

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

Table of Contents

<u>29.</u>	<u>Energy Imbalance Market</u>	<u>2</u>
<u>29.1</u>	<u>General Provisions.....</u>	<u>2</u>
<u>29.2</u>	<u>EIM Entity Access to the Real-Time Market</u>	<u>4</u>
<u>29.3</u>	<u>[Not Used]</u>	<u>13</u>
<u>29.4</u>	<u>Roles and Responsibilities</u>	<u>13</u>
<u>29.5</u>	<u>[Not Used]</u>	<u>20</u>
<u>29.6</u>	<u>Communications.....</u>	<u>20</u>
<u>29.7</u>	<u>EIM Operations Under Normal and Emergency Conditions.</u>	<u>21</u>
<u>29.8</u>	<u>[Not Used]</u>	<u>26</u>
<u>29.9</u>	<u>Outages and Critical Contingencies.....</u>	<u>26</u>
<u>29.10</u>	<u>Metering and Settlement Data.</u>	<u>29</u>
<u>29.11</u>	<u>Settlements and Billing for EIM Market Participants.....</u>	<u>30</u>
<u>29.12</u>	<u>Creditworthiness.....</u>	<u>42</u>
<u>29.13</u>	<u>Dispute Resolution</u>	<u>42</u>
<u>29.14</u>	<u>Uncontrollable Forces, Indemnity, Liabilities, and Penalties.....</u>	<u>42</u>
<u>29.15</u>	<u>[Not Used]</u>	<u>43</u>
<u>29.16</u>	<u>[Not Used]</u>	<u>43</u>
<u>29.17</u>	<u>EIM Transmission System</u>	<u>43</u>
<u>29.18</u>	<u>[Not Used]</u>	<u>46</u>
<u>29.19</u>	<u>[Not Used]</u>	<u>46</u>
<u>29.20</u>	<u>Confidentiality.....</u>	<u>46</u>
<u>29.21</u>	<u>[Not Used]</u>	<u>46</u>
<u>29.22</u>	<u>Miscellaneous Provisions in Addition to Section 22.....</u>	<u>46</u>
<u>29.23</u>	<u>[Not Used]</u>	<u>47</u>
<u>29.24</u>	<u>[Not Used]</u>	<u>47</u>
<u>29.25</u>	<u>[Not Used]</u>	<u>47</u>
<u>29.26</u>	<u>Transmission Rates and Charges.....</u>	<u>47</u>
<u>29.27</u>	<u>CAISO Markets and Processes.</u>	<u>47</u>
<u>29.28</u>	<u>Inter-SC Trades.....</u>	<u>49</u>
<u>29.29</u>	<u>[Not Used]</u>	<u>49</u>
<u>29.30</u>	<u>Bid and Self-Schedule Submission for CAISO Markets.</u>	<u>49</u>
<u>29.31</u>	<u>Day-Ahead.</u>	<u>50</u>
<u>29.32</u>	<u>Greenhouse Gas Regulation and EIM Bid Adders.</u>	<u>51</u>
<u>29.33</u>	<u>[Not Used]</u>	<u>54</u>
<u>29.34</u>	<u>EIM Operations</u>	<u>54</u>
<u>29.35</u>	<u>Market Validation and Price Correction</u>	<u>69</u>
<u>29.36</u>	<u>[Not Used]</u>	<u>69</u>
<u>29.37</u>	<u>Rules of Conduct.....</u>	<u>69</u>
<u>29.38</u>	<u>Market Monitoring</u>	<u>69</u>
<u>29.39</u>	<u>EIM Market Power Mitigation.</u>	<u>69</u>
<u>29.40</u>	<u>[Not Used]</u>	<u>70</u>
<u>29.41</u>	<u>[Not Used]</u>	<u>70</u>
<u>29.42</u>	<u>[Not Used]</u>	<u>70</u>
<u>29.43</u>	<u>[Not Used]</u>	<u>71</u>
<u>29.44</u>	<u>Flexible Ramping Product</u>	<u>71</u>

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.
- (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, the provision in Section 29 shall prevail to the extent of the inconsistency.
- (d) **Suspension of EIM Entity Participation.**
 - (1) **Temporary Suspension.** The CAISO may, within 60 days following an EIM Entity Implementation Date for an EIM Entity, and pursuant to the terms of a Market Notice, temporarily suspend the participation of that EIM Entity in the Real-Time Market for a period not to exceed 60 days if market or system operational issues adversely impact any portion of the EIM Area, provided that the ISO may continue operation of the Real-Time Market without the participation of the EIM Entity for a reasonable additional period of time in order to implement a resolution of the market or system operational issues.

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (2) **CAISO Termination.** If the CAISO is not able to identify a resolution of the EIM-related market or system operational issues within 60 days after issuance of the Market Notice of temporary suspension of EIM participation by an EIM Entity, the CAISO may, upon issuance of a subsequent Market Notice, terminate participation by the EIM Entity in the Real-Time Market and may extend the suspension of EIM participation by the EIM Entity for a time sufficient to process the termination of the EIM Entity Agreement.
- (3) **Reinstatement.**
- (A) **After Temporary Suspension.** The CAISO may reinstate EIM operations after a temporary suspension of EIM participation by an EIM Entity by issuing a Market Notice announcing the intended reinstatement no less than 5 days in advance of the reinstatement date.
- (B) **After CAISO Termination.** The CAISO may only reinstate EIM operations with respect to an EIM Entity after termination of EIM participation by an EIM Entity pursuant to a filing accepted by FERC.
- (4) **EIM Entity Action.** In the event the CAISO issues a Market Notice of the temporary suspension of EIM participation by an EIM Entity, the EIM Entity shall continue 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 EIM Entity has been reinstated, in which case EIM participation by the EIM Entity shall return to normal; or
- (ii) EIM participation by the EIM Entity has been terminated.
- (5) **CAISO Action.** In the event the CAISO issues a Market Notice of the temporary suspension of EIM participation by an EIM Entity, the CAISO shall –
- (i) prevent EIM Transfers and separate the EIM Entity Balancing Authority Area from operation of the Real-Time Market in the EIM Area in

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

accordance with the provisions of the Business Practice Manual for the Energy Imbalance Market;

- (ii) suspend Settlement of Real-Time Market charges with respect to the EIM Entity in accordance with the provisions of the Business Practice Manual for the Energy Imbalance Market; and
- (iii) issue a subsequent Market Notice either that (i) the cause of the temporary suspension has been resolved and the EIM Entity has been reinstated, in which case EIM participation by the EIM Entity shall return to normal, or (ii) EIM participation by the EIM Entity has been terminated.

29.2 EIM 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 provides EIM Transmission Service Information pursuant to Section 29.17.

(b) **Implementation of Access as an EIM Entity.**

- (1) **EIM Implementation Agreement.** A Balancing Authority that wishes to become an EIM Entity must first execute an EIM Implementation Agreement with the CAISO that establishes –
 - (A) the activities the parties must undertake to enable the Balancing Authority to participate in the Real-Time Market;
 - (B) the EIM Entity Implementation Date;
 - (C) the implementation fee the Balancing Authority must pay to the CAISO for the start-up costs the CAISO incurs to accommodate the participation

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

of the Balancing Authority in the Real-Time Market as provided in the agreement; and

(D) the obligation of the Balancing Authority to enter into an EIM Entity Agreement governing its participation in the Real-Time Market.

(2) **FERC Approval.** The EIM Entity Implementation Date must be not less than six months and not more than twenty-four months after the date that the EIM Implementation Agreement between the CAISO and the Balancing Authority is accepted by FERC.

(3) **Implementation Period.** The CAISO shall in its discretion determine the EIM 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.

(4) **Market Simulation and Parallel Operations.** The CAISO and the prospective EIM Entity shall engage in –

(A) a market simulation that accounts for the prospective EIM Entity's implementation circumstances sufficient to meet the readiness criteria set forth in Section 29.2(b)(7); and

(B) at least 30 days of parallel operations representing the Energy Imbalance Market to support the CAISO and the prospective EIM Entity's readiness certification required by section 29.2(b)(6), an adequate period of which must occur prior to the readiness determination required by section 29.2(b)(5).

(5) **Readiness Determination.** No later than 30 days prior to the prospective EIM Entity Implementation Date as established by the EIM Implementation Agreement, the CAISO will determine, in consultation with the prospective EIM Entity, whether the systems and processes of the prospective EIM Entity will be ready for the prospective EIM Entity's participation in the Energy Imbalance

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

Market according to the criteria set forth in Section 29.2(b)(7) as measured by the thresholds specified in the Business Practice Manual for the Energy Imbalance Market, or consistent with any exceptions to thresholds, for certifying the prospective EIM Entity's readiness.

(6) **Readiness Certification.**

(A) **Certification.** The CAISO and the prospective EIM Entity shall each file a market readiness certificate with the Federal Energy Regulatory Commission at least 30 days prior to the EIM Entity Implementation Date in which a senior officer of each entity attests –

- (i) that the processes and systems of the prospective EIM entity have satisfied or will have satisfied the readiness criteria set forth in Section 29.2(b)(7) as of the EIM Entity Implementation Date;
- (ii) to any known issues requiring resolution prior to the EIM Entity Implementation Date in accordance with section 29.2(b)(8);
- (iii) to any exceptions from the established thresholds specified in the Business Practice Manuals, and that despite such exceptions the criteria were met or will be met as specified in 29.2(b)(7); and
- (iv) that the EIM Entity Implementation Date is conditional on the resolution of the known issues identified in the certificates and any unforeseen issues that undermine the satisfaction of the readiness criteria set forth in Section 29.2(b)(7).

(B) **Delay or Re-Certification.** If, subsequent to readiness certification pursuant to Section 29.2(b)(6)(A), the CAISO or the prospective EIM Entity determines that it cannot proceed with implementation on the EIM Entity Implementation Date, the CAISO or the prospective EIM Entity will notify the Federal Energy Regulatory Commission of the delay, the reason for the delay, the new EIM Entity Implementation Date if it can be determined, and whether it will need to re-issue a portion or all of the

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

readiness certification.

(7) **Readiness Criteria.**

- (A) **Prospective EIM Entity Full Network Model Integration.** The Full Network Model 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.
- (B) **Operations Training.** Prior to the start of parallel operations as set forth in Section 29.2(b)(4), all operations staff identified by the prospective EIM Entity who will have responsibility for EIM operations, transactions and settlements, have completed –

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (i) the introduction to Energy Imbalance Market training module;
 - (ii) the specific hourly and daily tasks and duties for normal operation training module; and
 - (iii) the assessment of market results and response to contingencies and abnormal situations training module.
- (C) **Forecasting Capability.** The CAISO and, to the extent the prospective EIM entity will use its own forecasts or is otherwise required to provide forecasting information to the CAISO, the prospective EIM Entity have demonstrated their respective forecasting capability through –
- (i) the definition of EIM Demand forecast boundaries based on the conforming and non-conforming Load characteristics, as applicable;
 - (ii) the accuracy of the CAISO forecast of EIM Demand based on historical actual Load data for the defined EIM Demand forecast boundaries;
 - (iii) the identification of weather stations locations used in forecasting, as applicable;
 - (iv) the identification of the source of Variable Energy Resource forecasts pursuant to Section 29.11(j); and
 - (v) the identification of the source of Hybrid Resource forecasts pursuant to Section 29.11(j).
- (D) **Balanced Schedules.** The prospective EIM Entity's Scheduling Coordinator has demonstrated it has the –
- (i) ability to balance EIM Demand and EIM Supply for the prospective EIM Entity's Balancing Authority Area;
 - (ii) ability to pass the capacity test, as set forth in Section 29.34(l); and
 - (iii) ability to pass the flexible ramping sufficiency test, as set forth in

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

Section 29.34(m).

- (E) **System Readiness and Integration.**
- (i) **Readiness.** The prospective EIM 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) **System Integration.** The prospective EIM Entity and the CAISO have tested system integration testing in accordance with the system integration testing documentation posted on the CAISO Website.
 - (iii) **Certificates.** The prospective EIM Entity has issued all necessary certificates to its employees that require system access to perform EIM-related job functions.
- (F) **Settlements.** The CAISO and the prospective EIM Entity have demonstrated that –
- (i) the CAISO Settlement Statements and Invoices match the operational data published to stakeholders or fed into the settlement system and the resulting calculations correspond to the formulas defined in the CAISO Tariff and applicable Business Practice Manuals during market simulation and parallel operations; and
 - (ii) the Settlement Statements and Invoices of the prospective EIM Entity allocating charges and credits to its customers accurately reflect system and market data during parallel operations.
- (G) **Outage Management System.** The prospective EIM Entity has verified its ability to submit and retrieve accurate and correct outage information to and from the CAISO within the required timelines.

- (H) **Communications between the CAISO and the prospective EIM Entity.**
- (i) **Messaging.** The process and procedures used for voice and electronic messaging between the prospective EIM Entity and the CAISO are identified and incorporated into the prospective EIM Entity's operating procedures before the start of market simulation specified in Section 29.2(b)(4)(A).
 - (ii) **Training.** The operations staff identified by the prospective EIM Entity who will have responsibility for EIM operations, transactions and settlements are trained on the relevant Operating Procedures and tools used for EIM related communications before the start of parallel operations specified in Section 29.2(b)(4)(B).
 - (iii) **Third Party Transmission Service Providers.** Third party transmission service provider and path operator information that the CAISO agrees is used to support EIM Transfers and Real-Time Dispatch is made available by the CAISO to the prospective EIM Entity during parallel operations.
- (I) **Market Simulation.**
- (i) **Prospective EIM Entity Identification.** The CAISO has established and the prospective EIM Entity has tested all necessary SCIDs and Resource IDs established for the prospective EIM Entity's Balancing Authority Area.
 - (ii) **Day in the life simulation.** The prospective EIM Entity operations staff identified by the prospective EIM Entity who will have responsibility for EIM grid operations, have completed end-

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

to-end daily market workflow with no critical defects.

- (iii) **Structured scenarios simulation.** The prospective EIM Entity operations staff identified by the prospective EIM Entity who will have responsibility for EIM operations, transactions and settlements, have executed and passed all structured scenarios provided by CAISO with all significant issues resolved.
 - (iv) **Unstructured scenarios simulation.** The prospective EIM Entity operations staff identified by the prospective EIM Entity who will have responsibility for EIM operations, transactions and settlements, have executed and passed all unstructured scenarios provided by the prospective EIM Entity, with significant issues resolved.
 - (v) **Market results reports.** Market results are appropriate based on inputs, and the prospective EIM Entity and CAISO executive project sponsors approve the results.
 - (vi) **Market quality review.** The CAISO prices are validated based on input data for parallel operations specified in Section 29.2(b)(4)(B).
- (J) **Parallel Operations Plan.** The period of parallel operations specified in Section 29.2(b)(4)(B) runs consistently and in accordance with the prospective EIM Entity specific parallel operations plan.
- (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.

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (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 Participating 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.
- (8) **Readiness Reporting.** The CAISO shall report on the CAISO Website periodically, but not less than monthly during market simulation pursuant to Section 29.2(b)(4)(A) and not less than twice a month during parallel operations pursuant to Section 29.2(b)(4)(B), on progress towards achieving the readiness criteria in Section 29.2(b)(7), including providing information explaining any exceptions to or deviations from the readiness thresholds granted according to the standards and procedures for granting exceptions or deviations set forth in

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

the Business Practice Manual for the Energy Imbalance Market, and the reasons therefore, and publish such reports on its website in advance of and in support of the certificate to be filed pursuant to Section 29.2(b)(6).

29.3 [Not Used]

29.4 Roles and Responsibilities

(a) **CAISO Balancing Authority Obligations.**

- (1) **Reliability Responsibilities.** Nothing in Section 29 shall alter the CAISO's responsibilities under the other sections of the CAISO Tariff, under any agreement not required by Section 29, or under NERC Reliability Standards 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.
- (2) **Operating Responsibilities.** During any interruption of the normal operation of the Real-Time Market, the CAISO as Balancing Authority shall 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) **EIM Entity.**

- (1) **Balancing Authority Obligations.**
 - (A) **EIM Entity as Balancing Authority.** An EIM Entity must be a Balancing Authority registered and certified as such under the applicable authorities.
 - (B) **Reliability Responsibilities.** Nothing in Section 29 shall alter an EIM Entity's responsibilities under NERC Reliability Standards as the Balancing Authority for the EIM Entity Balancing Authority Area and, to the extent applicable, as the transmission operator for transmission facilities within its Balancing Authority Area.
 - (C) **Operating Responsibilities.** During any interruption of the normal

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

operation of the Real-Time Market, the EIM Entity as Balancing Authority shall remain responsible in accordance with Section 29.7 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.

- (D) **Inadvertent Energy.** An EIM Entity remains responsible for tracking inadvertent Energy and administering the payback of inadvertent Energy for its Balancing Authority Area through processes established by WECC.
- (2) **EIM Entity Agreement.** An EIM Entity must execute an EIM Entity Agreement no later than ninety (90) days before the EIM Entity Implementation Date.
- (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 by their terms 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

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

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).

(4) **EIM Entity Termination of EIM Participation.**

- (A) **EIM Entity Agreement.** An EIM Entity that wishes to terminate participation in the Real-Time Market must terminate the EIM Entity Agreement pursuant to its terms.
- (B) **Notice.** Delivery to the CAISO of a written notice of termination pursuant to the terms of the EIM Entity Agreement shall represent the commitment by the EIM Entity to undertake all necessary preparations to disable the Real-Time Market within the EIM Entity Balancing Authority Area.
- (C) **Actions Following Notice.** Upon receipt of such notice, the CAISO shall undertake all necessary preparations to disable the Real-Time Market within the EIM Entity Balancing Authority Area, as outlined in the Business Practice Manual for the Energy Imbalance Market, including issuance of a Market Notice within five Business Days after receipt of such notice.

(5) **EIM Entity Corrective Actions.** If the EIM Entity takes corrective action, subject to the provisions of an open access transmission tariff, to address an issue with EIM implementation or EIM operation, or the EIM Entity issues a notice of termination –

- (A) the EIM Entity shall take those actions provided in Section 29.1(d)(4)

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

during the implementation of its corrective action; and

- (B) the CAISO shall issue a Market Notice in accordance with Section 29.1(d)(1) and take those actions provided in Section 29.1(d)(5) during the implementation of the EIM Entity corrective action.

(c) **EIM Entity Scheduling Coordinator.**

- (1) **Certification.** An EIM Entity Scheduling Coordinator must meet or have met the certification requirements in Section 4.5.1 for a Scheduling Coordinator.
- (2) **EIM Entity Scheduling Coordinator Agreement.** An EIM Entity Scheduling Coordinator must enter an EIM Entity Scheduling Coordinator Agreement with the CAISO, which shall satisfy the obligation to enter a Scheduling Coordinator Agreement under Section 4.5.1 with regard to its representation of the EIM Entity.
- (3) **Representation.** An EIM Entity Scheduling Coordinator-
- (A) may represent a Market Participant other than an EIM Entity, but only if it enters a Scheduling Coordinator Agreement under Section 4.5.1 with regard to such Market Participant;
- (B) may not also be an EIM Participating Resource Scheduling Coordinator or a Scheduling Coordinator for a Participating Generator, Participating Load, or Demand Resource Provider, unless the EIM Entity Scheduling Coordinator is a transmission provider subject to the standards of conduct set forth in 18 C.F.R. § 358; and
- (C) may represent more than one EIM Entity if it has certified to the CAISO in the manner described in the Business Practice Manual for the Energy Imbalance Market that it has informed each EIM Entity of the multiple representation.
- (4) **Obligations.** An EIM Entity Scheduling Coordinator shall-
- (A) perform the obligations of an EIM Entity Scheduling Coordinator under

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- the EIM Entity Scheduling Coordinator Agreement and Section 29;
- (B) perform the obligations of a Scheduling Coordinator under provisions of the CAISO Tariff described in Section 29.1(b);
 - (C) register in the manner set forth in the Business Practice Manual for the Energy Imbalance Market all non-participating resources in the Balancing Authority Area of each EIM Entity that it represents and update such information in a timely manner;
 - (D) verify in the manner set forth in the Business Practice Manual for the Energy Imbalance Market that all EIM Resources within the Balancing Authority Area of each EIM Entity represented by the EIM Entity Scheduling Coordinator have been registered with the CAISO;
 - (E) submit the Interchange schedules with other Balancing Authorities at the defined Interchange scheduling locations, including creating and processing E-Tags in accordance with NERC, North American Energy Standards Board, and WECC standards and business practices for bilateral schedules between Balancing Authority Areas that are arranged no less than 20 minutes in advance of the Dispatch Interval of the Real-Time Market in which the Interchange will occur and that are included in an EIM Resource Plan;
 - (F) match E-Tags and manage schedule curtailments at the defined Interchange scheduling locations with other Balancing Authorities;
 - (G) provide EIM Transmission Service Information in accordance with Section 29.17;
 - (H) settle all financial obligations arising out of the Real-Time Market for the EIM Entity, including financial settlement with non-participating resources and non-participating load within the EIM Entity Balancing Authority Area;
 - (I) submit EIM Base Schedules, EIM Resource Plans and other required

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

information on behalf of the EIM Entity;

(J) register with the CAISO, consistent with the provisions in the Business Practice Manual for the Energy Imbalance Market, all non-participating resources that the EIM Entity Scheduling Coordinator may designate as EIM Available Balancing Capacity in its EIM Resource Plan; and

(K) create with the CAISO a Default Energy Bid consistent with the rules specified in Section 39.7.1 for all non-participating resources that the EIM Entity Scheduling Coordinator may designate as EIM Available Balancing Capacity in the EIM Resource Plan.

(5) **Governmental Entities.** Notwithstanding Section 29.4(c)(3)(B), a governmental entity that is an EIM Entity Scheduling Coordinator may also be an EIM Participating Resource Scheduling Coordinator or a Scheduling Coordinator for resources participating in the CAISO Markets if it agrees to comply with standards of conduct equivalent to those set forth in 18 C.F.R. § 358.

(d) **EIM Participating Resources.**

(1) **Eligibility.** The owner or operator of an EIM Resource is eligible to become an EIM Participating Resource if the EIM Resource –

(A) meets the eligibility requirements established by the EIM Entity in whose Balancing Authority Area the resource is located or scheduled or to which it may be dynamically transferred; and

(B) is capable of delivering Energy, Curtailable Demand, Demand Response Services, or similar services within the time specified by Section 29 for the Real-Time Market in which its EIM Participating Resource Scheduling Coordinator will submit Bids.

(2) **EIM Participating Resource Agreement.** An EIM Participating Resource must execute an EIM Participating Resource Agreement.

(3) **Obligations.** An EIM Participating Resource shall –

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (A) perform the obligations of an EIM Participating Resource under the EIM Participating Resource Agreement and Section 29;
 - (B) perform the obligations applicable to Market Participants and resources under the provisions of the CAISO Tariff described in Section 29.1(b);
and
 - (C) if it represents a Generating Unit, Load of a Participating Load, Proxy Demand Resource, or other qualified resource, perform the obligations required for the resource under the provisions of the CAISO Tariff described in section 29.1(b).
- (e) **EIM Participating Resource Scheduling Coordinator.**
- (1) **Certification.** An EIM Participating Resource Scheduling Coordinator must be either an existing Scheduling Coordinator or must meet or have met the certification requirements in Section 4.5.1 for a Scheduling Coordinator.
 - (2) **EIM Participating Resource Scheduling Coordinator Agreement.** An EIM Participating Resource Scheduling Coordinator must enter an EIM Participating Resource Scheduling Coordinator Agreement with the CAISO, which shall satisfy the obligation to enter a Scheduling Coordinator Agreement under Section 4.5.1 with regard to its representation of the EIM Participating Resource.
 - (3) **Representation.** An EIM Participating Resource Scheduling Coordinator-
 - (A) may represent a Market Participant other than an EIM Participating Resource, but only if it enters a Scheduling Coordinator Agreement under Section 4.5.1 with regard to such Market Participant;
 - (B) may not also be an EIM Entity Scheduling Coordinator unless the EIM Participating Resource Scheduling Coordinator is a transmission provider subject to the standards of conduct set forth in 18 C.F.R. § 358;
and
 - (C) may represent more than one EIM Participating Resource.
 - (4) **Obligations.** An EIM Participating Resource Scheduling Coordinator must –

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (A) perform the obligations of an EIM Participating Resource Scheduling Coordinator under the EIM Participating Resource Scheduling Coordinator Agreement and Section 29;
 - (B) perform the obligations of a Scheduling Coordinator under the provisions of the CAISO Tariff described in Section 29.1(b);
 - (C) ensure that the entity it represents has obtained any transmission service necessary to participate in the Energy Imbalance Market under the terms of the CAISO Tariff or the tariff of another transmission service provider, as applicable;
 - (D) register in the manner set forth in the Business Practice Manual for the Energy Imbalance Market all EIM Participating Resources that it represents, provide such information to the EIM Entity Scheduling Coordinator, and update such information in a timely manner.
- (5) **Governmental Entities.** Notwithstanding Section 29.4(e)(3)(B), a governmental entity that is an EIM Participating Resource Scheduling Coordinator may also be an EIM Entity Scheduling Coordinator if it agrees to comply with standards of conduct equivalent to those set forth in 18 C.F.R. § 358.

29.5 [Not Used]

29.6 Communications

- (a) **EIM Entity.** The EIM Entity shall meet the technical and communication requirements specified in the Business Practice Manual for the Energy Imbalance Market, which shall be based on the Inter-Control Center Communication Protocol and Reliability Standards.
- (b) **EIM Communications and OASIS.** Section 6 shall govern communications and information availability regarding the participation of EIM Market Participants in the Real-Time Market except that –
 - (1) references to internal resources shall be deemed to include EIM Resources;
 - (2) 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 CAISO Balancing Authority

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

Area shall be deemed references to the EIM Area; and

- (3) the provisions of Section 6.3.1 that authorize the CAISO to communicate directly with Generators and Demand Response Providers to ensure System Reliability shall not apply to Generators and Demand Response Providers in the EIM Entity's Balancing Authority Area or pseudo-tied from an external Balancing Authority Area to the EIM Entity Balancing Authority Area.

(c) **Loss of Communications.**

- (1) **Procedures.** The CAISO and each EIM Entity and EIM Entity Scheduling Coordinator shall establish procedures to address an interruption of Real-Time Market communications, which shall include steps to be taken to restore communications and address any impact on system or market operations as provided in Section 29.

- (2) **Responsibilities.** An EIM Entity that loses communication with the CAISO remains responsible for managing its Balancing Authority Area imbalance needs without balancing Energy from the Real-Time Market.

- (d) **Variable Energy Resource Forecast Communications.** If the EIM Participating 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 Energy Imbalance Market.

- (e) **Hybrid Resource Forecast Communications.** If the EIM Participating 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 Energy Imbalance Market.

29.7 EIM Operations Under Normal and Emergency Conditions.

- (a) **CAISO Controlled Grid Operations.** Section 7 shall not apply to EIM Market

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

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 with respect to Load or Demand that has not been bid into the Real-Time Market.
- (d) **Dispatch Instructions for EIM Participating 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 shall 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 –
 - (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

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (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.** The EIM Entity may issue an EIM Manual Dispatch to an EIM Participating 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.
- (h) **EIM Entity Actions in Response to an EIM Manual Dispatch.** If the EIM 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 shall immediately inform the CAISO of the EIM Manual Dispatch to any EIM Participating 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 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

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

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, 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;

(C) instruct one or more EIM Entities to maintain system balance within their Balancing Authority Area without RTM Dispatch; or

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (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 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.
- (3) **EIM Entity Responsibility.** In response to an interruption of EIM Entity participation in the Real-Time Market by the CAISO, all EIM Entities shall follow NERC Reliability Standards applicable to their roles as Balancing Authorities in an effort to alleviate operational and system conditions and restore routine operations.
- (4) **EIM Entity Scheduling Coordinator Responsibility.** All EIM Entity Scheduling Coordinators shall promptly inform the CAISO of actions taken by the EIM Entities they represent in response to an interruption of EIM Entity participation in the Real-Time Market by the CAISO through updates to their EIM Base Schedules, Interchange E-Tags, transmission limit adjustments, or Outage and derate information, as applicable.
- (5) **System Restoration.** The CAISO shall reinstate normal operation of the Real-Time Market in the EIM Area at such time as it determines that the conditions that caused the interruption of EIM Entity participation in the Real-Time Market have been resolved.

- (k) **Congestion Management and Unscheduled Flow.**
- (1) **Inability to Resolve Congestion.** The CAISO will provide information to EIM Entities about Congestion that the Real-Time Market cannot resolve.
 - (2) **Initiation of Unscheduled Flow Procedures.** The CAISO or an EIM Entity may initiate WECC's unscheduled flow mitigation procedure if applicable for conditions in its Balancing Authority Area.
 - (3) **EIM Entity Action.** When the WECC unscheduled flow mitigation procedure is initiated, each EIM Entity shall adjust its schedules as determined by the WECC procedure and immediately inform the CAISO of the changes.
 - (4) **CAISO Action.** When WECC's unscheduled flow mitigation procedure is initiated, the CAISO shall reflect the affected EIM Market Participant schedules in the Real-Time Market as determined by the WECC procedure, EIM Entity, CAISO Operating Procedures, and Business Practice Manuals for the CAISO Balancing Authority Area and EIM Entity Balancing Authority Areas.

29.8 [Not Used]

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.
- (b) **Transmission Scheduled Outages.**
 - (1) **Responsibility.** The EIM Entity shall be responsible for performing engineering studies with regard to, and modeling and approving, Outages on transmission facilities for maintenance purposes within the EIM Entity Balancing Authority Area, including making any necessary arrangements for this purpose regarding the transmission capacity made available by an EIM Transmission Service Provider to the Real-Time Market.
 - (2) **Notice.** The EIM Entity Scheduling Coordinator shall submit notice of transmission Outages approved by the EIM Entity to the CAISO by the means

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

set forth in the Business Practice Manual for the Energy Imbalance Market and at least seven Business Days prior the planned Outage.

- (3) **Notice of Modification.** The EIM Entity Scheduling Coordinator may submit a notice of modification of an approved transmission Outage and any resulting updates to EIM Intertie limits to the CAISO by the means set forth in the Business Practice Manual for the Energy Imbalance Market and in accordance with the deadlines set forth in Section 9 and Section 29.9.
- (4) **Contents of Notice.** The EIM Entity Scheduling Coordinator notices of approved transmission Outages shall include –
 - (A) the start and finish date for each Outage for maintenance purposes; and
 - (B) such information other than start and finish date as is required in Section 9.3.6 for transmission Operators seeking approval of Outages.

(c) **Generation Maintenance Outages.**

- (1) **Responsibility.** The EIM Entity shall be responsible for performing engineering studies with regard to, and modeling and approving, Outages of EIM Resources and non-participating resources for maintenance purposes within the EIM Entity Balancing Authority Area.
- (2) **Notice.** The EIM Entity Scheduling Coordinator shall submit notice of Outages of EIM Resources and non-participating resources approved by the EIM Entity to the CAISO by the means set forth in the Business Practice Manual for the Energy Imbalance Market and at least seven Business Days prior to the planned Outage.
- (3) **Contents of Notice.** The EIM Entity Scheduling Coordinator notices of approved Outages of EIM Resources and non-participating resources shall include-
 - (A) the start and finish date for each Outage for maintenance purposes; and
 - (B) such information other than start and finish date as is required in Section 9.3.6 for Operators seeking approval of Generating Unit Outages.

- (d) **Actions Regarding Scheduled Outages.**
- (1) **CAISO Evaluation of Scheduled Outages.** The CAISO will implement the transmission and Generation Outages approved by the EIM Entity through the Day-Ahead Market process and will inform the EIM Entity Scheduling Coordinator of any anticipated overloads.
 - (2) **EIM Entity Action.** Based on the information provided by the CAISO to the EIM Entity Scheduling Coordinator, the EIM Entity shall take such action to adjust or cancel Outages as it determines to be necessary
 - (3) **Notice to Reliability Coordinator.**
 - (A) **EIM Entity Responsibility.** The EIM Entity is responsible for informing the Reliability Coordinator of scheduled Outages.
 - (B) **CAISO Facilitation.** Upon request of an EIM Entity, and without assuming any liability, the CAISO will provide the Reliability Coordinator with Outage information submitted to the CAISO by the EIM Entity on behalf of the EIM Entity.
- (e) **Forced Outages.** An EIM Entity Scheduling Coordinator shall comply with the reporting provisions of Section 9 with regard to Forced Outages of transmission facilities within the Balancing Authority Area of the EIM Entity it represents 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.
- (f) **Transmission Limits.** An EIM Entity Scheduling Coordinator must notify the CAISO by the means specified in the Business Practice Manual for the Energy Imbalance Market with respect to transmission limits on the transmission capacity made available to the Real-Time Market within the EIM Entity Balancing Authority Area that need to be enforced in the Real-Time Market, including-
- (1) physical MVA or MW limits under base case and contingencies;
 - (2) scheduling limits for EIM Intertie transactions based on E-Tags; and
 - (3) contractual limits on Transmission Interfaces where the EIM Transmission

Service Provider has transmission rights.

29.10 Metering and Settlement Data.

- (a) **Telemetry Requirements.** The EIM Entity shall ensure that each EIM Resource and non-participating resource in an EIM Entity Balancing Authority Area that is not a Generating Unit or is a Generating Unit with a rated capacity of 10 MW or greater (including each aggregated resource with a total rated capacity of 10 MW or greater) and each EIM Intertie has telemetry meeting the requirements of the Business Practice Manual for the Energy Imbalance Market.
- (b) **Metering for Settlement Purposes.** The EIM Entity shall ensure that each EIM Participating Resource and non-participating resource in an EIM Entity Balancing Authority Area becomes either a CAISO Metered Entity or a Scheduling Coordinator Metered Entity and complies with the requirements of Section 10 except as provided in Section 29.10(c).
- (c) **Exception to Requirements of Section 10.3.9.** In the absence of metering standards set by a Local Regulatory Authority, EIM Participating Resources and non-participating resources in an EIM Entity Balancing Authority Area may qualify as Scheduling Coordinator Metered Entities without the need for third party certification if the CAISO determines that the applicable metering standards meet or exceed the standards for CAISO Metered Entities.
- (d) **Interchange Meter Data.** Metering for Settlement purposes is required for all EIM Interties.
- (e) **EIM Energy Imbalance with an External Balancing Authority Area.** For each EIM External Intertie Bid that clears the FMM resulting in a 15-minute EIM External Intertie schedule –
 - (1) the EIM Entity Scheduling Coordinator must submit to the CAISO the corresponding hourly transmission profile and 15-minute Energy profiles from the respective E-Tags, which must reflect the Point of Receipt and Point of Delivery that was declared in the FMM Bid submittal, at least 20 minutes before the start

of the Operating Hour; and

- (2) the EIM Entity Scheduling Coordinator must provide an updated Energy profile to the extent required by Section 30.5.7.

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 and EIM Participating Resource Scheduling Coordinators, except as otherwise provided, but not to other Scheduling Coordinators.
- (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 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 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

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

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 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 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.
 - (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.

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (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 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 or the EIM 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

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

Marginal Price in accordance with Section 11.5.2.1 with the applicable EIM Entity Scheduling Coordinator and will treat EIM 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.
- (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 and will treat EIM Balancing Authority Demand in the same manner as the CAISO treats CAISO Demand under that Section.

(D) **EIM Base Schedules Below PMin.**

- (i) **Calculation.** For deviations from an EIM Base Schedule below PMin submitted by an EIM Entity Scheduling Coordinator or an EIM Participating Resource Scheduling Coordinator, the CAISO will calculate Uninstructed Imbalance Energy in accordance with Section 11.5.2 as if the EIM Resource had received a Dispatch Instruction to PMin based upon the submission of an Energy Self-Schedule.
- (ii) **Settlement.** The CAISO will settle Uninstructed Imbalance Energy for deviations from an EIM Base Schedule below PMin in an EIM Entity Balancing Authority Area at the applicable RTD

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

Locational Marginal Price in accordance with Section 11.5.2.1
with the applicable EIM Entity Scheduling Coordinator or EIM
Participating Resource Scheduling Coordinator.

(c) **Unaccounted For Energy of EIM Entities.**

(1) **Calculation.** The CAISO will calculate Unaccounted For Energy for each EIM Entity Balancing Authority Area as the difference between metered Demand, and the sum of the metered Supply and the metered values at the interties, adjusted for losses.

(2) **Settlement.**

(A) **Unaccounted for Energy Settlement.** The CAISO will settle Unaccounted For Energy with the applicable EIM Entity Scheduling Coordinator at the applicable Hourly Real-Time LAP price.

(B) **Election Not to Settle Unaccounted for Energy.** Annually, an EIM Entity Scheduling Coordinator that submits metered Demand through Meter Data calculated without End-Use Meters may elect to not settle Unaccounted For Energy through the CAISO Markets, in which case –

- (i) the CAISO will apply a zero-percent Transmission Losses factor when calculating the Initial EIM base load schedule per section 29.34(g); and
- (ii) the EIM Entity Scheduling Coordinator will apply a zero-percent Transmission Losses factor when calculating their metered Demand.

(d) **Charges for Over- and Under-Scheduling of EIM Entities.**

(1) **Under-Scheduling Charges.**

(A) **Level 1 Charge.** If, during any Trading Hour, the metered Demand within an EIM Entity Balancing Authority Area exceeds the EIM Base Schedule of Supply submitted by the EIM Entity by more than 5% but less than or equal to 10% and by at least 2 MW, the CAISO shall charge

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

the applicable EIM Entity Scheduling Coordinator for all Uninstructed Imbalance Energy at the EIM Entity Load Aggregation Point at a price that is 125% of the Hourly Real-Time LAP Price.

(B) **Level 2 Charge.** If, during any Trading Hour, the metered Demand within an EIM Entity Balancing Authority Area exceeds the EIM Base Schedule of Supply submitted by the EIM Entity by more than 10% and by at least 2 MW, the CAISO shall charge the applicable EIM Entity Scheduling Coordinator for all Uninstructed Imbalance Energy at the EIM Entity Load Aggregation Point at a price that is 200% of the Hourly Real-Time LAP price.

(2) **Over-Scheduling Charges.**

(A) **Level 1 Charge.** If, during any Trading Hour, the metered Demand within an EIM Entity Balancing Authority Area is less than the EIM Base Schedule of Supply submitted by the EIM Entity by more than 5% but less than or equal to 10% and by at least 2 MW, the CAISO shall pay the applicable EIM Entity Scheduling Coordinator for all Uninstructed Imbalance Energy at the EIM Entity Load Aggregation Point at a price that is 75% of the Hourly Real-Time LAP Price.

(B) **Level 2 Charge.** If, during any Trading Hour, the metered Demand within an EIM Entity Balancing Authority Area is less than the EIM Base Schedule of Supply submitted by the EIM Entity by more than 10% and by at least 2 MW, the CAISO shall pay the applicable EIM Entity Scheduling Coordinator for all Uninstructed Imbalance Energy at the EIM Entity Load Aggregation Point at a price that is 50% of the Hourly Real-Time LAP Price.

(3) **Distribution of Revenues.**

(A) **Apportionment.** The CAISO will calculate the total daily excess revenues received from under-scheduling charges and over-scheduling

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

charges under Section 29.11(d)(1) and (2) and apportion them to Balancing Authority Areas in the EIM Area that were not subject to either under-scheduling or over-scheduling charges during the Trading Day according to metered Demand.

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

- (i) the amounts apportioned to EIM Entity Balancing Authority Areas pursuant to Section 29.11(d)(3)(A) to the applicable EIM Entity Scheduling Coordinator; and
- (ii) the amounts apportioned to the CAISO Balancing Authority Area pursuant to Section 29.11(d)(3)(A) to Scheduling Coordinators in the CAISO Balancing Authority Area according to metered Demand.

(4) **Exemption.** An EIM Entity will be exempt from under-scheduling and over-scheduling charges under Section 29.11(d)(1) and (2) if it uses the Demand Forecast prepared by the CAISO in its EIM Resource Plan and it approves EIM Base Schedules for its resources within +/- 1% of the CAISO Demand Forecast, as determined according to the Business Practice Manual for the Energy Imbalance Market.

(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 11.5.4.1.1.
- (3) **Real-Time Imbalance Energy Offset Allocation.** The CAISO will assess EIM Entity Scheduling Coordinators a Real-Time Imbalance Energy Offset allocation

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

calculated pursuant to Section 11.5.4.1.

- (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 11.5.4.1.2.
 - (5) **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.
 - (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

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

calculated for each EIM Entity Balancing Authority Area to the applicable EIM Entity Scheduling Coordinator in accordance with Section 11.8.6.6.(ii).

- (g) **[Not Used]**

- (h) **EIM Initial Fee.** The CAISO will charge Balancing Authority Areas that enter into an EIM Implementation Agreement pursuant to Section 29.2(b) an initial fee to cover a share of the capital and operations and maintenance costs associated with setting up the Real-Time Market to accommodate the participation of the Balancing Authority as an EIM Entity. The fee will be established by the EIM Implementation Agreement entered into pursuant to Section 29.2(b)(1) as accepted by FERC.

- (i) **EIM Administrative Charge.**
 - (1) **In General.** The CAISO will charge EIM Market Participants an EIM Administrative Charge consisting of the real-portions 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

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

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.
- (j) **Variable Energy Resource and Hybrid Resource Forecast Charge.**
- (1) **In General.** The CAISO will charge EIM Entity Scheduling Coordinators and EIM Participating Resource Scheduling Coordinators a fee for the Variable Energy Resource or Hybrid Resource forecasting services in accordance with Appendix F, Schedule 4.
 - (2) **Waiver.** The CAISO will waive the Variable Energy Resource or Hybrid Resource forecast charge if an EIM Entity has an independent forecast for its Variable Energy Resources or Hybrid Resource and provides the independent forecast to the CAISO.
- (k) **Transmission Service.** The CAISO will charge EIM Market Participants for transmission

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

service according to Section 29.26.

- (l) **Settlement.** With regard to the CAISO's assessment and payment of charges to, and collection of charges from, EIM Market Participants pursuant to Sections 11 and 29.11, the CAISO shall 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.
- (m) **Charges Related to RTM Participation of Interties.** In the event that an EIM Entity enables participation in the Real-Time Market on EIM External Interties, the EIM Entity Scheduling Coordinator shall also be subject to any applicable charges under Sections 11.31 and 11.32.
- (n) **EIM Transfers and Settlement for Contingency Reserve Obligations.** The CAISO shall allocate Operating Reserve Obligations to EIM Entity Scheduling Coordinators for EIM Transfers as follows –
 - (1) EIM Entity Scheduling Coordinators will receive a payment equal to three (3) percent of the hourly MW EIM Transfer into the CAISO Balancing Authority Area multiplied by the hourly user rate for Spinning Reserves and Non-Spinning Reserves, as calculated per Section 11.10.3.3 and 11.10.4.3, respectively; and
 - (2) EIM Entity Scheduling Coordinators will receive a charge equal to three (3) percent of the hourly MW EIM Transfer out of the CAISO Balancing Authority Area multiplied by the hourly user rate for Spinning Reserves and Non-Spinning Reserves, as calculated per Section 11.10.3.3 and 11.10.4.3, respectively.
- (o) **Application of Persistent Deviation Metric.**

The CAISO will modify the Bid Cost Recovery calculations described in Section 29.11(f) and Residual Imbalance Energy payments in Section 11.5.5 as described in Section 11.17, except that the CAISO will treat an EIM Base Schedule as a Day-Ahead Schedule.
- (p) **Flexible Ramping Product.** The CAISO will allocate and settle payments and charges for the Flexible Ramping Product according to Section 11.25, where the CAISO will

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

consider EIM Base Schedules of non-participating resources as Self-Schedules.

(q) **EIM Transfer System Resource Settlement Information.** The CAISO will provide EIM Entities with non-binding Settlement information associated with Energy transfer schedule changes from their respective base schedules between EIM Entity Balancing Authority Areas.

(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, 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

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

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).

29.12 Creditworthiness

- (a) **Requirements.** EIM Entity Scheduling Coordinators and EIM Participating Resource Scheduling Coordinators shall comply with the credit and other requirements of Section 12.
- (b) **Credit Default.** In the event of a failure to satisfy the credit or other requirements in Section 12, the consequences specified in Section 12 shall apply to EIM Entity Scheduling Coordinators and EIM Participating Resource Scheduling Coordinators.

29.13 Dispute Resolution

- (a) **Invoices.** Confirmation and validation of any dispute associated with the participation of EIM Market Participants in the Real Time Market is subject to Section 11.29.8 and shall be managed through the CAISO's customer inquiry, dispute, and information system and as provided in the Business Practice Manual for the Energy Imbalance Market.
- (b) **Other Disputes.** EIM Market Participants shall be subject to dispute resolution pursuant to Section 13.

29.14 Uncontrollable Forces, Indemnity, Liabilities, and Penalties

The provisions of Section 14 regarding Uncontrollable Forces, indemnity, liability, and penalties shall apply to the participation of EIM Market Participants in the Real-Time Market.

29.15 [Not Used]

29.16 [Not Used]

29.17 EIM Transmission System

- (a) **Information.** Each EIM Entity shall –
- (1) deliver EIM Transmission Service Information to the CAISO regarding the network topology information associated with transmission capacity that it owns, controls, or has a contractual entitlement to that may be used in the Real-Time Market;
 - (2) deliver EIM Transmission Service Information to the CAISO regarding the network topology information associated with transmission capacity that each other EIM Transmission Service Provider owns, controls, or has a contractual entitlement to within the EIM Entity Balancing Authority Area that may be used in the Real-Time Market;
 - (3) update the EIM Transmission Service Information no less frequently than the timelines for updates to the Full Network Model as provided in the CAISO Tariff and Business Practice Manual for the Energy Imbalance Market; and
 - (4) ensure that the EIM Transmission Service Information is accurate and complete.
- (b) **Effectiveness.** The EIM Transmission Service Information shall only be used for operation of the CAISO Markets in accordance with the procedures set forth in the Business Practice Manual for the Energy Imbalance Market.
- (c) **Availability.** Each EIM Entity shall ensure that all EIM Transmission Service Providers in its Balancing Authority Area make available for use in the Real-Time Market transmission capacity that is included in the EIM Transmission Service Information and that is not otherwise encumbered, reserved, scheduled, or being used by its transmission customers or by others.
- (d) **Information on Availability.** Each EIM Entity Scheduling Coordinator shall inform the CAISO in the manner and by the deadlines specified in the Business Practice Manual for

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

the Energy Imbalance Market regarding the availability of the transmission capacity identified in the EIM Transmission Service Information for use in the Real-Time Market.

- (e) **EIM Transfer Limit.** A Balancing Authority that has entered into an EIM Implementation Agreement to become an EIM Entity shall establish and inform the CAISO of the maximum EIM Transfer limit at least ninety days prior to the EIM Entity Implementation Date in accordance with the Business Practice Manual for the Energy Imbalance Market.
- (f) **EIM Transfer Availability.**
 - (1) **In General.** The ISO will model individual constraints for each EIM Transfer limit submitted by each EIM Entity that makes transmission available on an EIM Internal Intertie.
 - (2) **Use of Interchange Transmission Rights.** The EIM Entity Scheduling Coordinator shall determine the EIM Transfer limit made available for use in the Real-Time Market through interchange transmission rights and communicate that limit to the CAISO prior to the start of the next Dispatch Interval in accordance with the procedures and timelines for submission and acceptance in the Business Practice Manual for the Energy Imbalance Market.
 - (3) **Use of Available Transfer Capability.** The EIM Entity Scheduling Coordinator shall determine the EIM Transfer limit made available to the Real-Time Market through available transfer capability in accordance with its tariff and communicate that limit to the CAISO prior to the start of the next Dispatch Interval in accordance with the procedures and timelines for submission and acceptance in the Business Practice Manual for the Energy Imbalance Market.
 - (4) **Multiple EIM Transfer Limits.** If there are two or more EIM Entity Balancing Authority Areas that share the same EIM Internal Intertie, the CAISO's Security Constrained Economic Dispatch in the Real-Time Unit Commitment and Real-Time Dispatch will enforce the individual EIM Transfer limit for each EIM Entity Balancing Authority Area while allowing Energy to wheel through the EIM Entity Balancing Authority Areas based on the transmission made available for use in

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

the Real-Time Market.

- (5) **EIM Transfers and CAISO Scheduling Points.** EIM Transfers shall compete for Available Transfer Capability at interties that are an EIM Internal Intertie and a CAISO Scheduling Point.
- (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.
- (g) **EIM Transfer Schedule Cost.**
 - (1) **In General.** The CAISO's Security Constrained Economic Dispatch in the Fifteen Minute Market and Real-Time Dispatch shall use an EIM Transfer schedule cost associated with EIM Transfers at each EIM Internal Intertie to determine the optimal scheduling path for EIM Transfers, which in all intervals shall be less than \$0.01.
 - (2) **Objectives.** The CAISO shall use the lowest EIM Transfer schedule cost determined based upon the objectives of –
 - (A) maximizing the use of the transmission capacity made available for EIM Transfers in both the Fifteen-Minute Market and Real-Time Dispatch;
 - (B) minimizing the number of E-Tags required to comply with the WECC scheduling practices; and
 - (C) minimizing the impact of outages or curtailments on the E-Tags used to account for EIM Transfers based on historical outage and curtailment data for each EIM Internal Intertie.
 - (3) **EIM Transfer Schedule Cost Publication.** The CAISO will publish the EIM Transfer schedule cost associated with each EIM Internal Intertie in the Business Practice Manual for the Energy Imbalance Market.
 - (4) **EIM Transfer Schedule Cost Adjustment.** The CAISO may adjust the EIM

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

Transfer schedule costs to maintain the path priorities established by the criteria in Section 29.17(g)(2) when an EIM Entity Balancing Authority Area is added or subtracted from the EIM Area, as seasonal transmission system ratings change, or the transmission system topology changes.

- (5) **Locational Marginal Price.** The CAISO will reflect the EIM Transfer schedule cost in the Marginal Cost of Congestion.

29.18 [Not Used]

29.19 [Not Used]

29.20 Confidentiality

The confidentiality provisions of Section 20 shall apply to participation of EIM Market Participants in the Real-Time Market.

29.21 [Not Used]

29.22 Miscellaneous Provisions in Addition to Section 22.

Section 22 and the additional miscellaneous provisions of Section 29.22 shall apply to the Energy Imbalance Market.

- (a) **Tax Liability.** To the extent that the CAISO would incur any tax liability as a result of the participation of EIM Market Participants in the Real-Time Market, as market operator or as central counterparty to Energy Imbalance Market transactions, for example, the CAISO will pass those taxes on to the EIM Entity Scheduling Coordinator for the EIM Entity area where the transactions triggered the tax liability.
- (b) **Purchasing Selling Agent.** Neither the CAISO nor the EIM Entity is a “Purchasing Selling Entity” for purposes of E-Tagging or EIM Transfers, nor shall either be listed as a “Purchasing Selling Entity” for purposes of E-Tagging or EIM Transfers.
- (c) **Title to Energy.** Title to Energy in the Real-Time Market passes directly from the entity that holds title when the Energy enters the CAISO Controlled Grid or the transmission system of an EIM Transmission Service Provider, whichever is first following Dispatch, to the entity that removes the Energy from the CAISO Controlled Grid or the transmission

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

system of a EIM Transmission Service Provider, whichever last precedes delivery to Load.

29.23 [Not Used]

29.24 [Not Used]

29.25 [Not Used]

29.26 Transmission Rates and Charges.

(a) **Transmission Charges for CAISO Facilities.**

- (1) **Access Charge.** Transmission service charges for Real-Time Market transactions serving Load within the CAISO Balancing Authority Area that use the CAISO Controlled Grid are governed by Section 26.
- (2) **Wheeling Access Charge.** EIM Transfers from the CAISO Controlled Grid to another EIM Entity Balancing Authority Area using the contractual or ownership rights of an EIM Entity shall not constitute Wheeling Out and shall not be subject to the Wheeling Access Charge under Section 26.

(b) **Non-CAISO Facilities.** The determination and charges for transmission service for Real-Time Market transactions on facilities that are part of the contractual or ownership rights made available to the Real-Time Market by an EIM Transmission Service Provider through an EIM Entity will be the responsibility of the EIM Entity that made the facilities available, except that the EIM Entity shall ensure that no EIM Transmission Service Provider imposes a separate charge for EIM Transfers that use its facilities, provided that charges for transmission service in excess of contractual limits shall not be considered a separate charge.

29.27 CAISO Markets and Processes.

(a) **In General.** Except as provided in subsection (b) of this section, the provisions of Section 27 that are applicable to the Real-Time Market shall apply to EIM Market Participants.

(b) **Transition Period for New EIM Entities.**

- (1) **Transmission Constraint Relaxation.** For a period of six months following the

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

Implementation Date of a new EIM Entity, the provisions of Section 27.4.3.2 and the second sentence of Section 27.4.3.4 shall not apply to constraints that are within Balancing Authority Areas of the new EIM Entity or affect EIM Transfers between the Balancing Authority Areas of the new EIM Entity and any other EIM Entity that is subject to this subsection (b). For those intervals that experience infeasibilities described in those provisions, the CAISO shall instead determine prices consistent with the provisions of Sections 27, 34, 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.

- (2) **Flexible Ramping Product.** For a period of six months following the EIM Entity Implementation Date of a new EIM Entity, when the transmission and/or power balance constraints as specified in Sections 27.4.3.2 and 27.4.3.4, respectively, are relaxed, the CAISO shall set the Flexible Ramping Product parameter for pricing purposes, for the new EIM Entity Balancing Authority Area, at an amount between and including \$0 and \$0.01.
- (3) **Extension of Transition Period Pricing.** Any extensions of the initial six-month transition period, as approved by the Federal Energy Regulatory Commission, are specified below. 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 EIM 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.
 - (A) [reserved]
- (4) **Reports.** During the term of the transition period, the CAISO will submit monthly reports with the Commission on the infeasibilities observed in the applicable EIM Entity Balancing Authority Area, the nature of the issues causing the infeasibility

- (c) **Automated EIM Mirror.** If the CAISO updates an Interchange E-Tag for a schedule

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

change outside of the Market Clearing of the Real-Time Market for System Resources and Scheduling Points and the associated energy is generated at, wheeled through, or consumed at an EIM Entity Balancing Authority Area, the CAISO will automatically EIM Mirror the schedule change using the relevant EIM Mirror System Resource in accordance with the procedures specified in the Business Practice Manual for the Energy Imbalance Market.

- (d) **Base GDFs for Aggregated EIM Non-Participating Resources.** The CAISO will allow base Generation Distribution Factor submission for aggregate EIM non-participating resources through the submission of EIM Base Schedules and will distribute the base schedule and any imbalances of aggregate EIM non-participating resources using the submitted base GDFs, if available, or otherwise the registered default base GDFs for the resource in the Master File, normalized for Outages and remedies adopted to address the issues identified.

29.28 Inter-SC Trades

EIM Entity Scheduling Coordinators and EIM Participating Resource Scheduling Coordinators may not submit Inter-SC Trades.

29.29 [Not Used]

29.30 Bid and Self-Schedule Submission for CAISO Markets.

- (a) **In General.** The provisions of Section 30 that are applicable to the Real-Time Market, as supplemented by Section 29.30, shall apply to EIM Market Participants.
- (b) **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 EIM Administrative Charge.
- (c) **EIM Available Balancing Capacity Energy Bid Curve for EIM Participating Resources.** For each Trading Hour, the CAISO will apply Energy Bids submitted for EIM Participating Resources, which may be subject to mitigation pursuant to Section 29.39, towards the EIM Available Balancing Capacity as provided in Section 29.30(e).
- (d) **EIM Available Balancing Capacity Bids Used for EIM Available Balancing Capacity**

Served by Non-Participating Resources. The CAISO will create an Energy Bid Curve based on the Default Energy Bid established by the EIM Entity Scheduling Coordinator and the CAISO pursuant to Section 29.4(c)(4)(K) for all non-participating resources that the EIM Entity Scheduling Coordinator may identify as EIM Available Balancing Capacity, and will apply such bids to the EIM Available Balancing Capacity as provided in Section 29.30(e).

- (e) **Treatment of Energy Bid Curves for EIM Available Balancing Capacity.** For each Trading Hour the CAISO will allocate the categories of the EIM Resource Plan specified in Section 29.34(e)(3)(C) and (D) as follows.
- (1) **Upward Capacity.** For upward capacity above the EIM Base Schedule, the CAISO will –
 - (A) allocate the Spinning and Non-Spinning Reserves down from the upper regulating limit as registered in the Master File, taking into account any PMax rerates; and then
 - (B) allocate EIM Upward Available Balancing Capacity to the Energy Bid Curve starting at the highest value of the Energy Bid Curve that does not overlap with Spinning or Non-Spinning Reserves.
 - (2) **Downward Capacity.** For downward capacity below the EIM Base Schedule, the CAISO will allocate EIM Downward Available Balancing Capacity to the Energy Bid Curve starting at its lowest value, taking into account any PMin rerates.
 - (3) **Remaining Capacity.** The CAISO will use any remaining portion of the Energy Bid Curve after the allocations in Section 29.30(e)(1) and 29.30(e)(2) for Dispatch under any condition, except that for non-participating resources the CAISO will adjust the EIM Upward Available Balancing Capacity and EIM Downward Available Balancing Capacity towards the EIM Base Schedule so that there will not be any remaining capacity for Dispatch.

29.31 Day-Ahead.

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

EIM 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 or EIM Participating Resource Scheduling Coordinator.

29.32 Greenhouse Gas Regulation and EIM Bid Adders.

(a) **EIM Bid Adders.**

(1) **In General.** EIM Participating Resources will have an opportunity to recover costs of compliance with California Air Resources Board greenhouse gas regulations, which may include the cost of allowances, uncertainty on the final resource specific emission factor, and other costs of greenhouse gas regulation compliance.

(2) **EIM Bid Adder.**

(A) **Bid Submission.** EIM Participating Resource Scheduling Coordinators for EIM Participating Resources located in an EIM Entity Balancing Authority Area outside of California may submit an EIM Bid Adder as a separate hourly Bid component to recover costs of compliance with California Air Resources Board greenhouse gas regulations, which must include a price and quantity and the price portion of which must be equal to or less than 110% of the EIM Participating Resource's greenhouse gas maximum compliance cost as determined in accordance with section 29.32(a)(3).

(B) **Default Treatment.** If an EIM Participating Resource located in an EIM Entity Balancing Authority Area outside of California does not submit an EIM Bid Adder, the CAISO will assume that the EIM Participating Resource will not be selected for delivery to the CAISO Balancing Authority Area.

(3) **Determination of EIM Greenhouse Gas Maximum Cost.** Each day the CAISO

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

will determine the greenhouse gas maximum compliance cost for each EIM Participating Resource located in an EIM Entity Balancing Authority Area outside of California as set forth in the EIM Business Practice Manual, based on:

- (A) the EIM Resource's highest incremental heat rate; the applicable Greenhouse Gas Allowance Price; and the EIM Participating Resource's emission rate, as set forth in the applicable U.S. Environmental Protection Agency publication and registered in the Master File; or
- (B) a price determined in accordance with the negotiated rate option procedures in section 39.7.1.3.1; or,
- (C) with respect to, and only with respect to, Bids at EIM External Interties, the carbon dioxide equivalent emission rate of the resource with the highest such rate in the WECC region and the applicable Greenhouse Gas Allowance Price index.

- (4) **EIM Bid Adder Price.** The price included in the EIM Bid Adder shall not be less than \$0/MWh and the sum of the price component of the EIM Bid Adder and the Energy cost portion of the Bid cannot exceed \$1000/MWh.

(b) **Consideration of EIM Bid Adders in Market Clearing.**

- (1) **Dispatch of EIM Participating Resources with Nonzero Bid Adders.** The CAISO's Security Constrained Economic Dispatch in the Real-Time Unit Commitment and Real-Time Dispatch shall take into account EIM Bid Adders in selecting Energy produced by EIM Participating Resources located in an EIM Entity Balancing Authority Area outside of California for import into the CAISO Balancing Authority Area or other EIM Entity Balancing Authority Areas in California up to the associated MW quantity included in the EIM Bid Adder, but not when selecting EIM Participating Resources to serve Load outside of the combined area of the CAISO Balancing Authority Area and other EIM Entity Balancing Authority Areas within California.
- (2) **EIM Participating Resources EIM Bid Adder MW Quantity.** The CAISO's

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

Real-Time Unit Commitment and Real-Time Dispatch will limit the maximum EIM Bid Adder MW quantity of an EIM Participating Resource to a value equal to the EIM Participating Resource's dispatchable Bid range between the EIM Participating Resource's 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.

- (3) **Dispatch of EIM Participating Resources Bid Adders of Zero.** The CAISO's Security Constrained Economic Dispatch in the Real-Time Unit Commitment and Real-Time Dispatch shall not dispatch EIM Participating Resources outside the CAISO Balancing Authority Area for delivery into the CAISO Balancing Authority Area or other EIM Entity Balancing Authority Areas in California if the MW quantity included in the EIM Bid Adder is zero.
- (c) **Effect on Locational Marginal Price.** Using the methodology described in Appendix C, the CAISO will include the Marginal Greenhouse Gas Cost as a negative component in the Locational Marginal Prices for EIM Entity Balancing Authority Areas not subject to a greenhouse compliance obligation under the regulations administered by the California Air Resources Board in addition to those specified in Appendix C and Section 27.
- (d) **Notice to EIM Participating Resource.** The CAISO will notify the EIM Participating Resource Scheduling Coordinator through the Dispatch Instruction of the megawatt quantity of any Energy of an EIM Participating Resource located in an EIM Entity Balancing Authority Area outside of California that is deemed to have been imported into the CAISO Balancing Authority Area or other EIM Entity Balancing Authority Areas in California as a result of the Market Clearing of the Real-Time Market.
- (e) **Compensation.** The CAISO will allocate the Net Imbalance Energy Export optimally to EIM Participating Resource Scheduling Coordinators and will distribute Greenhouse Gas Emission Cost Revenues to EIM Participating Resources pursuant to that allocation.
- (f) **Reporting Requirements.** The CAISO will report to each EIM Participating Resource Scheduling Coordinator the portion of the FMM Energy Schedule and the portion of RTD

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

Energy Dispatch that is associated with Energy deemed to have been imported to the CAISO Balancing Authority Area or other EIM Entity Balancing Authority Areas in California from all EIM Resources as part of the Real-Time Market results publication from each of its EIM Resources.

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.
- (b) **Applicability.** EIM 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 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.
 - (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.
 - (3) **Mid-Term Forecast.** The CAISO's mid-term Demand Forecast for an EIM Entity Balancing Authority Area shall produce hourly values for the next hour through

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

the next 7 days.

(4) **EIM Entity Scheduling Coordinator Demand Forecast.**

(A) **In General.** An EIM Entity Scheduling Coordinator may opt to provide a non-binding EIM Entity Demand Forecast, net of behind-the-meter Generation that is not registered as an EIM Resource, as part of the hourly EIM Base Schedules.

(B) **Timing and Scope.** The EIM Entity Scheduling Coordinator must provide any such Demand Forecasts by 10:00 a.m. for the next 7 days.

(C) **Updates.** The EIM Entity Scheduling Coordinator must update any such Demand Forecast for each Operating Hour and the following 6 to 10 hours and submit the update to the CAISO no later than 75 minutes prior to the start of that Operating Hour, as part of its hourly EIM Base Schedule submission.

(D) **Effect on Bid Requirement.** If the EIM Entity Demand Forecast is less than the CAISO Demand Forecast, then the EIM Entity's EIM Resource Plan must include sufficient Bids to cover the difference in Demand Forecasts.

(5) **Posting.** Between 6:00 p.m. of the seventh day prior to the start of the Operating Day and 6:00 p.m. of the day prior to the Operating Day, the CAISO shall post and update hourly Demand Forecasts by Demand Forecast zone.

(e) **EIM Resource Plan.**

(1) **In General.** By 10:00 a.m. of the day preceding the Operating Day, the EIM Entity Scheduling Coordinators on behalf of non-participating resources and EIM Participating Resource Scheduling Coordinators on behalf of EIM Participating Resources, must submit all applicable components of the EIM Resource Plan as set forth in Section 29.34(e)(3).

(2) **Scope.** The EIM Resource Plan components must cover a seven day horizon (with hourly detail for each resource) beginning with the Operating Day.

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (3) **Contents.** The EIM Resource Plan shall comprise –
- (A) EIM Base Schedules of EIM Entities and EIM Participating Resources;
 - (B) Energy Bids (applicable to EIM Participating Resources only);
 - (C) EIM Upward Available Balancing Capacity;
 - (D) EIM Downward Available Balancing Capacity;
 - (E) EIM Reserves to Meet NERC/WECC Contingency Reserves Requirements; and
 - (F) if the EIM Entity Scheduling Coordinator is not relying on the CAISO's Demand Forecast, a Demand Forecast.
- (4) **Contents of EIM Base Schedules.** EIM Base Schedules of EIM Entities must include hourly-level Demand Forecasts for EIM Demand, hourly-level schedules for resources, including any hourly-level schedules below PMin that the EIM Entity seeks an accounting for, and hourly-level scheduled Interchanges.
- (5) **Adjustment Prior to Submission of Real-Time EIM Base Schedules.** The EIM Entity Scheduling Coordinator may adjust the components of the EIM Resource Plan prior to the submission of Real-Time EIM Base Schedules up to 75 minutes before the Operating Hour.
- (f) **Real-Time EIM Base Schedules.**
- (1) **In General.**
 - (A) **Initial Submission.** EIM Entity Scheduling Coordinators, EIM Participating Resource Scheduling Coordinators, and non-participating resources in the EIM Entity Balancing Authority Area that wish to submit real-time hourly EIM Base Schedules, or, with regard to non-participating resources, wish to submit EIM Base Schedule information pursuant to Section 29.34(f)(4), must submit such schedules or other information consistent with the requirements of the Business Practice Manual for the Energy Imbalance Market and at least 75 minutes before the start of the Operating Hour.

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (B) **Interim Revisions.** EIM Entity Scheduling Coordinators, EIM Participating Resource Scheduling Coordinators, and non-participating resources in the EIM Entity Balancing Authority Area may revise hourly Real-Time EIM Base Schedules, or, with regard to non-participating resources, revise EIM Base Schedule information submitted pursuant to Section 29.34(f)(4), meeting the requirements of the Business Practice Manual for the Energy Imbalance Market at or before 55 minutes before the start of the Operating Hour.
- (C) **Final Revision.** EIM Entity Scheduling Coordinators may further revise hourly Real-Time EIM Base Schedules, including EIM Base Schedules for EIM Participating Resources, at or before 40 minutes before the start of the Operating Hour.
- (2) **EIM Base Schedule for EIM Participating Resources.** The EIM Base Schedule for each EIM Participating Resource must be within the Economic Bid range of the submitted Energy Bids for each Operating Hour for EIM Resources, which the CAISO will make available to the EIM Entity without price information, provided that an EIM Participating Resource Scheduling Coordinator may also include Energy below PMin in an EIM Base Schedule.
- (3) **EIM Base Schedule for Imports and Exports.** EIM Base Schedules must –
- (A) disaggregate Day-Ahead import/export schedules between the EIM Entity Balancing Authority Area and the CAISO Balancing Authority Area;
- (B) identify the relevant EIM Interties for imports and exports to an EIM Entity Balancing Authority Area from Balancing Authority Areas other than the CAISO Balancing Authority Area; and
- (C) include approved, pending, and adjusted E-Tags for imports and exports.
- (4) **EIM Base Schedule Aggregation.** In response to a request by an EIM Entity Scheduling Coordinator, the CAISO will establish an electronic interface by which non-participating resources, Loads, and other customers of the EIM Entity may

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

submit EIM Base Schedule information to the EIM Scheduling Coordinator and the CAISO.

- (g) **Initial EIM Base Load Schedule.** The CAISO will derive an initial EIM Base Load Schedule for each EIM Entity from the Demand Forecast used for the EIM Entity Balancing Authority Area, estimated Transmission Losses, and an assumed Load distribution, pursuant to the methodology set forth in the Business Practice Manual for the Energy Imbalance Market.

- (h) **Energy Bids.** EIM Participating Resource Scheduling Coordinators may submit Energy Bids in accordance with the timelines, processes, and requirements applicable to other resources submitting Energy Bids under Section 34.

- (i) **Interchange Schedules with Other Balancing Authorities.**
 - (1) **In General.** EIM Entity Scheduling Coordinators must submit Interchange Schedules with other Balancing Authority Areas at the relevant EIM Interties and must update these Interchange Schedules with any adjustments, when applicable, as part of the hourly EIM Resource Plan revision.

 - (2) **Economic Bidding of EIM Intertie Transactions.** An EIM Participating Resource Scheduling Coordinator may bid a transaction at an EIM External Intertie into the FMM if the EIM Entity supports economic bidding of EIM External Intertie transactions and the relevant transmission service providers or path operators support 15-minute scheduling at the EIM External Intertie under FERC Order No. 764.

- (j) **CAISO Validation.** The CAISO Markets systems will validate the initial EIM Resource Plan by 1:00 p.m. on the day before the Operating Day, and within 15 minutes of the submission of EIM Base Schedules or adjustments to EIM Base Schedules, the CAISO will validate the EIM Resource Plan and notify the EIM Entity Scheduling Coordinator-
 - (1) if the EIM Resource Plan is not balanced;

 - (2) if the EIM Resource Plan provides insufficient Flexible Ramping Product capacity

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

to meet requirements determined pursuant to Section 29.34(m); and

(3) if the CAISO anticipates Congestion based on the submitted EIM Resource Plans.

(k) **EIM Resource Plan Balance.** If, after the final opportunity for the EIM Entity to revise hourly Real-Time EIM Base Schedules according to Section 29.34(f)(1)(c), Supply in the EIM Base Schedules does not balance the Demand Forecast, the CAISO will adjust the Demand in the EIM Base Schedule to equal Supply.

(l) **EIM Resource Plan Evaluation.**

(1) **Requirement.** The EIM Base Schedules for resources included in the EIM Resource Plan must balance the Demand Forecast for each EIM Entity Balancing Authority Area and the Uncertainty Requirement determined in accordance with Section 44.2.4, and for the CAISO Balancing Authority Area the RUC Schedules, the HASP Advisory Schedules and HASP Intertie Block Schedules or the FMM Schedules, as applicable and as detailed in Business Practice Manuals, must balance the Demand Forecast and the Uncertainty Requirement determined in accordance with Section 44.2.4.

(2) **Insufficient Supply.** An EIM Resource Plan or the CAISO equivalent shall be deemed to have insufficient Supply if the sum of EIM Base Schedules from non-participating resources and the sum of the highest quantity offers in the Energy Bid range from EIM Participating Resources, including Interchange with other Balancing Authority Areas, is less than the total Demand Forecast that the EIM Entity Scheduling Coordinator has decided to use for the associated EIM Entity Balancing Authority Area and the Uncertainty Requirement determined in accordance with Section 44.2.4, and for the CAISO Balancing Authority Area the RUC Schedules, the HASP Advisory Schedules and HASP Intertie Block Schedules or the FMM Schedules, as applicable and as detailed in Business Practice Manuals, are less than the total Demand Forecast and the Uncertainty

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

Requirement determined in accordance with Section 44.2.4.

- (3) **Excess Supply.** An EIM Resource Plan or the CAISO equivalent shall be deemed to have excessive Supply if the sum of EIM Base Schedules from non-participating resources and the sum of the lowest quantity Bids in the Energy Bid range from EIM Participating Resources is greater than the total Demand Forecast that the EIM Entity Scheduling Coordinator has decided to use for the associated EIM Entity Balancing Authority Area plus the Uncertainty Requirement determined in accordance with Section 44.2.4, and for the CAISO Balancing Authority Area the RUC Schedules, the HASP Advisory Schedules and HASP Intertie Block Schedules or the FMM Schedules, as applicable and as detailed in Business Practice Manuals, are greater than the total Demand Forecast and the Uncertainty Requirement determined in accordance with Section 44.2.4.

(4) **Additional Hourly Capacity Requirements.**

- (A) **In General.** If the CAISO determines under the procedures set forth in the Business Practice Manual for the Energy Imbalance Market that a Balancing Authority Area in the EIM Area has historically high import or export schedule changes between forty minutes and twenty minutes before the start of the Trading Hour, the CAISO will add to the Balancing Authority Area in the EIM Area's capacity requirements an additional requirement.
- (B) **Additional Capacity Requirement.** On a monthly basis, according to procedures set forth in the Business Practice Manual for the Energy Imbalance Market, the CAISO will calculate for each Balancing Authority Area in the EIM Area histograms of the percentage of the difference between imports and exports scheduled at forty minutes before the start of the Trading Hour and the final imports and exports at twenty minutes before the start of the Trading Hour based on the submitted E-Tags at

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

those times and calculate additional upward and downward requirements for the capacity test component of the resource sufficiency evaluation.

(5) **Removal of the Uncertainty Requirement.**

For a period of 12 months after the Uncertainty Requirement has been included in accordance with this Section 29.34(l), the CAISO may upon Market Notice of at least three (3) Business Days no longer include the Uncertainty Requirement if—

- (A) the frequency or magnitude of capacity test failures supports a conclusion that the results were unintended and caused by including the Uncertainty Requirement;
- (B) the CAISO submits an informational report to FERC within 30 days explaining and supporting its conclusion; and
- (C) the Uncertainty Requirement remains excluded from the capacity test unless and until FERC authorizes otherwise.

(m) **Flexible Ramping Sufficiency Determination.**

(1) **Review.**

- (A) **EIM Entity Balancing Authority Areas.** The CAISO will review the EIM Resource Plan 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 to meet the EIM Entity Balancing Authority Area upward and downward Ramping requirements, as adjusted pursuant to Sections 29.34(m)(2), (3), and (5).
- (B) **CAISO Balancing Authority Area.** The CAISO will review the Day-Ahead Schedules in the CAISO Balancing Authority Area and verify that it has sufficient Bids for Ramping capability to meet the CAISO Balancing Authority Area upward and downward Ramping requirements, as adjusted pursuant to Sections 29.34(m)(2), (3), (5), and (6).

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (2) **Determination of EIM Diversity Benefit.** The CAISO will calculate separately the upward and downward EIM diversity benefit 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.
- (3) **Effects of EIM Diversity Benefit.** For each Balancing Authority Area in the EIM 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) **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.
- (5) **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.
- (6) **Incremental Requirements.**
 - (i) **In General.** If the CAISO determines under the procedures set forth in the Business Practice Manual for the Energy Imbalance Market that an EIM Entity Balancing Authority Area or the CAISO Balancing Authority Area has historically high import or export schedule changes between T-

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

40 and T-20, the CAISO will add to the EIM Entity's or the CAISO's flexible capacity requirement an additional incremental requirement.

- (ii) **Additional Incremental Requirement.** On a monthly basis, according to procedures set forth in the Business Practice Manual for the Energy Imbalance Market, the CAISO will calculate for each EIM Entity Balancing Authority Area and the CAISO Balancing Authority Area histograms of the percentage of the difference between imports and exports scheduled at T-40 and the final imports at T-20 based on the E-Tags submitted at T-40 and T-20 and calculate additional incremental and decremental requirements for the capacity test component of the resource sufficiency evaluation.

(n) **Effect of Resource Plan Insufficiency.**

- (1) **Resource Plan Balance.** If, after the final opportunity for the EIM Entity to revise hourly Real-Time EIM Base Schedules as provided in Section 29.34(f)(1)(c), the EIM Resource Plan or the CAISO equivalent has insufficient supply as determined according to Section 29.34(l)-
 - (A) the CAISO will not include the EIM Entity Balancing Authority Area or the CAISO Balancing Authority Area in the Uncertainty Requirement of the EIM Area;
 - (B) the CAISO will hold the EIM Transfer limit into or from the EIM Entity Balancing Authority Area or the CAISO Balancing Authority Area, as specified in Section 29.34(n)(2), at the value for the last 15-minute interval.
- (2) **Flexible Ramping Insufficiency.** If, after the final opportunity for the EIM Entity to revise hourly Real-Time EIM Base Schedules or the CAISO equivalent as provided in Section 29.34(f)(1)(c), the CAISO determines-
 - (i) that an EIM Entity Balancing Authority Area or the CAISO Balancing Authority Area has insufficient upward Ramping capacity according to

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

Section 29.34(m), the CAISO will take the actions described in Section 29.34(n)(1)(A) and (B) in the upward and into the EIM Entity BAA or CAISO BAA direction; and

- (ii) that an EIM Entity Balancing Authority Area or the CAISO Balancing Authority Area has insufficient downward Ramping capacity according to Section 29.34(m), the CAISO will take the actions described in Section 29.34(n)(1)(A) and (B) in the downward and from the EIM Entity BAA or CAISO BAA direction.
- (o) **Transmission Constraint Relaxation.** If an EIM Entity Scheduling Coordinator's approved EIM Resource Plan does not have sufficient Bids to resolve Congestion, the CAISO will relax the relevant Transmission Constraints in the Market Clearing and the EIM Entity will become responsible for managing its congested Transmission Constraints through other means, and the CAISO will determine prices for Congestion consistent with Transmission Constraint relaxation parameters established in the Business Practice Manual for the Energy Imbalance Market until the Transmission Constraint is no longer binding in the Real-Time Market.
- (p) **Operating Reserves.**
 - (1) **Schedules.**
 - (A) **EIM Entity Responsibility.** Each EIM Entity is responsible for its contingency reserves, or share of such contingency reserves under the terms of a reserve sharing group agreement, and it and the reserve sharing group are responsible for deploying operating reserves, including regulating reserves, in conformance with NERC and WECC requirements.
 - (B) **EIM Entity Scheduling Coordinator Responsibility.** The EIM Entity Scheduling Coordinator shall –
 - (i) include any Energy deployed from reserves in the hourly EIM Base Schedules, if time permits, in which case they will be

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

settled in the Real-Time Market;

- (ii) otherwise include the Energy deployed from reserves as EIM Manual Dispatches, if time does not permit;
- (iii) immediately inform the CAISO of events requiring Dispatch of operating reserves and resource EIM Base Schedule adjustments in response to contingencies;
- (iv) if a resource's actual response differs from the resource EIM Base Schedule adjustment, provide a resource EIM Base Schedule update showing the actual resources dispatched during the event by no later than 1:00 a.m. seven days after the Operating Day in which the event occurred; and
- (v) inform the CAISO of the amount of resource capacity that is reserved for contingency reserve responsibility by either ensuring that an Energy Bid for the resource is below the maximum operating limit of the resource or reducing the maximum operating limit of the resource.

(C) **CAISO Actions.**

- (i) **Prior to Update.** Until the CAISO receives resource operating limit updates from an EIM Entity Scheduling Coordinator, the CAISO will continue to send Dispatch Instructions based upon pre-event operating limits.
- (ii) **After Update.** After EIM Base Schedule updates are received and Dispatches in the Real-Time Market reflect the updated Self-Schedules and operating limits, the CAISO shall account for the Dispatches in the net scheduled Interchange values that it provides to EIM Entity Scheduling Coordinators.

(2) **Updates to Data for Reserve Sharing Event.**

- (A) **Responsibilities.** Immediately following a reserve sharing event

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

impacting the EIM Entity Balancing Authority Area-

- (i) the EIM Entity must submit information regarding the assistance provided, including impacts to Balancing Authority Area Load schedules for each participant involved in the reserve sharing event; and
 - (ii) the EIM Entity Scheduling Coordinator must submit to the CAISO EIM Manual Dispatch instructions for resources in the EIM Entity Balancing Authority Area deployed in response to the reserve sharing event, pursuant to the reserve sharing group's criteria.
- (B) **Offsets.** Until 1:00 a.m. seven days following the reserve sharing event impacting the EIM Entity Balancing Authority Area, the EIM Entity may offset the Load schedules created by the reserve sharing event by entering resource to Load schedules, reflecting generation resources actually utilized to assist in the event.
- (q) **Variable Energy Resources and Hybrid Resources.** Provisions of Section 34 specifically applicable to Variable Energy Resources and Eligible Intermittent Resources appear in Sections 34.1.3, 34.1.6, 34.2.2, 34.5.1, 34.13.2. Provisions of Section 34 specifically applicable to Hybrid Resources appear in Section 34.1.6.3
- (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) **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).
 - (3) **Real-Time Market Scheduling Run.** In each interval of the Real-Time Market,

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

the CAISO will use the EIM Available Balancing Capacity in the run of the market optimization used to establish scheduling priorities by-

- (A) adding a penalty price factor to EIM Available Balancing Capacity Energy Bid prices so that the EIM Available Balancing Capacity is dispatched to address power balance violations, after Effective Economic Bids submitted for EIM Participating Resources in the respective EIM Balancing Authority Area not associated with the EIM Available Balancing Capacity have cleared, while respecting the economic merit order of the EIM Available Balancing Capacity Energy Bid prices;
- (B) enforce a constraint that prevents the release of EIM Upward Available Balancing Capacity in excess of the difference between the EIM Entity's demand and the supply of Effective Economic Bids cleared within the applicable EIM Balancing Authority Area, minus the import transfer into that EIM Balancing Authority Area; and
- (C) enforce a constraint that prevents the release of EIM Downward Available Balancing Capacity in excess of the difference between the supply of Effective Economic Bids cleared within the applicable EIM Balancing Authority Area and the EIM Entity's demand, minus the export transfer out of that EIM Balancing Authority Area.

(4) **Real-Time Market Pricing Run.** For each interval of the Real-Time Market, in the run of the market optimization used to set binding schedules and prices, the CAISO will –

- (A) use the EIM Available Balancing Capacity released in the run of the market optimization to establish scheduling priorities based on the Energy Bid Curves for EIM Participating Resources and non-participating resources created pursuant to Sections 29.30(c) and (d), respectively;
- (B) change the load forecast for the EIM Balancing Authority Area by a small

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

tolerance to allow for price determination;

- (C) clear the Real-Time Market and establish prices based on the pricing parameters in Sections 27.4.3.2 and 27.4.3.4, if the amount of EIM Available Balancing Capacity released in the scheduling run is not sufficient to clear the potential infeasibility identified in the scheduling run.

(s) **EIM Auto-Match.**

- (1) **Designation.** An EIM Entity may submit a designation to the Master File of EIM non-participating resources, up to the number specified in the Business Practice Manual, in its Balancing Authority Area to automatically match import/export schedule changes outside of the Market Clearing of the Real-Time Market because of changes to E-Tags at one or more designated EIM Interties or Scheduling Points, up to the number designated in the Business Practice Manual for the Energy Imbalance Market.
- (2) **Duration of Designation.** Any designation under paragraph (1) of this subsection shall remain in effect until the EIM Entity notifies the CAISO that it is terminating the designation by a submission to the Master File.
- (3) **CAISO Actions in Response to Intertie Schedule Change.** If an EIM Entity designates a non-participating resource under paragraph (1) of this subsection, the CAISO, upon identification of an associated EIM Intertie or Scheduling Point schedule change outside of the Market Clearing of the Real-Time Market, shall –
 - (A) reflect a matching schedule change to the EIM non-participating resource in the Real-Time Market using the EIM Auto-Match feature; and
 - (B) omit the EIM Intertie or Scheduling Point schedule change from the historical intertie schedule over/under-scheduling histogram for the determination of additional capacity test requirements for relevant EIM Balancing Authority Area(s) under Sections 29.34(l)(4)(B) and

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

29.34(m)(6)(ii) that are registered for EIM Auto-Match in accordance with the procedures specified in the Business Practice Manual for the Energy Imbalance Market.

29.35 Market Validation and Price Correction

Market validation and price correction for the Energy Imbalance Market shall be governed by Section 35, except that, for a period not to exceed 90 days after an EIM Entity Implementation Date, the time allowed for the CAISO's correction of Real-Time Market prices shall be 10 Business Days.

29.36 [Not Used]

29.37 Rules of Conduct

All EIM Market Participants shall be subject to the provisions of Section 37 except for Section 37.2.

29.38 Market Monitoring

The CAISO Department of Market Monitoring shall provide market monitoring services for the participation of EIM Market Participants in the Real-Time Market, including –

- (a) monitoring markets administered by the CAISO for actual or potential ineffective market rules, market abuses, market power, violations of FERC or CAISO Market rules prohibiting provision of false information, or market manipulation;
- (b) coordinating with CAISO business units that review and monitor the performance and quality of the CAISO Markets;
- (c) providing recommendations about potential market design flaws or ineffective market rules to the CAISO and FERC; and
- (d) referring a matter to FERC if the Department of Market Monitoring determines there is sufficient credible evidence that a violation of FERC or CAISO Market rules has occurred.

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.
- (b) **Competitive Path Assessment.** The CAISO shall conduct the competitive path

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

assessment to determine for each EIM Entity Balancing Authority Area whether a path is competitive or non-competitive, consistent with Section 39.7.2, except that –

- (1) 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 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 for each EIM Entity Balancing Authority Area using the results of the competitive path assessment and the Congestion pricing results of the pre-market 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 EIM Participating Resources, except that the CAISO will use the Market Services Charge and System Operations Charge reflected in the EIM Administrative Charge.

29.40 [Not Used]

29.41 [Not Used]

29.42 [Not Used]

29.43 [Not Used]

29.44 Flexible Ramping Product

The CAISO will procure Flexible Ramping Product for the Energy Imbalance Market as set forth in Section 44, except that the CAISO will consider the EIM Base Schedules of non-participating resources as Self-Schedules for the calculation of Flexible Ramping Product requirements.