Reliability Capacity Cost may be different between two Balancing Authority Areas in the Market Area when EDAM Transfers between these Balancing Authority Areas are scheduled at their respective scheduling limits. The Marginal Reliability Capacity Cost difference between the Balancing Authority Areas on either side of a specific EDAM Transfer generates EDAM Transfer revenue.

C.3. Marginal Congestion Component for RCU and RCD

The CAISO calculates the Marginal Cost of Congestion for RCU and RCD at each PNode as the net contribution of the Shadow Prices of the binding Transmission Constraints at the optimal solution for RUC, weighed by the respective Power Transfer Distribution Factors, as follows:

$$MCC_i^{(RUC)} = - \sum_{k=0}^K \sum_{m=1}^M \sum_{j=1}^{J_m} c_{j,m} PTDF_{i,j,m,k} \mu_{m,k}^{(RUC)}$$

where:

- i is the PNode index.
- m is the Transmission Constraint index in the Market Area; transmission constraints outside the Market Area are not enforced.
- k is the constraint case index; zero (0) indicates the base case where all transmission and generation facilities are in service, whereas a positive case indicates a preventive transmission or generation contingency case, as applicable.
- j is the transmission component index of Transmission Constraint m . When Transmission Constraint m is a Nomogram, there can be more than one transmission components in it; otherwise, there is only one transmission component.
- K is the number of constraint cases, besides the base case.
- M is the number of Transmission Constraints.
- J_m is the number of transmission components of Transmission Constraint m .

- $PTDF_{i,j,m,k}$ is the Power Transfer Distribution Factor (PTDF) for PNode i on transmission component j of Transmission Constraint m in constraint case k ; it is the power flow contribution on that transmission component j when an increment of power is injected at PNode i and an equivalent amount of power is withdrawn at the Reference Bus. For Market Area Intertie resources at a Scheduling Point, and TSRs at a Transfer Location, the PTDF to an intertie constraint or intertie scheduling limit at that Scheduling Point is +1 for an import and -1 for an export. The CAISO does not consider the effect of Transmission Losses in the calculation of PTDFs; they depend only on the network configuration. Furthermore, the difference between the PTDFs at two PNodes with respect to any binding Transmission Constraint, and thus the difference between the Marginal Cost of Congestion for RCU and RCD at these PNodes, is independent from the selection of the Reference Bus. The PTDFs in the RUC are the same as the ones in the IFM base scenario because the network configuration is the same; however, the binding constraints in the RUC may be different from the ones in the IFM.
- $c_{j,m}$ is the constraint coefficient for transmission component j of Transmission Constraint m when Transmission Constraint m is a Nomogram; otherwise, this constraint coefficient is always one.
- $\mu_{m,k}^{(RUC)}$ is the Shadow Price of Transmission Constraint m in constraint case k at the optimal solution of the RUC.

D. Marginal Loss Component for RCU and RCD

The CAISO calculates the Marginal Cost of Losses for RCU and RCD at each PNode as the product of the Marginal Reliability Capacity Cost Component and the rate for Marginal Losses at that PNode, as follows:

$$MCL_i^{(RUC)} = -MEC_i^{(RUC)} \frac{\partial L}{\partial P_i}$$

Where the rate for Marginal Losses at PNode i ($\partial L / \partial P_i$) is the sensitivity (partial derivative) of system losses (L) to an increment of power injected at that PNode (P_i) and absorbed by the Reference Bus for the RUC. This calculation reflects the area interchange control feature of the AC power flow where the

net scheduled interchange (NSI) of a Balancing Authority Area in the FNM is kept constant while the iterative solution distributes loss deviation from the previous iteration to the Reference Bus for the RUC. Consequently, the Marginal Cost of Losses for RCU and RCD of the TSRs that model a Market Transfer at a Transfer Location between two Balancing Authority Areas in the Market Area may be different because these TSRs belong to different Balancing Authority Areas. The CAISO sets the Marginal Cost of Losses for RCU and RCD for both of these TSRs to the average rate for Marginal Losses between the two so that there is no difference between the Marginal Cost of Losses for RCU and RCD between the TSRs on either side of a specific Market Transfer. The Marginal Losses on transmission facilities outside the Market Area are ignored in the calculation of the Marginal Cost of Losses for RCU and RCD.

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Appendix F Rate Schedules

Schedule 1

Grid Management Charge

Part A - Monthly Calculation of Grid Management Charge (GMC)

The GMC consists of the following separate service charges: (1) the Market Services Charge; (2) the System Operations Charge; and (3) the CRR Services Charge. The GMC revenue requirement, determined in accordance with Part C of this Schedule 1, shall be allocated to the service charges specified in Part A of this Schedule 1 as follows: forty-nine (49) percent to Market Services; forty-nine (49) percent to System Operations; and two (2) percent to CRR Services. Starting in 2017 and every three (3) years thereafter, the CAISO will conduct an updated cost of service study, in consultation with stakeholders and using costs from the previous year. In conducting each cost of service study, the CAISO will recalculate the three service charge percentages and the rates for the fees and charges that constitute the Grid Management Charge as set forth in Section 11.22. In addition, the cost of service study results will be used to update the RC Funding Percentage used to calculate the annual RC Funding Requirement, as well as the real time percentages of the Market Services and System Operations service charges used to calculate the EIM Administrative Charges. The cost of service study results will also be

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used to update the real-time market percentage used to calculate the EDAM System Operations charge. If, based on the cost of service study results, the service category revenue requirement allocation percentages or the level of fees and charges have changed, the CAISO will submit tariff amendments to reflect such changes pursuant to Section 205 of the FPA.

1. The rate for the Market Services Charge will be calculated by dividing the annual GMC revenue requirement allocated to this service category by the forecast annual gross absolute value of MW per hour of Ancillary Services capacity awarded in the Day-Ahead and Real-Time Markets, MWh of Energy cleared in the Day-Ahead market, MWh of Imbalance Reserves cleared in the Day-Ahead market, MWh of Reliability capacity cleared in the Day-Ahead market, Virtual Demand Award, Virtual Supply Award, and FMM Instructed Imbalance Energy and RTD Instructed Imbalance Energy, less the forecast annual gross absolute value of such Energy as may be excluded for a load following MSS pursuant to an MSS agreement, Standard Ramping Energy, Regulation Energy, Ramping Energy Deviation, Residual Imbalance Energy, Exceptional Dispatch Energy and Operational Adjustments for the Day-Ahead and Real-Time.
2. The rate for the System Operations Charge will be calculated by dividing the annual GMC revenue requirement allocated to this service category by forecast annual gross absolute value of MWh of real-time energy flows on the ISO Controlled Grid, net of amounts excluded pursuant to Part E of this Schedule.
3. The rate for the CRR Services Charge will be calculated by dividing the annual GMC revenue requirement allocated to this service category by the forecast annual sum of awarded MW of CRRs per hour.

The rates for the foregoing charges shall be adjusted automatically each year, effective January 1 for the following twelve (12) months, in the manner set forth in Part D of this Schedule.

Part B - Quarterly Adjustment, If Required

Each component rate of the GMC will be adjusted automatically on a quarterly basis, up or down, so that

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