



May 20, 2011

The Honorable Kimberly D. Bose  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, DC 20426

**Re: California Independent System Operator Corporation  
Docket No. ER11-\_\_\_\_-000  
Tariff Amendment to Implement the  
Reliability Demand Response Resource Product**

Dear Secretary Bose:

The California Independent System Operator Corporation (“ISO”) submits this filing to modify the ISO tariff in order to reduce barriers to the participation of demand response in the ISO markets by allowing a new wholesale demand response resource to participate in the ISO’s markets.<sup>1</sup> This enhancement will enable retail emergency-triggered demand response programs, including interruptible, air conditioning, and agricultural pumping load programs, to be integrated into ISO markets and operations. The tariff revisions proposed in this filing are similar in most respects to the tariff revisions that the Commission approved within the last year to allow the ISO to implement a similar demand response resource, the proxy demand resource, to participate in the ISO’s markets.<sup>2</sup> These tariff revisions are the result of a comprehensive settlement

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<sup>1</sup> The ISO submits this filing pursuant to Section 205 of the Federal Power Act, 16 U.S.C. § 824d, and Section 35.13 of the Commission’s regulations, 18 C.F.R. § 35.13. The ISO is also sometimes referred to as the CAISO. Capitalized terms not otherwise defined herein have the meanings set forth in Appendix A to the ISO tariff, and except where otherwise noted herein, references to section numbers are references to sections of the tariff.

<sup>2</sup> See *California Independent System Operator Corp.*, 132 FERC ¶ 61,045 (2010) (“July 15, 2010 Order”), *order on compliance and reh’g*, 134 FERC ¶ 61,004 (2011) (“January 4, 2011 Order”). Due to the similarities between the reliability demand response resource product and the proxy demand resource product, much of the discussion in this transmittal letter is comparable to the discussion in the transmittal letter for the ISO tariff amendment requesting Commission

agreement among the ISO, state investor-owned utilities, and other interested parties addressing how a large percentage of emergency-triggered demand response resources in California made available under state retail demand response programs will be integrated into the ISO's wholesale market design. This settlement agreement was reached after several years of discussions of these issues by interested stakeholders and was approved by the California Public Utilities Commission. The ISO has long supported the principles underlying this settlement and believes the resulting proposal to integrate reliability demand response resources into the ISO's markets furthers the demand response objectives set by the Commission.

Adding reliability demand response resources will increase demand response participation in the ISO markets and will facilitate integration into the ISO markets of a significant quantity of existing emergency-triggered retail demand programs and newly configured demand response resources that desire to be dispatched only under certain system conditions compatible with their operation. The tariff provisions implementing the reliability demand response resource product will satisfy the directives of the Commission's Order No. 719 that independent system operators should develop the capability to permit an aggregator of retail customers to bid demand response on behalf of retail customers directly into the ISO's organized markets to the extent permitted by applicable laws and regulations regarding retail customers.

The ISO respectfully requests the Commission make the tariff revisions to the demand response provider agreement (Appendix B.14 to the tariff) contained in this filing effective as of October 1, 2011, and make the remainder of the proposed tariff revisions effective as of April 1, 2012.<sup>3</sup> Granting that October 1, 2011 effective date with respect to the demand response provider agreement will give the ISO and market participants sufficient time to prepare for the planned implementation of the reliability demand response resource product on April 1, 2012, including time for the investor-owned utilities to conduct their communication, conversion, and registration process prior to the planned operation date, consistent with the understanding that was reached with stakeholders during the policy development process. A Commission order on the entire set of tariff revisions is therefore respectfully requested by October 1, 2011.

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approval of the proxy demand resource product, which was filed on February 16, 2010, in Docket No. ER10-765-000.

<sup>3</sup> In order to permit these effective dates, the ISO requests waiver, pursuant to Section 35.11 of the Commission's regulations (18 C.F.R. § 35.11), of the notice requirements set forth in Section 35.3 of the Commission's regulations (18 C.F.R. § 35.3).

## **I. Background**

### **A. Development and Benefits of the Reliability Demand Response Resource Product**

Wholesale demand response resources, such as the ISO's proposed reliability demand response resource, are designed to compensate market participants at the full locational marginal price ("LMP") by reducing customer electricity use in response to ISO dispatch instructions. Under the ISO's proposal, a reliability demand response resource is a load or an aggregation of loads capable of measurably and verifiably reducing their electric demand in response to ISO dispatch instructions. Reliability demand response resources will be able to provide energy in the ISO's day-ahead and real-time markets.

The design of the reliability demand response resource tariff amendment is based on the market rules and software platform developed for the proxy demand resource approved by the Commission. However, as explained below, there are some notable differences between the two types of resources.

As with each proxy demand resource, a reliability demand response resource is registered with the ISO by an entity referred to as a "demand response provider", but bids and schedules for that resource are submitted in the ISO markets through an ISO-certified scheduling coordinator.<sup>4</sup> The scheduling coordinator for a reliability demand response resource submits schedules and bids for that resource to curtail load at a pricing node ("PNode") or aggregated PNode located within a sub-load aggregation point ("Sub-LAP").<sup>5</sup> The scheduling coordinator that represents the load serving entity in the geographic location where the reliability demand response resource is located will continue to schedule forecasted load at the default load aggregation point ("DLAP"). The load serving entity and the demand response provider may be the same entity or different entities. Similarly, the load serving entity and demand response provider can be represented by the same scheduling coordinator or two different scheduling coordinators.

The settlement for the curtailed portion of the load will be settled by the ISO directly with the demand response provider's scheduling coordinator at the reliability demand response resource's specified PNode or aggregated PNode. Determination of actual delivery by the reliability demand response resource will be calculated as the difference between metered load for the reliability demand

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<sup>4</sup> A demand response provider can also be an ISO-certified scheduling coordinator, which will allow the demand response provider to schedule and bid its own reliability demand response resources in the ISO markets.

<sup>5</sup> A Sub-LAP is defined in the ISO tariff as a subset of PNodes within a Default LAP.

response resource and a pre-determined baseline. The scheduling coordinator for the demand response provider will receive the full locational marginal price for these quantities. Pursuant to existing Section 11.5.4.2 of the ISO tariff, the real-time dispatch cost will be allocated to the market based on measured demand just like other imbalance energy. The day-ahead dispatch cost will be allocated to the buyers of the energy like any other supply resource pursuant to existing Section 11.2 of the tariff. The load serving entity and the demand response provider for the reliability demand response resource may enter into a bilateral agreement that addresses compensation for the energy procured by the load serving entity but not consumed as a result of load curtailment actions taken by the demand response provider. Alternatively, this compensation issue may be addressed by the applicable rules or regulations of the local regulatory authority. For example, the compensation issue is currently being considered in the demand response rulemaking proceeding of the California Public Utilities Commission (“CPUC”) discussed below. Accordingly, the ISO tariff will not indicate if and how revenues will be shared between the load serving entity and the demand response provider.

The development of the reliability demand response resource product grew out of a settlement agreement approved last year in a CPUC demand response rulemaking proceeding (R.07-01-041) that included the resolution of a number of issues regarding the quantity, use, and resource adequacy treatment of retail emergency-triggered demand response programs.<sup>6</sup> This settlement resolved years of discussion in various CPUC proceedings as to how emergency demand response resources can participate in the ISO market. The express purpose of this “Reliability-Based Demand Response Settlement,” which was agreed to by the ISO, the three investor-owned utilities in California, and other parties after extensive negotiations,<sup>7</sup> is to “address the operation of investor-owned utilities’ emergency triggered DR [demand response] programs in the wholesale electricity market and the integration of emergency triggered DR into wholesale market design.”<sup>8</sup> The settlement requires the ISO to “initiate a

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<sup>6</sup> See CPUC Decision 10-06-034, issued in Proceeding R.07-01-041 (June 25, 2010). This CPUC decision is available on the CPUC’s website at [http://docs.cpuc.ca.gov/published/FINAL\\_DECISION/119815.htm](http://docs.cpuc.ca.gov/published/FINAL_DECISION/119815.htm). Further information regarding the CPUC demand response rulemaking proceeding is provided in the ISO’s “Reliability Demand Response Product, Revised Draft Final Proposal (Version 2.0),” at 3-4 (Oct. 14, 2010) (“Reliability Demand Response Resource Final Proposal”). This ISO document is available on the ISO’s website at <http://www.caiso.com/281a/281abd55ec00.pdf>.

<sup>7</sup> The parties to the Reliability-Based Demand Response Settlement are: the ISO; Pacific Gas and Electric Company (“PG&E”); Southern California Edison Company (“SCE”); San Diego Gas & Electric Company (“SDG&E”); the California Large Energy Consumers Association; the Division of Ratepayer Advocates; EnerNOC, Inc.; and The Utility Reform Network. PG&E, SCE, and SDG&E are the three California investor-owned utilities.

<sup>8</sup> Reliability-Based Demand Response Settlement at 1. This settlement agreement is available on the CPUC’s website at <http://docs.cpuc.ca.gov/efile/MOTION/114111.pdf>.

stakeholder process in 2010, with the objective of developing a wholesale reliability demand response product (RDRP) that is compatible with IOU reliability-based demand response programs.”<sup>9</sup> The settlement also specifies a number of requirements for the wholesale product to be developed in the ISO’s stakeholder process.<sup>10</sup> As discussed in Section II below, this tariff amendment reflects these requirements of the settlement.

The ISO initiated the stakeholder process for the general design of the reliability demand response resource product in June 2010.<sup>11</sup> This phase of the stakeholder process included a total of seven meetings and conference calls and six opportunities for written stakeholder comments. The stakeholder process resulted in a final proposal for implementing the reliability demand response resource product that was presented to and approved by the ISO Governing Board (“Board”) at its meeting held on November 1, 2010.<sup>12</sup>

Subsequent to this Board approval, the ISO began developing the specific tariff provisions needed to incorporate the reliability demand response resource with stakeholder input. These new provisions will enable qualifying reliability demand response resources to provide energy in the day-ahead and real-time

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<sup>9</sup> *Id.* at Section A(1). These IOU reliability-based demand response programs include: the investor-owned utilities’ interruptible load programs, such as the Base Interruptible Program or “BIP”; direct load programs, such as SCE’s Summer Discount (*i.e.*, air conditioning cycling) Plan; and agricultural and interruptible pumping load programs, such as SCE’s AP-I program. *Id.* at Section A(1), 4. In 2009, retail emergency-triggered demand response programs accounted for nearly four percent (approximately 2,150 MW) of the total resource adequacy capacity obligation of CPUC-jurisdictional entities. This significant amount of resource adequacy capacity is not integrated into the ISO market and systems but is made available to the ISO only during an emergency through a manual process. However, a manual process does not provide ISO operators of such resources with clear visibility regarding the location and quantity of these emergency resources and does not allow the value of the resources to be reflected in the locational marginal price. The reliability demand response resource product resolves these concerns by providing a wholesale market mechanism to integrate emergency retail demand response into the ISO markets. “External Business Requirements Specification for Reliability Demand Response Product (Version 1.1),” at 5 (Mar. 3, 2011) (“Reliability Demand Response Resource Business Requirements Specification”). This ISO document is available on the ISO’s website at <http://www.aiso.com/2b51/2b519218728d0.pdf>.

<sup>10</sup> Reliability-Based Demand Response Settlement at Section A(4).

<sup>11</sup> A list of key dates in the ISO stakeholder process for the reliability demand response resource product is provided in Attachment D to this tariff amendment. Materials related to the stakeholder process are available on the ISO’s website at <http://www.aiso.com/27ab/27ab6e875c2e0.html> and <http://www.aiso.com/27e3/27e379e953560.html>.

<sup>12</sup> Materials related to the Board’s approval of the final proposal are provided in Attachment E to this tariff amendment and are available on the ISO’s website at <http://www.aiso.com/283b/283bbce226670.html>.

markets.<sup>13</sup> The ISO is also developing the related software changes and business practice requirements to allow ISO market participation by reliability demand response resources. The ISO anticipates that these software changes and business practice requirements will be completed in time to permit parties to enter into demand response provider agreements on behalf of reliability demand response resources and to begin the resource registration process in October 2011. It is important that the ISO open the registration process well in advance of the planned operation date of April 1, 2012 to allow the investor-owned utilities sufficient time to communicate with their customers about participation as reliability demand response resources, enter into the necessary agreements, and register the resources with the ISO. A Commission order by October 1 will provide the certainty required for all interested parties to proceed with this process.

By increasing the quantity of resources participating in the energy markets, reliability demand response resources will provide greater market liquidity, help to mitigate potential market power concerns, and augment the resources available for ISO dispatch in real-time in order to mitigate an imminent or actual system emergency or mitigate an imminent or threatened operating reserve deficiency. In particular, the ISO believes that adding reliability demand response resources will provide the following benefits:

- Integrate retail emergency demand response programs into the ISO market;
- Reflect the value of these emergency resources in the ISO market;
- Provide access to emergency demand response resources earlier in the ISO's emergency operating procedures;
- Reduce the cost of serving load at the applicable load aggregation point by reducing demand, which will reduce congestion costs, resulting in a lower locational marginal price at high-priced nodes; and
- Support the goals of the ISO's Five-Year Strategic Plan for 2011-2015, which states that the ISO will provide for demand response participation, including the implementation of "new products aimed at making demand price-responsive and emergency demand response dispatchable through the wholesale markets."<sup>14</sup>

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<sup>13</sup> Reliability Demand Response Resource Final Proposal at 4.

<sup>14</sup> See ISO Five-Year Strategic Plan for 2011-2015, at 18-19 (Dec. 15, 2010), available on the ISO's website at <http://www.caiso.com/2875/287586401b3c0.pdf>.

## B. Order Nos. 719 and 745

In addition to enhancing the ISO's demand response capabilities, the addition of reliability demand response resources satisfies applicable requirements of the Commission's Order No. 719.<sup>15</sup> Among other things, Order No. 719 established a number of requirements for independent system operators ("ISOs") and regional transmission organizations ("RTOs") related to demand response. Relevant to the instant filing, in Order No. 719, the Commission directed ISOs and RTOs to take actions that included amending their market rules as necessary to permit aggregators of retail customers to bid demand response on behalf of retail customers into the organized electricity markets operated by the ISOs and RTOs (unless prohibited by the laws or regulations of the relevant electric retail regulatory authority).<sup>16</sup> The Commission also explained that it would permit each ISO or RTO to design provisions for aggregators of retail customers that account for differences in each region's market design. Therefore, instead of developing *pro forma* language or requiring RTOs and ISOs to make detailed generic market rule amendments, the Commission "direct[ed] RTOs and ISOs to amend their tariffs and market rules as necessary to allow an aggregator of retail customers to bid demand response directly into the RTO's or ISO's organized market in accordance with" a number of "criteria and flexibilities" specified in Order No. 719.<sup>17</sup>

As explained in Section III, below, the ISO's reliability demand response resource proposal satisfies each of the criteria and flexibilities contained in Order No. 719. The reliability demand response resource proposal will allow demand response providers to aggregate retail customers for the purpose of bidding demand response directly into the ISO markets and will meet the objectives set forth in Order No. 719.

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<sup>15</sup> *Wholesale Competition in Regions with Organized Electric Markets*, FERC Stats. & Regs. ¶ 31,281 (2008) ("Order No. 719"), *order on reh'g*, Order No. 719-A, FERC Stats. &

Regs. ¶ 31,292, *order on reh'g and clarification*, Order No. 719-B, 129 FERC ¶ 61,252 (2009). Order Nos. 719, *et seq.* also added to the Commission's regulations 18 C.F.R. § 35.28(g), which includes demand response requirements applicable to independent system operators and regional transmission organizations.

<sup>16</sup> Order No. 719 at PP 3, 154. The Commission defined the relevant electric retail regulatory authority as "the entity that establishes the retail electric prices and any retail competition policies for customers, such as the city council for a municipal utility, the governing board of a cooperative utility, or the state public utility commission." *Id.* at P 158. The ISO tariff uses the term demand response providers to describe the entities in the ISO markets that Order No. 719 refers to as aggregators of retail customers.

<sup>17</sup> *Id.*

The ISO recognizes that, in March 2011, the Commission issued Order No. 745.<sup>18</sup> The ISO timely filed a motion for clarification and request for rehearing in the alternative of Order No. 745, which is currently pending before the Commission.<sup>19</sup> Among other things, the April 14 ISO Filing requested that the Commission clarify whether reliability demand response resources are subject to the requirements of Order No. 745.<sup>20</sup> The April 14 ISO Filing also stated that, if the Commission does not issue an order granting the ISO's request for clarification that Order No. 745 does not require any change to the "default load adjustment" mechanism set forth in the ISO tariff by July 22, 2011 (*i.e.*, the due date of the ISO's filing to comply with Order No. 745), the ISO intends to proceed assuming that Order No. 745 does not require any change to the default load adjustment mechanism.<sup>21</sup>

The ISO will also explain below why its proposed pricing threshold for reliability demand response resources will satisfy whatever net benefits test the ISO intends to propose in compliance with Order No. 745 for both proxy demand resources and reliability demand response resources.<sup>22</sup> Further, Order No. 745 expressly exempts emergency-triggered demand response programs of regional transmission organizations and independent system operators that are operated outside of the day-ahead and real-time markets.<sup>23</sup> The ISO believes it should not now be disadvantaged for having incorporated emergency-triggered demand response into its markets in a manner that makes these reliability demand response resources more transparent to market participants and more effective to the ISO in addressing reliability needs and that aligns well with the requirements of Order No. 719.

## **II. Requirements For Reliability Demand Response Resources and Proposed Tariff Changes**

### **A. Overview**

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<sup>18</sup> See *Demand Response Compensation in Wholesale Organized Energy Markets*, Order No. 745, 134 FERC ¶ 61,187, 76 Fed. Reg. 16658 (2011) ("Order No. 745").

<sup>19</sup> See Motion for Clarification, Request for Rehearing, and Request for Substantive Order Within 30 Days of the California Independent System Operator Corporation, Docket No. RM10-17-001, at 21-34 (April 14, 2011) ("April 14 ISO Filing"). Order No. 745 and the April 14 ISO Filing are discussed further in Sections II.E and II.H, below.

<sup>20</sup> April 14 ISO Filing at 32-33.

<sup>21</sup> *Id.* at 24, fn. 56, and 32. As discussed in Section II.H, below, the default load adjustment mechanism applies to proxy demand resources and will apply to reliability demand response resources.

<sup>22</sup> See Section II.E, below.

<sup>23</sup> Order No. 745 at P 2, fn. 4.

The features of the proposed reliability demand response resources are for the most part similar to the features of the proxy demand response resources already approved by the Commission. Reliability demand response resources represented by demand response providers may be authorized to take part in the ISO's day-ahead and real-time energy markets once they have executed a *pro forma* demand response provider agreement (previously approved by the Commission as the proxy demand resource agreement) with the ISO and satisfied other applicable requirements to participate in the ISO markets through a certified scheduling coordinator, including requirements of the local regulatory authority.<sup>24</sup>

As with proxy demand resources, the process for reliability demand response resources to participate in the ISO markets will begin with the registration of such resources by the demand response provider that represents them. Information provided to the ISO and completion of the registration steps will be included within the ISO's existing demand response system. Through the registration process, the demand response provider will identify the certified scheduling coordinator that will represent the discrete reliability demand response resources to which the demand response provider wishes to assign a resource ID (as defined in the ISO tariff) and the load serving entity that serves the underlying demand of the load customer(s) that enables the demand reduction. Each load serving entity is also represented by a certified scheduling coordinator (or acts as its own scheduling coordinator) in the ISO markets.

Like the design of the proxy demand resource program, the reliability demand response resource program design separates the functions of these two scheduling coordinators (although a single scheduling coordinator could be utilized to represent both the load serving entity and the demand response provider), in that the scheduling coordinator that represents the load serving entity will continue to schedule the demand for the end-use customers in the day-ahead market, while the scheduling coordinator representing the demand response provider will schedule and bid its reliability demand response resources into the ISO markets. This will allow the settlement for energy delivered (defined in this tariff amendment as the demand response energy measurement, which was formerly called the "PDR energy measurement") to be paid to the demand response provider's scheduling coordinator. Through identification of the scheduling coordinator representing the load serving entity, the quantity of the demand response energy measurement will be added to the measured demand of the scheduling coordinator representing the load serving entity to prevent that scheduling coordinator from being compensated for the imbalance energy

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<sup>24</sup> The local regulatory authority is defined in Appendix A to the ISO tariff as "[t]he state or local governmental authority, or the board of directors of an electric cooperative, responsible for the regulation or oversight of a utility."

resulting from the reduction in demand by the reliability demand response resource.

Specific details of the ISO's reliability demand response resource proposal, and the tariff changes needed to implement the proposal, are discussed below.

## **B. Definitions of Entities and Services**

The ISO proposes to add or modify the following defined terms, in order to set forth in Appendix A to the ISO tariff the types of entities and services that implement the reliability demand response resource product:

- The existing term *demand response provider* has been modified to mean an entity responsible for delivering demand response services from a proxy demand resource or reliability demand response resource providing demand response services that has undertaken in writing by execution of the applicable agreement to comply with all applicable provisions of the ISO tariff.
- The existing term *proxy demand resource agreement* has been renamed the *demand response provider agreement* and revised as discussed in Section II.C, below. The demand response provider agreement applies to both proxy demand resources and reliability demand response resources.
- The new term *reliability demand response resource* has been defined as a load or aggregation of loads capable of measurably and verifiably providing demand response services pursuant to the demand response provider agreement.
- The existing term *demand response services* has been modified to mean demand from a proxy demand resource or reliability demand response resource that can be bid into the day-ahead market and real-time market and dispatched at the direction of the ISO.<sup>25</sup>

Additional terms to be added to Appendix A are discussed in the context of related tariff provisions below.

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<sup>25</sup> While the current functionality for proxy demand resources and reliability demand response resources is only demand *reduction*, the ISO has used the broader term *services* in contemplation of potential future demand response products with the ability to accept a dispatch to increase load (*i.e.*, increase consumption). See February 16, 2010, filing in Docket No. ER10-765 at 11.

### C. Demand Response Provider Agreement

A *pro forma* version of the demand response provider agreement will be included in Appendix B.14 to the ISO tariff, which is currently the location of the *pro forma* proxy demand resource agreement. In addition to renaming it, the ISO proposes to modify the agreement so that it continues to apply to proxy demand resources and now also applies to reliability demand response resources.

Pursuant to these modifications, reliability demand response resources will for the most part be subject to the same provisions under the agreement as proxy demand resources.<sup>26</sup> One of the few points of difference is that the termination provisions set forth in Section 3.2.2 of the agreement have been modified to state that a demand response provider with reliability demand response resources is not permitted to terminate the agreement effective as of a date within a *reliability demand response services term* to which those reliability demand response resources are subject. This provision is necessary to ensure that each reliability demand response resource is available for the entirety of a reliability demand response services term, which the ISO proposes to define in Appendix A to the tariff as a six (6) month time period during which a reliability demand response resource is available to provide demand response services as specified in the business practice manual. A six-month reliability demand response services term enables participation by both seasonal and annual reliability demand response resources under retail demand response programs and is a reasonable length of time for establishing and evaluating the availability limits of such resources.<sup>27</sup>

The ISO also proposes to modify the general terms and conditions set forth in Article IV of the agreement to distinguish among the following: (1) terms and conditions applicable to both proxy demand resources and reliability demand response resources; (2) terms and conditions applicable solely to proxy demand resources; and (3) terms and conditions applicable solely to reliability demand response resources. The first of these categories consists of provisions in the agreement identical to those the Commission approved in the July 15, 2010 Order and the January 4, 2011 Order,<sup>28</sup> except that the provisions have been

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<sup>26</sup> For example, Section 2.2 of the agreement has been modified to state that “[t]he Demand Response Provider and CAISO acknowledge that to submit Bids for Proxy Demand Resources or Reliability Demand Response Resources to the CAISO through a Scheduling Coordinator, the Demand Response Provider must register its Proxy Demand Resources or Reliability Demand Response Resources in the CAISO’s Demand Response System.”

<sup>27</sup> Reliability Demand Response Resource Final Proposal at 6, 17. The availability limits applicable to reliability demand response resources are discussed further in Section II.E, below.

<sup>28</sup> See July 15, 2010 Order, 132 FERC ¶ 61,045 at PP 45-47; January 4, 2011 Order, 134 FERC ¶ 61,004 at P 23.

relocated within the agreement and have been made applicable to reliability demand response resources.<sup>29</sup> The second category consists of provisions approved in the July 15, 2010 Order that have been renumbered and relocated within the agreement and that relate to the provision of ancillary services.<sup>30</sup> As discussed below, proxy demand resources are eligible to provide ancillary services but reliability demand response resources are not. The third category consists of new Sections 4.3.1 and 4.3.2 of the agreement, which apply to reliability demand response resources requirements regarding metering and notification of changes that are similar to requirements that apply to proxy demand resources pursuant to new (*i.e.*, renumbered and relocated) Sections 4.2.2 and 4.2.3 of the agreement, except for requirements in new Sections 4.2.2 and 4.2.3 that are related to ancillary services.

Further, the ISO has modified Section 4.13.1 of the tariff and the definition of the term proxy demand resource in Appendix A to the tariff in order to refer to the demand response provider agreement rather than the proxy demand resource agreement.

#### **D. Roles and Responsibilities of Demand Response Providers and Requirements Applicable to Reliability Demand Response Resources**

The ISO has modified Section 4.13 of the ISO tariff to set forth requirements for reliability demand response resources and the roles and responsibilities of demand response providers that represent such resources. These provisions are similar to the provisions that already apply under Section 4.13 to proxy demand resources and their representative demand response providers.

Section 4.13.1 has been modified to state that the ISO will only accept bids for energy from reliability demand response resources represented by a demand response provider that has entered into a demand response provider agreement with the ISO. Section 4.13.1 has also been modified to obligate each such demand response provider to accurately provide the information required in the ISO's demand response system, satisfy all reliability demand response

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<sup>29</sup> Specifically, the provisions in former Section 4.3 have been moved to new Section 4.1.1 of the agreement; the provisions in former Section 4.5 have been moved to new Section 4.1.2 of the agreement; and the provisions in former Section 4.7 have been moved to new Section 4.1.3 of the agreement.

<sup>30</sup> See July 15, 2010 Order, 132 FERC ¶ 61,045 at P 45. Specifically, former Section 4.1 has been renumbered as Section 4.2.1 of the agreement; former Section 4.2 has been renumbered as Section 4.2.2 of the agreement; the provisions in former Section 4.4 have been moved to new Section 4.2.3 of the agreement; and the provisions in former Section 4.6 have been moved to new Section 4.2.4 of the agreement.

resource registration requirements, and meet standards adopted by the ISO and published on its website.

The ISO has modified Section 4.13.2 to state that each reliability demand response resource must be represented by only a single demand response provider, although a demand response provider may represent more than one reliability demand response resource. Each reliability demand response resource is required to be associated with a single load serving entity and a single utility distribution company (or with a single load serving entity in the case of a reliability demand response resource within a metered subsystem), and all underlying locations of a single reliability demand response resource must be located in a single Sub-LAP. Further, modified Section 4.13.2 states that a location cannot be registered to both a reliability demand response resource and a proxy demand resource for the same trading day. This is because the same resource cannot operate simultaneously as a reliability demand response resource and a proxy demand resource.<sup>31</sup>

The ISO has modified Section 4.13.4 of the ISO tariff to apply to reliability demand response resources virtually the same methodology for calculating the customer baseline,<sup>32</sup> using the ten-in-ten non-event day selection method set forth in Section 4.13.4, as the Commission approved for proxy demand resources. Like the calculation for a proxy demand resource, the calculation of the customer baseline for a reliability demand response resource generally excludes calendar days on which the reliability demand response resource previously provided demand response services or was subject to an outage as described in the business practice manual. Prior to implementation of this tariff amendment, the ISO will modify the business practice manual to state that the exclusion for an outage of a reliability demand response resource will apply to calendar days on which the load curtailment capability of the resource is reduced by 50 percent or more of the resource's normal load curtailment capability.<sup>33</sup>

New Section 4.13.5 of the tariff sets forth the characteristics of proxy demand resources and reliability demand response resources. Section 4.13.5.1 states that each proxy demand resource and reliability demand response resource will become available to provide demand response services pursuant to the demand response provider agreement following the date on which that

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<sup>31</sup> See Reliability Demand Response Resource Business Requirements Specification at 14 (RDRP-BRQ060).

<sup>32</sup> The customer baseline is addressed further in the discussion of the metering and settlement of demand response services contained in Section II.H, below.

<sup>33</sup> See Reliability Demand Response Resource Final Proposal at 29-30; Reliability Demand Response Resource Business Requirements Specification at 19 (RDRP-BRQ350).

agreement is executed by all parties thereto, as specified by the parties, and will be available to provide demand response services until the agreement is terminated.

Section 4.13.5.2.1 sets forth size limits for proxy demand resources. Consistent with the Business Requirements Specification applicable to proxy demand resources, the minimum load curtailment of a proxy demand resource can be no smaller than 0.1 MW and there is no upper limit on the maximum load curtailment of a proxy demand resource.<sup>34</sup>

Section 4.13.5.2.2 contains size limits for reliability demand response resources. Consistent with the Reliability Demand Response Resource Final Proposal and the Reliability Demand Response Resource Business Requirements Specification, the minimum load curtailment of a reliability demand response resource can be no smaller than 0.5 MW in the aggregate, the maximum load curtailment of a reliability demand response resource that selects the *discrete real-time dispatch option* (discussed in Section II.E, below) can be no larger than 50 MW, and there is no upper limit on the maximum load curtailment of a reliability demand response resource that selects the *marginal real-time dispatch option* (also discussed in Section II.E, below).<sup>35</sup> The ISO established a minimum aggregated quantity of 0.5 MW for reliability demand response resources to increase the certainty that its unit commitment software would commit the resource in the market optimization, as the optimization algorithms balances the derivation of an optimal solution against the time required to derive that optimal solution. In certain instances, very small resources may not be consistently detected as economic by the optimization software and, therefore, not dispatched.<sup>36</sup> It is particularly important that

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<sup>34</sup> See “Business Requirements Specification for Demand Response – Proxy Demand Resource (Version 1.8), at 41 (PDR.DAM.BRQ001200), 52 (PDR.DAM.BRQ004100) (Dec. 23, 2009). This ISO document is available on the ISO’s website at <http://www.caiso.com/2494/249473613ffe0.pdf>. As set forth in proposed Section 4.13.5.2.1, loads may be aggregated together to achieve the 0.1 MW threshold for minimum load curtailment of a proxy demand resource.

<sup>35</sup> See Reliability Demand Response Resource Business Requirements Specification at 15 (RDRP-BRQ090), 16 (RDRP-BRQ150), 26 (RDRP-BRQ820).

<sup>36</sup> To minimize the unit commitment gap, the ISO employs a Mixed Integer Programming (MIP) technique to derive the optimal power flow solution in its day-ahead and real-time markets. The unit commitment gap is the difference in the objective costs between a theoretical optimal solution, ignoring commitment-type decisions, and what the solution can derive in a reasonable time. As with all optimization algorithms, to effectively evaluate the market, the ISO must derive an optimal power flow solution and produce market results in a timely manner. The unit commitment gap is an issue with very small resources. In certain instances, a small bid (100 kilowatts) could be “economic” but could be overlooked in the final market solution, because it appears sub-optimal, and therefore not be awarded or dispatched.

reliability demand response resources be dispatched since their operation is critical during a system or transmission emergency.

Section 4.13.5.3 sets forth dispatch parameters for reliability demand response resources. Each reliability demand response resource can have a minimum run time of no more than one hour.<sup>37</sup> Further, each reliability demand response resource must be capable of reaching its maximum load curtailment within forty minutes after it receives a dispatch instruction, and capable of providing demand response services for at least four consecutive hours per *demand response event*.<sup>38</sup> The ISO proposes to define a demand response event in Appendix A to the tariff as a “time period, deadline, and transition during which a Proxy Demand Resource or Reliability Demand Response Resource provides Demand Response Services.” This is the definition of a demand response event established by the Wholesale Energy Quadrant of the North American Energy Standards Board (“NAESB”),<sup>39</sup> with changes to incorporate terms defined in the ISO tariff.

The proposed language in Sections 4.13.5.2.2 and 4.13.5.3 is consistent with the provisions in the Reliability-Based Demand Response Settlement stating that reliability demand response resources must meet minimum operating requirements, must meet certain technical requirements developed in the ISO’s stakeholder process, and may have maximum availability limitations.<sup>40</sup> That tariff language is also consistent with the provisions in the Reliability-Based Demand Response Settlement stating that, when reliability demand response resources are eligible for dispatch by the ISO, notification will take place through normal ISO channels, *i.e.*, the ISO will provide notification to the responsible scheduling coordinator through the automated dispatch system.<sup>41</sup>

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<sup>37</sup> See Reliability Demand Response Resource Business Requirements Specification at 15 (RDRP-BRQ120).

<sup>38</sup> See *id.* at 15 (RDRP-BRQ120, RDRP-BRQ130).

<sup>39</sup> See Reliability Demand Response Resource Final Proposal at Attachment 1, page A-3 (explaining that NAESB defines a demand response event as the “time periods, deadlines and transitions during which Demand Resources perform. The System Operator shall specify the duration and applicability of a Demand Response Event. All deadlines, time periods and transitions may not be applicable to all Demand Response products or services.”). As described in the Reliability Demand Response Resource Final Proposal (at 7-9), the reliability demand response resource product must be designed in compliance with the standards established by NAESB for the measurement and verification of demand response provided in the wholesale electricity markets.

<sup>40</sup> See Reliability-Based Demand Response Settlement at Section A(4)(d).

<sup>41</sup> See *id.* at Section A(4)(l).

## **E. Bidding and Scheduling of Reliability Demand Response Resources**

The ISO proposes to add new Section 30.6.2 to the tariff to set forth the requirements for bidding and scheduling reliability demand response resources. Section 30.6.2 states that, unless otherwise specified in the tariff and applicable business practice manuals, the ISO will treat bids for energy on behalf of reliability demand response resources like bids for energy on behalf of other types of supply resources. Pursuant to that provision, a scheduling coordinator submitting a bid for energy for a reliability demand response resource will be subject to the same processes, bid validation, and market timelines as a scheduling coordinator that submits a bid for any other type of resource, unless otherwise specified in the tariff or a business practice manual. For bidding and scheduling purposes, reliability demand response resources will be modeled in the ISO's systems in the same manner as generators.

Section 30.6.2 specifies that a scheduling coordinator for a demand response provider representing a reliability demand response resource may submit economic energy bids only in the day-ahead and real-time markets but may not submit energy self-schedules for the reliability demand response resource, may not bid or self-provide ancillary services from the reliability demand response resource, and may not submit residual unit commitment availability bids for the reliability demand response resource. The ISO prohibits self-scheduling and requires economic bids to ensure the value of the resource is reflected in the ISO markets. The ISO prohibits reliability demand response resources from bidding ancillary services and residual unit commitment capacity because the energy dispatched in real-time from reliability demand response resources is only available for dispatch under specific conditions that do not similarly apply to the real-time dispatch of energy behind an ancillary service or residual unit commitment capacity award.<sup>42</sup> Pursuant to Section 30.6.2, the demand response provider's demand response services for reliability demand response resources will be bid separately and independently from the load serving entity's underlying demand bid. Apart from the provisions specifying that a reliability demand response resource may submit energy bids only in the day-ahead and real-time markets, Section 30.6.2 is similar to existing Section 30.6.1, regarding the requirements for bidding and scheduling proxy demand resources.

Section 30.6.2.1 addresses bidding and scheduling of reliability demand response resources in the real-time market. Section 30.6.2.1.1 requires that, within each reliability demand response services term, any capacity of a reliability demand response resource that remains uncommitted after the day-ahead

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<sup>42</sup> Reliability demand response resources are available for dispatch as specified in the ISO emergency operating procedures. Such dispatch restrictions do not apply to the energy associated with residual unit commitment or ancillary service capacity.

market must be bid in the real-time market in order to be available to provide demand response services in real-time until such time as the reliability demand response resource has reached the *RDRR availability limit* for the reliability demand response services term.<sup>43</sup> Within each reliability demand response services term and after the reliability demand response resource has reached the RDRR availability limit, any capacity of a reliability demand response resource that remains uncommitted after the day-ahead market may be (but is not required to be) bid in the real-time market in order to be available to provide demand response services in real-time.

Section 30.6.2.1.2 sets forth two alternative real-time dispatch options for reliability demand response resources – the marginal real-time dispatch option and the discrete real-time dispatch option. Each scheduling coordinator for a demand response provider representing a reliability demand response resource must select one of these options prior to the start of the initial reliability demand response services term applicable to the reliability demand response resource. That selection will remain in effect until such time as the scheduling coordinator chooses to switch it, in which case the switch will go into effect at the start of the next reliability demand response services term applicable to the reliability demand response resource. A reliability demand response resource subject to either option must have minimum load costs of zero dollars registered in the master file.

Pursuant to Section 30.6.2.1.2.1, a reliability demand response resource subject to the marginal real-time dispatch option may submit either a single-segment bid or a multi-segment bid in the real-time market that must be at least ninety-five percent of the applicable maximum bid price and can be no greater than one hundred percent of the applicable maximum bid price set forth in Section 39.6.1.1.<sup>44</sup> Such a resource will be dispatched as a marginal resource if it is dispatched by the ISO. Pursuant to Section 30.6.2.1.2.2, a reliability demand response resource subject to the discrete real-time dispatch option may submit

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<sup>43</sup> The ISO proposes to define the RDRR availability limit in Appendix A to the tariff as a “limit applicable to a Reliability Demand Response Resource that is reached when the Reliability Demand Response Resource has been dispatched in Real-Time for at least a total of fifteen (15) Demand Response Events or a total of forty-eight (48) hours during a Reliability Demand Response Services Term.” This RDRR availability limit generally aligns with the historical use limits of retail emergency-triggered demand response programs, consistent with the provisions of the Reliability-Based Demand Response Settlement. See Reliability-Based Demand Response Settlement at Section A(4)(b); Reliability Demand Response Resource Final Proposal at 6.

<sup>44</sup> Section 39.6.1.1 of the existing ISO tariff sets forth a maximum energy bid price of \$500/MWh for the first twelve months after the effective date of the section, a maximum energy bid price of \$750/MWh after the twelfth month following the effective date of the section, and a maximum energy bid price of \$1,000/MWh after the twenty-fourth month following the effective date of the section.

only a single-segment bid in the real-time market that must be at least ninety-five percent of the applicable maximum bid price and can be no greater than one hundred percent of the applicable maximum bid price set forth in Section 39.6.1.1.<sup>45</sup>

The ISO established this bid price threshold to reflect the high value of emergency-triggered, use-limited resources and to minimize the opportunity for a load serving entity that is also the demand response provider to bid reliability demand response resources at less than their marginal value in an attempt to influence prices during periods of stressed system conditions. Such resources will be dispatched as discrete (non-marginal) resources if they are dispatched by the ISO. Under the discrete real-time dispatch option, there is only one bid segment and the ISO must dispatch the entire cleared quantity of the reliability demand response resource. This protects certain emergency-triggered demand resources that may not be capable of a more granular dispatch and that operate under a firm service level agreement. Under the marginal real-time dispatch option, the reliability demand response resource is dispatched according to the cleared bid quantity similar to other resources. For example, if a resource under the discrete real-time dispatch option bids 10 MW, the ISO must dispatch the full 10 MW even if only 7 MW is needed; whereas a resource under the marginal real-time dispatch option could have a multi-segment bid curve and in this example the ISO could dispatch that resource for only 7 MW.

The tariff language in Sections 39.6.2.1.2.1 and 39.6.2.1.2.2 is consistent with the provisions in the Reliability-Based Demand Response Settlement stating that reliability demand response resources will be economically dispatched once triggered, and stating that ISO dispatch of such resources will recognize that participating customers have a high “strike price” that is well above the running cost of conventional supply-side resources.<sup>46</sup> The ISO expects this high “strike price” would satisfy whatever net benefits test the ISO intends to propose in compliance with Order No. 745 for both proxy demand resources and reliability demand response resources. In addition, the ISO has modified Section 30.7.9 of the ISO tariff to state that the start-up cost for a reliability demand response resource is zero.

As the ISO explained when it sought approval of tariff provisions to implement proxy demand resources,<sup>47</sup> the existing language in the ISO tariff

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<sup>45</sup> The ISO also proposes to add definitions of the terms marginal real-time dispatch option and discrete real-time dispatch option that are keyed to the provisions in Section 30.6.2.1.2 discussed above.

<sup>46</sup> See Reliability-Based Demand Response Settlement at Sections A(4)(e), -(f). Dispatch of reliability demand response resources is discussed further in Section II.F, below.

<sup>47</sup> See February 16, 2010, filing in Docket No. ER10-765 at 18.

provides for notification of changes in enrollments and schedule changes for reliability demand response resources that may occur between day-ahead and real-time dispatch of reliability demand response resources. Both demand response providers and load serving entities need to be aware of reliability demand response resource enrollments and scheduling changes. Load serving entities need to be aware because they are the entities responsible for forecasting and scheduling of all customer demand. The ISO has existing mechanisms for communicating schedules in the day-ahead market and dispatches in the real-time market to scheduling coordinators. The ISO has identified no need to modify the existing notification mechanisms other than a need to communicate megawatt quantities of dispatches to the scheduling coordinators for both demand response providers and load serving entities, which does not require a tariff change.<sup>48</sup>

#### **F. Dispatch and Testing of Reliability Demand Response Resources**

The ISO proposes to add new Section 34.18 to the tariff to state that the ISO may issue an exceptional dispatch instruction as provided in Section 34.9.3 for reliability or to perform a test of the reliability demand response resource. Section 34.18 also provides that an entity other than the ISO (such as an investor-owned utility pursuant to an emergency-triggered retail demand response program) with a contractual or tariff-based right may dispatch a reliability demand response resource in real-time in order to (1) mitigate a local transmission or distribution system emergency pursuant to applicable state or local programs, contracts, or regulatory requirements not set forth in the ISO tariff or (2) perform a test. If an entity other than the ISO dispatches a reliability demand response resource in real-time for one of those purposes, the scheduling coordinator for the demand response provider representing the reliability demand response resource must immediately inform the ISO, through the ISO's outage reporting system, that such dispatch has occurred or will occur and the MW amount of the dispatch. This tariff language in Section 34.18 is consistent with the provisions in the Reliability-Based Demand Response Settlement stating that reliability demand response resources may have multiple reliability-only uses (including for system, transmission, and local reliability), may be triggered to meet ISO needs, or may be triggered by investor-owned utilities

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<sup>48</sup> For the reliability demand response resource product, demand response providers and load serving entities will have access to day-ahead generation market results, day-ahead expected energy information, and real-time dispatch information regarding their reliability demand response resources. In cases where the demand response provider and the load serving entity are the same entity, that entity will have access to these types of information as to the reliability demand response resources that the entity represents. In cases where the demand response provider and the load serving entity are separate entities, the load serving entity will be provided solely with read-only access to the information and only for the specific resource IDs of any reliability demand response resources that are among the load serving entity's customers.

for reasons other than ISO needs (e.g., for utility-controlled distribution circuit operations), and stating that procedures will be established to provide timely notice of when reliability demand response resources are triggered for non-ISO needs.<sup>49</sup>

The ISO proposes to add Section 34.18.1 to the tariff to state that the ISO may issue one unannounced exceptional dispatch instruction per year to each reliability demand response resource in order to test the availability and performance of the resource. The demand response provider representing the reliability demand response resource may also schedule tests of the resource in coordination with the ISO. However, any testing initiated by the demand response provider will not trigger any ISO settlement for any demand curtailment. The ISO will share the results of all tests of the reliability demand response resource with the applicable local regulatory authority, and all such tests will count toward the resource's RDRR availability limit. If, prior to the performance of any ISO-initiated yearly unannounced test, the reliability demand response resource provides demand response services in that year, its provision of demand response services will eliminate the need for that year's test. Testing of reliability demand response resources will be conducted as described in the applicable operating procedure or business practice manual. This tariff language in Section 34.18.1 is consistent with the provisions in the Reliability-Based Demand Response Settlement stating that reliability demand response resources will allow up to one test event per year to ensure compliance and performance and stating that this limitation does not preclude the scheduling of additional tests in coordination with the ISO.<sup>50</sup>

As discussed above, the ISO has proposed new Section 34.18 to provide that the ISO may issue exceptional dispatch instructions for reliability or for test energy as set forth in Section 34.9.3. Exceptional dispatches for reliability demand response resources issued under Sections 34.18 and 34.9.3 will be paid the higher of their bid price or the LMP at their location consistent with the Reliability-Based Demand Response Settlement. There are two different cost allocations for exceptional dispatches issued under Sections 34.18 and 34.9.3. If the exceptional dispatch instruction is issued for transmission-related modeling

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<sup>49</sup> See Reliability-Based Demand Response Settlement at Section A(4)(g). In connection with the addition of Section 34.18 to the tariff, the ISO has also modified Section 34.9.1 to include reliability demand response resources among the types of resources that are subject to manual exceptional dispatch in the event of a system emergency. As is the case with the other types of resources listed in Section 34.9.1, the ISO will endeavor consistently to dispatch reliability demand response resources through its market applications. However, when system conditions require the use of exceptional dispatch pursuant to Section 34.9.1, reliability demand response resources should be and will be subject to exceptional dispatch on an equal basis with the other listed types of resources. See Reliability Demand Response Resource Final Proposal at 20.

<sup>50</sup> See Reliability-Based Demand Response Settlement at Section A(4)(i).

limitations, any excess cost above market will be allocated to relevant participating transmission owners pursuant to existing Sections 11.5.6.2 and 11.5.6.2.3 of the tariff. If the exceptional dispatch instruction is issued for a non-transmission related modeling issue, all costs will be allocated like instructed imbalance energy to measured demand pursuant to existing Sections 11.5.6.2.4 and 11.5.1.1 of the tariff. Unless the exceptional dispatches of reliability demand response resources are for transmission-related modeling limitations, all reliability and test exceptional dispatches of reliability demand response resources will be settled as non-transmission related exceptional dispatches consistent with the provisions in the Reliability-Based Demand Response Settlement.<sup>51</sup>

The ISO has modified Section 34.19.2.3 to state that reliability demand response resources other than those resources discussed elsewhere in the section are eligible to set the LMP provided that they meet the requirements set forth in the section. However, as stated in Section 34.19.2.3, a reliability demand response resource that is dispatched in real-time by an entity other than the ISO for one of the purposes set forth in Section 34.18 will not be eligible to set the LMP.

#### **G. Inclusion of Reliability Demand Response Resources in Resource Adequacy**

The ISO proposes to allow reliability demand response resources to satisfy the resource adequacy requirements of the ISO tariff. Therefore, the ISO has modified Section 40.6.12 to state that reliability demand response resources, like proxy demand resources, may be included in a resource adequacy plan and supply plan consistent with terms and conditions established by the CPUC or the applicable local regulatory authority. This tariff language is consistent with the provisions in the Reliability-Based Demand Response Settlement stating that reliability demand response resources will qualify as resource adequacy capacity, in accordance with the resource adequacy counting rules of the applicable local regulatory authority.<sup>52</sup>

The ISO also proposes to add new Section 40.8.1.14 to the tariff to state that the net qualifying capacity of a reliability demand response resource,<sup>53</sup> for each month, will be based on the resource's average monthly historic demand

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<sup>51</sup> See *id.* at Section A(4)(k).

<sup>52</sup> See *id.* at Section A(4)(b).

<sup>53</sup> Appendix A to the ISO tariff defines net qualifying capacity as "Qualifying Capacity reduced, as applicable, based on: (1) testing and verification; (2) application of performance criteria; and (3) deliverability restrictions."

reduction performance during that same month during the availability assessment hours, as described in Section 40.9.3, using a three-year rolling average. For a reliability demand response resource with fewer than three years of performance history, for all months for which there is no historic data, the ISO will use a monthly megawatt value as certified and reported to the ISO by the demand response provider; otherwise, where available, the ISO will use the average of historic demand reduction performance data available, by month, for a reliability demand response resource.

In addition, the ISO has modified Sections 40.6.4.1, 40.6.4.2, 40.6.4.3.1, and 40.6.4.3.2 to explain how availability requirements apply to use-limited resources that are reliability demand response resources.<sup>54</sup>

## **H. Metering and Settlement of Demand Response Services**

The ISO proposes to modify Section 10.3.6.1 to allow scheduling coordinators to submit either actual settlement quality meter data or scheduling coordinator estimated settlement quality meter data for both proxy demand resources and reliability demand response resources by the first meter data submission deadline of noon on the fifth business day after the trading day (T+5B) on which the demand response services were provided. This is consistent with the meter data submission requirements for other resources, and requiring actual settlement quality meter data to be collected and validated by T+5B for proxy demand resources and reliability demand response resources was identified as a costly endeavor and a barrier to entry for demand response providers.

Pursuant to new Section 10.3.6.4, each scheduling coordinator for a demand response provider representing a reliability demand response resource that provides demand response services only in real-time must submit actual settlement quality meter data or scheduling coordinator estimated settlement quality meter data for the reliability demand response resource by noon of the fifth business day after the trading day (T+5B) on which the demand response services were provided, including actual settlement quality meter data or scheduling coordinator estimated settlement quality meter data for a demand response event and for the forty-five calendar days preceding the trading day for use in the ISO's calculation of the customer baseline. The reason for these provisions is that, if the meter data required under Section 10.3.6.4 is not submitted to the ISO by noon of T+5B after the demand response services were

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<sup>54</sup> Appendix A to the ISO tariff defines a use-limited resource as a "resource that, due to design considerations, environmental restrictions on operations, cyclical requirements, such as the need to recharge or refill, or other non-economic reasons, is unable to operate continuously on a daily basis, but is able to operate for a minimum set of consecutive Trading Hours each Trading Day."

provided, the ISO will be unable to calculate the performance of the reliability demand response resource and thus will be unable to calculate accurate settlement payments and charges.<sup>55</sup>

As is the case with proxy demand resources, settlement of demand response services provided by a reliability demand response resource will be with the scheduling coordinator for the demand response provider that represents the reliability demand response resource. The ISO has modified Section 11.6.1 to state that settlements for energy provided by demand response providers from proxy demand resources or reliability demand response resources will be based on the *demand response energy measurement* (formerly called the PDR energy measurement) for those resources.<sup>56</sup> As modified, Section 11.6.1 states that the demand response energy measurement for a proxy demand resource or reliability demand response resource for a demand response event will be the quantity of energy equal to the difference between (i) the customer baseline for the resource and (ii) either the actual underlying load for the resource or the quantity of energy for the resource calculated pursuant to new Section 10.1.7.

Section 10.1.7 permits a demand response provider representing a proxy demand resource or reliability demand response resource to submit a written application to the ISO for approval of a methodology for deriving settlement quality meter data for the resource that consists of a statistical sampling of energy usage data, in cases where interval metering is not available for the entire population of underlying service accounts for the resource. As specified in the business practice manual, the ISO and the demand response provider will then engage in written communications which will result in the ISO either approving or denying the application. The ISO also proposes to modify the definition of meter data in Appendix A to the tariff to include the type of statistical sampling set forth in Section 10.1.7, and to modify the definition of customer baseline to mean a “value or values determined by the CAISO based on historical or statistically relevant Load meter data to measure the delivery of Demand Response Services.”

The ISO’s use of statistically relevant meter data for proxy demand resources and reliability demand response resources in cases where interval metering is unavailable for the entire population of underlying service accounts for the resource is consistent with the “Baseline Type – II” methodology permitted

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<sup>55</sup> Reliability Demand Response Resource Final Proposal at 25.

<sup>56</sup> The ISO also proposes to modify the definition of the demand response energy measurement in Appendix A to the ISO tariff so that it means the “Energy quantity calculated by comparing the Customer Baseline of a Proxy Demand Resource or Reliability Demand Response Resource against its actual underlying Load for a Demand Response Event.”

by NAESB. Pursuant to the methodology, resources are permitted to derive actual demand using sampling and statistics that can be substantiated as accurate and reasonable for the derivation of the meter data value.<sup>57</sup>

In accordance with the existing settlement provisions in Section 11 of the ISO tariff applicable to proxy demand resources, the amount of energy provided by a reliability demand response resource will be multiplied by the applicable LMP at the Sub-LAP (or bid price, if higher than the LMP in the case of an exceptional dispatch) for the reliability demand response resource, and the schedules of a resource serving load will be adjusted so as to avoid double payments, *i.e.*, payments on behalf of the reliability demand response resource for any demand curtailment and payments on behalf of the load serving entity for the same curtailment. In order to ensure the correct settlement amount, the ISO has modified Sections 11.5.2 and 11.5.2.4 to include references to reliability demand response resources in the settlement of uninstructed imbalance energy.

Section 11.5.2.4 makes demand response reductions provided by reliability demand response resources subject to the same mechanism to prevent double payments – called the “default load adjustment” – that the Commission approved last year for proxy demand resources.<sup>58</sup> The purpose of the default load adjustment is to prevent a wholesale double payment resulting from a payment being made for the demand response services provided by a demand response resource and a payment also being made to a load serving entity for uninstructed imbalance energy resulting from the ISO’s acceptance of a bid from that demand response resource (*i.e.*, energy scheduled but not consumed because the proxy demand resource provided the demand response services). The default load adjustment eliminates this wholesale double payment by adding the energy measurement for a demand response resource to the meter quantity of the load serving entity for that demand response resource in the ISO’s uninstructed energy pre-calculation, resulting in an adjusted meter demand value.

The ISO recognizes that, in March 2011, the Commission issued Order No. 745. Although Order No. 745 does not address the default load adjustment directly, it could be interpreted to require the elimination of the default load adjustment and mandate double payments for demand response reductions. As

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<sup>57</sup> See Reliability Demand Response Resource Final Proposal at 26-28.

<sup>58</sup> See July 15, 2010 Order, 132 FERC ¶ 61,045 at PP 25-26, 32 (describing proposed default load adjustment in detail in section of order entitled “Costs and Settlement” and directing that “[w]e accept the CAISO’s cost and settlement provisions”). The Commission’s acceptance of these cost and settlement provisions was conditioned only upon the requirement that the ISO undertake a study, for informational purposes, to determine if the effects of demand response apply more broadly than to the individual load serving entity in which the proxy demand resource is located. *Id.* at P 34 & n.24.

noted earlier,<sup>59</sup> the ISO timely sought clarification and rehearing in the alternative of Order No. 745 in the April 14 ISO Filing, which is currently pending before the Commission. The April 14 ISO Filing explained that, if Order No. 745 was intended to require a change to the default load adjustment, such a requirement would substantially impede the implementation of the reliability demand response resource product pursuant to the Reliability-Based Demand Response Settlement approved by the CPUC.<sup>60</sup> The ISO again requests a timely order on that aspect of the April 14 ISO Filing and, in the meantime, the ISO intends to proceed as outlined in the April 14 ISO Filing with respect to compliance with this aspect of Order No. 745.<sup>61</sup> Further, as noted above, Order No. 745 exempted emergency-triggered demand response programs of ISOs and RTOs that are operated outside of the day-ahead and real-time markets.<sup>62</sup> The reliability demand response resource program is the vehicle that enables retail emergency-triggered demand response programs to integrate into the ISO markets. The ISO should not now be disadvantaged for having incorporated emergency-triggered demand response into its markets in a manner that makes these reliability demand response resources more transparent to market participants and more effective to the ISO in addressing reliability needs and that aligns well with the requirements of Order No. 719.

As explained in the Reliability Demand Response Resource Final Proposal, dispatch of reliability demand response resources will not trigger the ISO's scarcity pricing mechanism set forth in Section 27.1.2.3 of the tariff, nor, conversely, will a scarcity pricing event trigger the dispatch of reliability demand response resources. However, the introduction of a significant MW quantity of reliability demand response resources during a scarcity pricing event will very likely have a significant and mitigating impact on the prevailing system conditions.<sup>63</sup> Therefore, the reliability demand response resource product is consistent with the provisions in the Reliability-Based Demand Response Settlement stating that reliability demand response resources will help mitigate, or limit the duration of, scarcity pricing events.<sup>64</sup>

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<sup>59</sup> See Section I.B, above.

<sup>60</sup> April 14 ISO Filing at 33-34.

<sup>61</sup> *Id.* at 24, fn. 56, and 32.

<sup>62</sup> Order No. 745 at P 2, fn. 4.

<sup>63</sup> Reliability Demand Response Resource Final Proposal at 13.

<sup>64</sup> See Reliability-Based Demand Response Settlement at Section A(4)(h).

**I. Modifications of Existing Tariff Provisions to Accommodate the Implementation of the Reliability Demand Response Resource Product**

The ISO proposes to modify a number of tariff provisions in order to integrate the components of the reliability demand response resource program into the existing structure of the tariff. These tariff modifications consist of adding the term reliability demand response resource to existing tariff language and making tariff changes regarding the reliability demand response resource product that parallel existing tariff language. Due to the large number of these tariff revisions, the ISO has listed them in Attachment C to this tariff amendment instead of in this transmittal letter.

**J. Miscellaneous Minor Clarifications**

The ISO proposes to make minor, non-substantive clarifications to the following tariff sections: Sections 4.13.4, 4.5.1.1.3, 10.3.6.1, 11.5.2, 30.6.1, 33.4, and 34.6(f).

**III. The Reliability Demand Response Resource Product Satisfies the Requirements of Order No. 719**

As explained in Section I.B, above, in Order No. 719, the Commission directed ISOs and RTOs to amend their tariffs and market rules as necessary to allow an aggregator of retail customers to bid demand response directly into the ISO's or RTO's organized market subject to a number of criteria and flexibilities specified in Order No. 719.<sup>65</sup> In the July 15, 2010 Order and the January 4, 2011 Order, the Commission found that the ISO's tariff revisions to implement the proxy demand resource product satisfy those Order No. 719 requirements.<sup>66</sup>

Similarly, the revisions to the ISO tariff contained in this tariff amendment satisfy each of the criteria and include each of the flexibilities required by the Commission. The criteria and flexibilities specified in Order No. 719 (underlined in the text below), and the means by which the instant tariff amendment satisfies each of them, are as follows:

- The aggregator of retail customers' demand response bid must meet the same requirements as a demand response bid from any other entity, such

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<sup>65</sup> See Order No. 719 at P 158.

<sup>66</sup> See July 15, 2010 Order, 132 FERC ¶ 61,045 at PP 23, 32; January 4, 2011 Order, 134 FERC ¶ 61,004 at P 22.

as a load serving entity.<sup>67</sup> Pursuant to the instant tariff amendment, bids for demand response services from reliability demand response resources represented by an aggregator of retail customers must meet the same requirements as bids from reliability demand response resources represented by other types of entities. The proposed tariff provisions treat a demand response provider (the ISO's term that encompasses aggregators of retail customers) the same, whether the demand response provider is a utility distribution company, load serving entity,<sup>68</sup> end-use customer representing its own load, or aggregator of other entities' load.

- The bidder must have only an opportunity to bid demand response in the organized market and not have a guarantee that its bid will be selected. The ISO's tariff amendment gives bidders of demand response services the opportunity to bid demand response from reliability demand response resources into the ISO markets. Like other resources participating in the ISO markets, demand response providers have no guarantee that the ISO will accept their bids.
- An aggregator of retail customers must have the ability to bid demand response either on behalf of only one retail customer or multiple retail customers. Pursuant to the instant tariff amendment, a single demand response provider may submit bids on behalf of a single retail customer under a reliability demand response resource or multiple, aggregated retail customers under a reliability demand response resource. A demand response provider may operate multiple reliability demand response resources within its portfolio.
- Except for circumstances where the laws and regulations of the relevant retail regulatory authority do not permit a retail customer to participate, there can be no prohibition on who may be an aggregator of retail customers. The ISO does not propose any prohibitions as to who may

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<sup>67</sup> In this regard, the Commission stated that, for example, (1) the aggregator of retail customers' demand response must be as verifiable as that of an eligible load serving entity or large industrial customer's demand response that is bid directly into the market, (2) the requirements for measurement and verification of aggregated demand response should be comparable to the requirements for other providers of demand response resources, regarding such matters as transparency, ability to be documented, and ensuring compliance, and (3) demand response bids from an aggregator of retail customers must not be treated differently than the demand response bids of a load serving entity or large industrial customer. Order No. 719 at P 158.

<sup>68</sup> A load serving entity can be either a utility load serving entity or an electric service provider, which is defined in the California Public Utilities Code as an entity that provides electric service to retail or end-use customers but does not fall within the definition of an electrical corporation. See California Public Utilities Code, Sections 218, 218.3.

become a demand response provider. Any entity is eligible to become a demand response provider so long as it meets the requirements for all demand response providers established by the ISO.

As to the laws and regulations of the relevant retail regulatory authority, the ISO notes that the CPUC has issued directives regarding the implementation of proxy demand resources that may also be relevant to the implementation of reliability demand response resources. On June 4, 2010, the CPUC issued a decision in its demand response rulemaking proceeding that directed the California investor-owned utilities subject to the CPUC's jurisdiction to prepare to bid demand response into the ISO markets using proxy demand resource pilot programs.<sup>69</sup> While a positive first step, the June 4 CPUC Decision expressly limited the participation by bundled utility customers to participation through an investor-owned utility pilot program. The decision did allow for direct access customers (*i.e.*, those retail customers that procure their electricity through a third-party electricity provider) to offer demand response in the ISO markets. The decision also identified several important issues that the CPUC stated had to be resolved and clarified before it would allow all customers to offer demand response into the ISO markets.<sup>70</sup> Following the issuance of Order No. 745, all three investor-owned utilities in California requested on April 8, 2011, that a CPUC Administrative Law Judge delay a proposed decision on the financial settlement issues germane to the CPUC's demand response rulemaking.<sup>71</sup> These settlement issues are conditions precedent to the CPUC's issuance of a final decision on bidding demand response into the ISO markets. On May 9, 2011, the CPUC extended the deadline for the direct participation phase of its demand response rulemaking proceeding by 18 months, *i.e.*, to November 2012.<sup>72</sup>

- An individual customer must be permitted to serve as an aggregator of retail customers on behalf of itself and others. So long as it meets the ISO's requirements, an end-use customer may act as a demand response provider for its own load or on behalf of other retail customers.

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<sup>69</sup> CPUC Decision 10-06-002, issued in Proceeding R.07-01-041, at 24 (June 4, 2010) ("June 4 CPUC Decision"). That CPUC decision is available on the CPUC's website at [http://docs.cpuc.ca.gov/PUBLISHED/FINAL\\_DECISION/118962.htm](http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/118962.htm).

<sup>70</sup> *Id.* at 6-23.

<sup>71</sup> See <http://docs.cpuc.ca.gov/efile/MOTION/133321.pdf>.

<sup>72</sup> Assigned Commission's Ruling Amending Scoping Memo, issued in Proceeding R.07-01-041 (May 9, 2011). That CPUC ruling is available on the CPUC's website at <http://docs.cpuc.ca.gov/efile/RULINGS/134968.pdf>.

- The RTO or ISO may specify certain requirements, such as registration with the RTO or ISO, creditworthiness requirements, and certification that participation is not precluded by the relevant electric retail regulatory authority. The ISO's tariff amendment requires registration of reliability demand response resources with the ISO through its demand response system. Because the demand response providers will take part in the ISO's energy market, they are considered market participants.<sup>73</sup> Therefore, like other market participants, demand response providers are subject to the ISO's creditworthiness requirements.<sup>74</sup>
- The RTO or ISO may require the aggregator of retail customers to be an RTO or ISO member if its membership is a requirement for other bidders. As explained above, demand response providers are market participants and the reliability demand response resources of demand response providers can only be bid into the ISO markets by an ISO scheduling coordinator. The demand response provider must be an ISO-certified scheduling coordinator in order to schedule, bid, and settle its registered reliability demand response resources with the ISO; otherwise, the demand response provider can hire the services of a scheduling coordinator.
- Single aggregated bids consisting of individual demand response from a single area, reasonably defined, may be required by RTOs and ISOs. Pursuant to the ISO's tariff amendment, each reliability demand response resource is required to be associated with a single load serving entity and a single utility distribution company (or with a single load serving entity in the case of a reliability demand response resource within a metered subsystem), and all underlying locations of a single reliability demand response resource must be located in a single Sub-LAP.
- An RTO or ISO may place appropriate restrictions on any customer's participation in an aggregated demand response bid to avoid counting the same demand response resource more than once. The ISO will ensure that the same customer locations (*i.e.*, customer service accounts) are not registered with the same reliability demand response resource more than once or included in the portfolio of more than one demand response provider.

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<sup>73</sup> Appendix A to the ISO tariff defines a market participant as an "entity, including a Scheduling Coordinator, who either: (1) participates in the CAISO Markets through the buying, selling, transmission, or distribution of Energy, Capacity, or Ancillary Services into, out of, or through the CAISO Controlled Grid; or (2) is a CRR Holder or Candidate CRR Holder."

<sup>74</sup> See ISO tariff, Section 12.1 ("Each Market Participant shall have the responsibility to maintain an Aggregate Credit Limit that is at least equal to its Estimated Aggregate Liability").

- The market rules must allow bids from an aggregator of retail customers unless this is not permitted under the laws or regulations of a relevant electric retail regulatory authority. The ISO's tariff amendment will allow bids from a demand response provider through its scheduling coordinator subject to any applicable requirements of the CPUC and local regulatory authorities. As noted above, the CPUC's demand response rulemaking proceeding is ongoing.

#### **IV. Effective Date**

The ISO respectfully requests the Commission make the tariff revisions to the demand response provider agreement (Appendix B.14 to the tariff) contained in this filing effective as of October 1, 2011. The ISO requests an effective date of April 1, 2012 for the balance of the tariff revisions. April 1, 2012 is the ISO's planned implementation date. Commission acceptance of the tariff revisions to Appendix B.14 by October 1 is necessary to give the ISO and market participants sufficient time to prepare their systems and make other necessary arrangements, including communication and registration, for the planned implementation of the reliability demand response resource product in April 2012. An order on the entire set of proposed tariff revisions by October 1, 2011 is therefore necessary; otherwise, the ISO and its market participants will be unable to enter into the necessary agreements or to make the necessary arrangements with any assurance that those preparatory actions can be undertaken with finality and will not later need to be undone.

#### **V. Communications**

Communications regarding this filing should be addressed to the following individuals, whose names should be put on the official service list established by the Commission with respect to this submittal:

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## **VI. Service**

The ISO has served copies of this transmittal letter, and all attachments, on the CPUC, the California Energy Commission, and all parties with effective scheduling coordinator service agreements under the ISO tariff. In addition, the ISO is posting this transmittal letter and all attachments on the ISO website.

## **VII. Attachments**

The following attachments, in addition to this transmittal letter, support the instant filing:

Attachment A	Revised ISO tariff sheets that incorporate the proposed changes described above
Attachment B	The proposed changes to the ISO tariff shown in black-line format
Attachment C	List of modifications to existing ISO tariff provisions to accommodate the implementation of the reliability demand response resource product
Attachment D	List of key dates in the reliability demand response resource stakeholder process
Attachment E	ISO Board memorandum and resolution

**VIII. Conclusion**

For the foregoing reasons, the Commission should accept the proposed tariff changes contained in the instant filing without modification. Please contact the undersigned if you have any questions regarding this matter.

Respectfully submitted,

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**California Independent System Operator Corporation**  
**Fifth Replacement FERC Electric Tariff**  
**Reliability Demand Response Resource Tariff Amendment**  
**Attachment A – Clean Sheets**  
**May 20, 2011**

#### **4.5.1.1.3 Duplicate Information**

If two or more Scheduling Coordinators apply simultaneously to register with the CAISO for a single meter or Meter Point for a CAISO Metered Entity or if a Scheduling Coordinator applies to register with the CAISO for a meter or Meter Point for a CAISO Metered Entity for which a Scheduling Coordinator has already registered, the CAISO will return the application with an explanation that only one Scheduling Coordinator may register with the CAISO for the meter or Meter Point in question and that a Scheduling Coordinator has already registered or that more than one Scheduling Coordinator is attempting to register for that meter or Meter Point. The CAISO will notify the Scheduling Coordinator Applicant of the applicable Scheduling Coordinator or Scheduling Coordinator Applicant. Nothing in this Section 4.5.1.1.3 shall prohibit one Scheduling Coordinator from registering with the CAISO to submit Bids for Demand Response Services from a Proxy Demand Resource or Reliability Demand Response Resource associated with a given meter (or Meter Point) where a different Scheduling Coordinator is registered for purposes of serving the demand of the Load associated with that meter (or Meter Point).

\* \* \*

#### **4.9.12 MSS System Unit**

**4.9.12.1** A MSS Operator may aggregate one or more Generating Units, Participating Loads, Reliability Demand Response Resources, and/or Proxy Demand Resources as a System Unit. A System Unit must be modeled as an aggregated Generating Unit and must provide a set of Generation Distribution Factors. Except as specifically provided in the MSS Agreement referred to in Section 4.9.1.1, all provisions of the CAISO Tariff applicable to Participating Generators and to Generating Units (and, if the System Unit includes a Load, to Participating Loads, Reliability Demand Response Resources, and Proxy Demand Resources), shall apply fully to the System Unit and the Generating Units and/or Loads included in it. The MSS Operator's MSS Agreement with the CAISO in accordance with Section 4.9.1.1 shall obligate the MSS Operator to comply with all provisions of the CAISO Tariff, as amended from time to time, applicable to the System Unit, including, without limitation, the applicable provisions of Sections 4.6.1 and 7.7. In accordance with Section 7.6.1, the CAISO will obtain control over the System Unit, not the individual Generating Unit, except for Regulation, to comply with Section 4.6.

**4.9.12.2** Without limiting the generality of Section 4.9.12.1, a MSS Operator that owns or has an entitlement to a System Unit:

**4.9.12.2.1** is required to have a direct communication link to the CAISO's EMS satisfying the requirements applicable to Generating Units owned by Participating Generators, Participating Loads or Proxy Demand Resources, as applicable, for the System Unit and the individual resources that make up the System Unit;

**4.9.12.2.2** shall provide resource-specific information regarding the Generating Units and Loads comprising the System Unit to the CAISO through telemetry to the CAISO's EMS;

**4.9.12.2.3** shall obtain CAISO certification of the System Unit's Ancillary Service capabilities in accordance with Sections 8.4 and 8.9 before the Scheduling Coordinator representing the MSS may self-provide its Ancillary Service Obligations or bid into the CAISO Markets from that System Unit;

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

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

**4.9.12.2.6** shall provide, through the Scheduling Coordinator representing the MSS Operator, Settlement Quality Meter Data for the System Unit's Proxy Demand Resources and Reliability Demand Response Resources.

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

\* \* \*

#### **4.13 DRPs, RDRRs, and PDRs**

##### **4.13.1 Relationship Between CAISO and DRPs**

The CAISO shall only accept Bids for Energy from Reliability Demand Response Resources, and shall only accept Bids for Energy or Ancillary Services from Proxy Demand Resources, Submissions to Self-Provide Ancillary Services from Proxy Demand Resources, or submissions of Energy Self-Schedules from Proxy Demand Resources that have provided Submissions to Self-Provide Ancillary Services, if such Reliability Demand Response Resources or Proxy Demand Resources are represented by a Demand Response Provider that has entered into a Demand Response Provider Agreement with the CAISO, has accurately provided the information required in the Demand Response System, has satisfied all Reliability Demand Response Resource or Proxy Demand Resource registration requirements, and has met standards adopted by the CAISO and published on the CAISO Website. The CAISO shall not accept submitted Bids for Energy or Ancillary Services from a Demand Response Provider other than through a Scheduling Coordinator, which Scheduling Coordinator may be the Demand Response Provider itself or another entity.

##### **4.13.2 Applicable Requirements for RDRRs, PDRs, and DRPs**

A single Demand Response Provider must represent each Reliability Demand Response Resource or Proxy Demand Resource and may represent more than one (1) Reliability Demand Response Resource or Proxy Demand Resource. Each Reliability Demand Response Resource or Proxy Demand Resource that is not within a MSS must be associated with a single Load Serving Entity and a single Utility Distribution Company, and each Reliability Demand Response Resource or Proxy Demand Resource that is within a MSS must be associated with a single Load Serving Entity. A Demand Response Provider may be, but is not required to be, a Load Serving Entity or a Utility Distribution Company. Each Reliability Demand Response Resource or Proxy Demand Resource is required to be located in a single Sub-LAP. All underlying Locations of a Reliability Demand Response Resource or Proxy Demand Resource must be located in a single Sub-LAP. The Meter Data for each Reliability Demand Response Resource or Proxy Demand Resource will be metered Load data. Each Demand Response Provider is required to satisfy registration requirements and to provide information to allow the CAISO to establish Customer Baselines in accordance with Section 4.13.4 and the applicable Business Practice Manuals. Registration

of a Location for participation in Reliability Demand Response Resources or Proxy Demand Resources requires the approval of the CAISO resulting from its registration process. As part of the submitted registration process, both the appropriately Demand Response Provider designated Load Serving Entity and Utility Distribution Company will have an opportunity to review the registration Location detail and provide comments with regard to its accuracy. Disputes regarding the acceptances or rejections of a registration of a Location shall be undertaken with the applicable Local Regulatory Authority and shall not be arbitrated or in any way resolved through a CAISO dispute resolution mechanism or process. A Location cannot be registered to both a Reliability Demand Response Resource and a Proxy Demand Resource for the same Trading Day.

#### **4.13.3 Identification of RDRRs and PDRs**

Each Demand Response Provider shall provide data, as described in the Business Practice Manual, identifying each of its Reliability Demand Response Resources or Proxy Demand Resources and such information regarding the capacity and the operating characteristics of the Reliability Demand Response Resource or Proxy Demand Resource as may be reasonably requested from time to time by the CAISO. All information provided to the CAISO regarding the operational and technical constraints in the Master File shall be accurate and actually based on physical characteristics of the resources.

#### **4.13.4 Customer Baseline Methodologies for PDRs and RDRRs**

##### **4.13.4.1 Ten in Ten Non-Event Day Selection Method**

For each Proxy Demand Resource or Reliability Demand Response Resource, the CAISO will calculate the Customer Baseline as follows:

- (a) The CAISO will collect Meter Data for the Proxy Demand Resource or Reliability Demand Response Resource for calendar days preceding the Trading Day on which the Demand Response Event occurred for which the CAISO is calculating the Customer Baseline. To determine the calendar days for which the Meter Data will be collected, the CAISO will work sequentially backwards from the Trading Day under examination up to a maximum of forty-five (45) calendar days prior to the Trading Day, including only Business Days if the Trading Day is a Business Day, including only non-Business Days if the Trading Day is a non-Business Day, and excluding calendar days on which the Proxy Demand

Resource was subject to an Outage or previously provided Demand Response Services (other than capacity awarded for AS or RUC) or the Reliability Demand Response Resource was subject to an Outage as described in the Business Practice Manual or previously provided Demand Response Services, except as discussed below. The CAISO will stop collecting Meter Data for this purpose if and when it is able to collect Meter Data for its target number of calendar days, which target number is ten (10) calendar days if the Trading Day is a Business Day or four (4) calendar days if the Trading Day is a non-Business Day. If the CAISO is unable to collect Meter Data for its target number of calendar days, it will attempt to collect Meter Data for a minimum of five (5) calendar days if the Trading Day is a Business Day or a minimum of four (4) calendar days if the Trading Day is a non-Business Day. If the CAISO is unable to collect Meter Data for the minimum number of calendar days described above, the CAISO will instead collect Meter Data for the calendar days on which the Proxy Demand Resource was subject to an Outage or previously provided Demand Response Services (other than capacity awarded for AS or RUC) or the Reliability Demand Response Resource was subject to an Outage as described in the Business Practice Manual or previously provided Demand Response Services, and for which the amount of totalized load was highest during the hours when the Demand Response Services were provided in the forty-five (45) calendar days prior to the Trading Day.

- (b) The CAISO will calculate the simple hourly average of the collected Meter Data to determine a baseline amount of Energy provided by the Proxy Demand Resource or Reliability Demand Response Resource.
- (c) Unless otherwise requested by the Demand Response Provider and approved by the CAISO, the CAISO will multiply the amount calculated pursuant to Section 4.13.4.1(b) by a percentage equal to the ratio of (i) the average load of the Proxy Demand Resource or Reliability Demand Response Resource during the second, third, and fourth hours preceding the hour of the Trading Day on which the Proxy Demand Resource or Reliability Demand Response Resource provided the Demand Response Services during

the Demand Response Event to (ii) the average load of the Proxy Demand Resource or Reliability Demand Response Resource during the same second, third, and fourth hours of the calendar days for which the CAISO has collected Meter Data pursuant to Section 4.13.4.1(a). The percentage can have a maximum value of one hundred-twenty (120) percent and a minimum value of eighty (80) percent.

#### **4.13.5 Characteristics of PDRs and RDRRs**

##### **4.13.5.1 Availability to Provide Demand Response Services**

Each Proxy Demand Resource and Reliability Demand Response Resource shall become available to provide Demand Response Services pursuant to the Demand Response Provider Agreement following the date on which the Demand Response Provider Agreement is executed by all parties thereto, as specified by the parties, and shall be available to provide Demand Response Services until the Demand Response Provider Agreement is terminated as set forth in the Demand Response Provider Agreement.

##### **4.13.5.2 Size Limits for PDRs and RDRRs**

###### **4.13.5.2.1 PDRs**

The minimum Load curtailment of a Proxy Demand Resource shall be no smaller than 0.1 MW. Loads may be aggregated together to achieve the 0.1 MW threshold. There is no upper limit on the maximum Load curtailment of a Proxy Demand Resource.

###### **4.13.5.2.2 RDRRs**

The minimum Load curtailment of a Reliability Demand Response Resource shall be no smaller than 0.5 MW. Loads may be aggregated together to achieve the 0.5 MW threshold. The maximum Load curtailment of a Reliability Demand Response Resource that selects the Discrete Real-Time Dispatch Option shall be no larger than 50 MW. There is no upper limit on the maximum Load curtailment of a Reliability Demand Response Resource that selects the Marginal Real-Time Dispatch Option.

##### **4.13.5.3 Dispatch Parameters for RDRRs**

Each Reliability Demand Response Resource shall be capable of reaching its maximum Load curtailment within forty (40) minutes after it receives a Dispatch Instruction, and shall be capable of providing

Demand Response Services for at least four (4) consecutive hours per Demand Response Event. Each Reliability Demand Response Resource shall have a minimum run time of no more than one (1) hour.

\* \* \*

### **7.1.3 CAISO Control Center Authorities**

The CAISO shall have full authority, subject to this CAISO Tariff, to direct the operation of the facilities referred to in Section 7.1.1 and 7.1.2 including (without limitation), to:

- (a) direct the physical operation by the Participating TOs of transmission facilities under the Operational Control of the CAISO, including (without limitation) circuit breakers, switches, voltage control equipment, protective relays, metering, and Load Shedding equipment;
- (b) commit and dispatch Reliability Must-Run Units, except that the CAISO shall only commit Reliability Must-Run Generation for Ancillary Services capacity according to Section 41;
- (c) order a change in operating status of auxiliary equipment required to control voltage or frequency;
- (d) take any action it considers to be necessary consistent with Good Utility Practice to protect against uncontrolled losses of Load or Generation and/or equipment damage resulting from unforeseen occurrences;
- (e) control the output of Generating Units, Interconnection schedules, and System Resources that are selected to provide Ancillary Services or Energy;
- (f) Dispatch Curtailable Demand and Demand Response Services which have been scheduled to provide Non-Spinning Reserve or Energy from Participating Loads or Proxy Demand Resources or which have been scheduled to provide Energy from Reliability Demand Response Resources;
- (g) procure Energy for a threatened or imminent System Emergency;
- (h) require the operation of resources which are at the CAISO's disposal in a System Emergency, as described in Section 7.7;

- (i) exercise Operational Control of all transmission lines greater than 230kV and associated equipment on the CAISO Controlled Grid;
- (j) exercise Operation Control of all Interconnections; and
- (k) exercise Operational Control of all 230kV and lower voltage transmission lines and associated station equipment identified in the CAISO Register as that portion of the CAISO Controlled Grid.

The CAISO will exercise its authority under this Section 7.1.3 by issuing Dispatch Instructions to the relevant Market Participants using the relevant communications method described in this CAISO Tariff.

\* \* \*

#### **10.1.7 Provision of Statistically Derived Meter Data**

A Demand Response Provider representing a Reliability Demand Response Resource or a Proxy Demand Resource may submit a written application to the CAISO for approval of a methodology for deriving Settlement Quality Meter Data for the Reliability Demand Response Resource or Proxy Demand Resource that consists of a statistical sampling of Energy usage data, in cases where interval metering is not available for the entire population of underlying service accounts for the Reliability Demand Response Resource or Proxy Demand Resource. As specified in the Business Practice Manual, the CAISO and the Demand Response Provider will then engage in written discussion which will result in the CAISO either approving or denying the application.

\* \* \*

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

Scheduling Coordinators shall be responsible for: (i) the collection of Meter Data for the Scheduling Coordinator Metered Entities it represents; (ii) the provision of Settlement Quality Meter Data to the CAISO; and (iii) ensuring that the Settlement Quality Meter Data supplied to the CAISO meets the requirements of Section 10. Scheduling Coordinators shall provide the CAISO with Settlement Quality Meter Data for all Scheduling Coordinator Metered Entities served by the Scheduling Coordinator no later than the day specified in Section 10.3.6 or the day specified in Section 10.3.6.4, as applicable. Each

Scheduling Coordinator for a Demand Response Provider shall aggregate the Settlement Quality Meter Data of the underlying Proxy Demand Resource or Reliability Demand Response Resource to the level of the registration configuration of the Proxy Demand Resource or Reliability Demand Response Resource in the Demand Response System. Settlement Quality Meter Data for Scheduling Coordinator Metered Entities shall be either (1) an accurate measure of the actual consumption of Energy by each Scheduling Coordinator Metered Entity in each Settlement Period; (2) for Scheduling Coordinator Metered Entities connected to a UDC Distribution System and meeting that Distribution System's requirement for Load profiling eligibility, a profile of that consumption derived directly from an accurate cumulative measure of the actual consumption of Energy over a known period of time and an allocation of that consumption to Settlement Periods using the applicable Approved Load Profile; or (3) an accurate calculation by the Scheduling Coordinator representing entities operating pursuant to Existing Contracts.

\* \* \*

#### **10.3.6.1 Timing of Settlement Quality Meter Data Submission for Calculation of Initial Settlement Statement T+7B.**

Scheduling Coordinators must submit Actual Settlement Quality Meter Data or Scheduling Coordinator Estimated Settlement Quality Meter Data for the Scheduling Coordinator Metered Entities they represent to the CAISO no later than noon on the fifth Business Day after the Trading Day (T+5B) for the Initial Settlement Statement T+7B calculation. Scheduling Coordinators cannot submit Estimated Settlement Quality Meter Data for Proxy Demand Resources.

- (a) In the absence of Actual Settlement Quality Meter Data, Scheduling Coordinators may submit Scheduling Coordinator Estimated Settlement Quality Meter Data using interval metering when available, sound estimation practices, and other available information including, but not limited to, bids, schedules, forecasts, temperature data, operating logs, recorders, and historical data. Scheduling Coordinator Estimated Settlement Quality Meter Data must be a good faith estimate that reasonably represents Demand and/or Generation quantities for each Settlement Period.

- (b) When Actual Settlement Quality Meter Data or Scheduling Coordinator Estimated Settlement Quality Meter Data is not received by the CAISO for a Scheduling Coordinator Metered Entity within five (5) Business Days from the Trading Day (T+5B), the CAISO will estimate the entity's Settlement Quality Meter Data for any outstanding metered Demand and/or Generation, excluding a Proxy Demand Resource and Reliability Demand Response Resource, for use in the Initial Settlement Statement T+7B calculation, as provided in Section 11.1.5.

\* \* \*

#### **10.3.6.4 Submission of Actual Settlement Quality Meter Data or Scheduling Coordinator Estimated Settlement Quality Meter Data for Reliability Demand Response Resources that Provide Demand Response Services in Real-Time**

Each Scheduling Coordinator for a Demand Response Provider representing a Reliability Demand Response Resource that provides Demand Response Services only in Real-Time shall submit Actual Settlement Quality Meter Data or Scheduling Coordinator Estimated Settlement Quality Meter Data for the Reliability Demand Response Resource by noon of the fifth Business Day after the Trading Day (T+5B) on which the Demand Response Services were provided, including Actual Settlement Quality Meter Data or Scheduling Coordinator Estimated Settlement Quality Meter Data for a Demand Response Event and for the forty-five (45) calendar days preceding the Trading Day for use in the CAISO's calculation of the Customer Baseline pursuant to Section 4.13.4.

\* \* \*

#### **11.1.5 Settlement Quality Meter Data For Initial Statement T+7B**

The CAISO's Initial Settlement Statement T+7B shall be based on the Settlement Quality Meter Data (actual or Scheduling Coordinator estimated) received in SQMDS. In the event Actual Settlement Quality Meter Data or Scheduling Coordinator Estimated Settlement Quality Meter Data is not received from a Scheduling Coordinator or CAISO Metered Entity, the CAISO will estimate Settlement Quality Meter Data for that outstanding metered Demand or Generation, excluding a Proxy Demand Resource or Reliability Demand Response Resource, for the Initial Settlement Statement T+7B calculation.

- (a) CAISO Estimated Settlement Quality Meter Data for metered Generation will be based on total Expected Energy and dispatch of that resource as calculated in the Real-Time Market and as modified by any applicable corrections to the Dispatch Operating Point for the resource.
- (b) CAISO Estimated Settlement Quality Meter Data for metered Demand will be based on Scheduled Demand by the appropriate LAP. This value will be increased by fifteen (15) percent if the total actual system Demand in Real-Time, as determined by the CAISO each hour, is greater than the total estimated metered demand by more than fifteen (15) percent. Total estimated metered demand is the sum of the value of Scheduling Coordinator submitted metered Demand, CAISO polled estimated Settlement quality metered Demand, and Scheduled Demand for unsubmitted metered Demand at the fifth (5th) Business Day after the Trading Day (T+5B). CAISO Estimated Settlement Quantity Meter Demand for Participating Load will not be increased by fifteen (15) percent.
- (c) CAISO will not estimate Settlement Quality Meter Data for Proxy Demand Resources or Reliability Demand Response Resources.

\* \* \*

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

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

\* \* \*

#### **11.5.2 Uninstructed Imbalance Energy**

Scheduling Coordinators shall be paid or charged a UIE Settlement Amount for each LAP, PNode or Scheduling Point for which the CAISO calculates a UIE quantity. UIE quantities are calculated for each resource that has a Day-Ahead Schedule, Dispatch Instruction, Real-Time Interchange Export Schedule

or Metered Quantity. For MSS Operators electing gross Settlement, regardless of whether that entity has elected to follow its Load or to participate in RUC, the UIE for such entities is settled similarly to how UIE for non-MSS entities is settled as provided in this Section 11.5.2. The CAISO shall account for UIE in two categories: (1) Tier 1 UIE is accounted as the quantity deviation from the resource's IIE; and (2) Tier 2 UIE is accounted as the quantity deviation from the resource's Day-Ahead Schedule or as described in Section 11.5.2.4. For Generating Units, System Units of MSS Operators that have elected gross Settlement, Physical Scheduling Plants, System Resources and all Participating Load, Reliability Demand Response Resources, and Proxy Demand Resources, the Tier 1 UIE Settlement Amount is calculated for each Settlement Interval as the product of its Tier 1 UIE quantity and its Resource-Specific Tier 1 UIE Settlement Interval Price as calculated per Section 11.5.2.1, and the Tier 2 UIE Settlement Amount is calculated for each Settlement Interval as the product of its Tier 2 UIE quantity and the simple average of the relevant Dispatch Interval LMPs. The Tier 2 UIE Settlement Amount for non-Participating Load and MSS Demand under gross Settlement is settled as described in Section 11.5.2.2. For MSS Operators that have elected net Settlement, the Tier 1 UIE Settlement Amount is calculated for each Settlement Interval as the product of its Tier 1 UIE quantity and its Real-Time Settlement Interval MSS Price, and the Tier 2 UIE Settlement Amount is calculated for each Settlement Interval as the product of its Tier 2 UIE quantity and the Real-Time Settlement Interval MSS Price.

\* \* \*

#### **11.5.2.4 Adjustment to Metered Load to Settle UIE**

For the purpose of settling Uninstructed Imbalance Energy of a Scheduling Coordinator representing a Load Serving Entity, the amount of Demand Response Energy Measurement delivered by a Proxy Demand Resource or Reliability Demand Response Resource that is also served by that Load Serving Entity will be added to the metered load quantity of the Load Serving Entity's Scheduling Coordinator's Load Resource ID with which the Proxy Demand Resource or Reliability Demand Response Resource is associated.

\* \* \*

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

Payments to Scheduling Coordinators, including Scheduling Coordinators for MSS Operators that have elected gross Settlement, that supply Imbalance Energy will be based on Resource-Specific Settlement Interval LMPs. The Resource-Specific Settlement Interval LMPs are established using Dispatch Interval LMPs. Dispatch Interval LMPs will apply to Generating Units, System Units for MSS Operators that have elected gross Settlement, Physical Scheduling Plants, Dynamic System Resources, the Demand response portion of a Participating Load, Reliability Demand Response Resources, and Proxy Demand Resources for Settlement of Imbalance Energy. The Dispatch Interval LMP will be calculated at each PNode associated with such resource irrespective of whether the resource at that PNode has received Dispatch Instructions. The Dispatch Interval LMPs are then used to calculate a Resource-Specific Settlement Interval LMP and a Resource Specific Tier 1 UIE Settlement Interval Price for each Generating Unit, System Unit or MSS Operator that has elected gross Settlement, Physical Scheduling Plant, Dynamic System Resource, Participating Load, Reliability Demand Response Resource, and Proxy Demand Resource within the CAISO Controlled Grid. Payments to Scheduling Coordinators for MSS Operators that have elected net Settlement that supply Imbalance Energy will be based on the Real-Time Settlement Interval MSS Price.

\* \* \*

## **11.6 Settlement of Transactions Involving PDRs or RDRRs**

### **11.6.1 Settlement of Energy Transactions Involving PDRs or RDRRs**

Settlements for Energy provided by Demand Response Providers from Proxy Demand Resources or Reliability Demand Response Resources shall be based on the Demand Response Energy Measurement for the Proxy Demand Resources or Reliability Demand Response Resources. The Demand Response Energy Measurement for a Proxy Demand Resource or Reliability Demand Response Resource shall be the quantity of Energy equal to the difference between (i) the Customer Baseline for the Proxy Demand Resource or Reliability Demand Response Resource and (ii) either the actual underlying Load or the quantity of Energy calculated pursuant to Section 10.1.7 for the Proxy Demand Resource or Reliability Demand Response Resource for a Demand Response Event. For each Proxy Demand Resource or Reliability Demand Response Resource, the CAISO will calculate the Customer Baseline as set forth in Section 4.13.4.

\* \* \*

### **11.8 Bid Cost Recovery**

For purposes of determining the Unrecovered Bid Cost Uplift Payments for each Bid Cost Recovery Eligible Resource as determined in Section 11.8.5 and the allocation of Unrecovered Bid Cost Uplift Payments for each Settlement Interval, the CAISO shall sequentially calculate the Bid Costs, which can be positive (IFM, RUC or RTM Bid Cost Shortfall) or negative (IFM, RUC or RTM Bid Cost Surplus) in the IFM, RUC and the Real-Time Market, as the algebraic difference between the respective IFM, RUC or RTM Bid Cost and the IFM, RUC or RTM Market Revenues, which is netted across the CAISO Markets. In any Settlement Interval a resource is eligible for Bid Cost Recovery payments only if it is On, or in the case of a Participating Load, a Reliability Demand Response Resource, or a Proxy Demand Resource, only if the resource has actually stopped or started consuming pursuant to the Dispatch Instruction. BCR Eligible Resources for different MSS Operators are supply resources listed in the applicable MSS Agreement. All Bid Costs shall be based on mitigated Bids as specified in Section 39.7. Virtual Awards are not eligible for Bid Cost Recovery. Virtual Awards are eligible for make-whole payments due to price corrections pursuant to Section 11.21.2. In order to be eligible for Bid Cost Recovery, Non-Dynamic Resource-Specific System Resources must provide to the CAISO SCADA data by telemetry to the CAISO's EMS in accordance with Section 4.12.3 demonstrating that they have performed in accordance with their CAISO commitments.

\* \* \*

## **30.6 Bidding and Scheduling of PDRs and RDRRs**

### **30.6.1 Bidding and Scheduling of PDRs**

Unless otherwise specified in the CAISO Tariff and applicable Business Practice Manuals, the CAISO will treat Bids for Energy and Ancillary Services on behalf of Proxy Demand Resources like Bids for Energy and Ancillary Services on behalf of other types of supply resources. A Scheduling Coordinator for a Demand Response Provider representing a Proxy Demand Resource may submit (1) Energy Bids only in the Day-Ahead Market and in the Real-Time Market; (2) RUC Availability Bids; and (3) Ancillary Service Bids in the Day-Ahead Market and Real-Time Market for those Ancillary Services for which the Proxy Demand Resource is certified. A Scheduling Coordinator for a Demand Response Provider representing

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

### **30.6.2 Bidding and Scheduling of RDRRs**

Unless otherwise specified in the CAISO Tariff and applicable Business Practice Manuals, the CAISO will treat Bids for Energy on behalf of Reliability Demand Response Resources like Bids for Energy on behalf of other types of supply resources. A Scheduling Coordinator for a Demand Response Provider representing a Reliability Demand Response Resource may submit Energy Bids for the Reliability Demand Response Resource only in the Day-Ahead Market and in the Real-Time Market, but may not submit Energy Self-Schedules for the Reliability Demand Response Resource, may not Self-Provide Ancillary Services from the Reliability Demand Response Resource, and may not submit RUC Availability Bids or Ancillary Service Bids for the Reliability Demand Response Resource. The Demand Response Provider's Demand Response Services for Reliability Demand Response Resources will be bid separately and independently from the LSE's underlying Demand Bid.

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

##### **30.6.2.1.1 Limitations on Obligation to Bid in the Real-Time Market**

Within each Reliability Demand Response Services Term, any capacity of a Reliability Demand Response Resource that remains uncommitted after the Day-Ahead Market shall be bid in the Real-Time Market in order to be available to provide Demand Response Services in Real-Time until such time as the Reliability Demand Response Resource has reached the RDRR Availability Limit for the Reliability Demand Response Services Term. Within each Reliability Demand Response Services Term, any capacity of a Reliability Demand Response Resource that remains uncommitted after the Day-Ahead Market may be (but is not required to be) bid in the Real-Time Market in order to be available to provide Demand Response Services in Real-Time after the Reliability Demand Response Resource has reached the RDRR Availability Limit during the Reliability Demand Response Services Term.

##### **30.6.2.1.2 Real-Time Dispatch Options**

For purposes of bidding and scheduling in the Real-Time Market, each Scheduling Coordinator for a Demand Response Provider representing a Reliability Demand Response Resource shall select either

the Marginal Real-Time Dispatch Option or the Discrete Real-Time Dispatch Option prior to the start of the initial Reliability Demand Response Services Term applicable to the Reliability Demand Response Resource. The selection for each Reliability Demand Response Resource shall remain in effect until such time as the Scheduling Coordinator for the Reliability Demand Response Resource chooses to change its selection from the Marginal Real-Time Dispatch Option to the Discrete Real-Time Dispatch Option or vice versa, in which case the change in selection shall go into effect at the start of the next Reliability Demand Response Services Term applicable to the Reliability Demand Response Resource. A Reliability Demand Response Resource that is subject to either the Marginal Real-Time Dispatch Option or the Discrete Real-Time Dispatch Option shall have Minimum Load Costs of zero (0) dollars registered in the Master File.

#### **30.6.2.1.2.1 Marginal Real-Time Dispatch Option**

A Reliability Demand Response Resource that is subject to the Marginal Real-Time Dispatch Option:

- (a) May submit either a single-segment Bid or a multi-segment Bid in the Real-Time Market that must be at least ninety-five (95) percent of the applicable maximum Bid price and can be no greater than one hundred (100) percent of the applicable maximum Bid price set forth in Section 39.6.1.1.
- (b) Shall be dispatched as a marginal resource if it is dispatched by the CAISO.

#### **30.6.2.1.2.2 Discrete Real-Time Dispatch Option**

A Reliability Demand Response Resource that is subject to the Discrete Real-Time Dispatch Option:

- (a) May submit only a single-segment Bid in the Real-Time Market that must be at least ninety-five (95) percent of the applicable maximum Bid price and can be no greater than one hundred (100) percent of the applicable maximum Bid price set forth in Section 39.6.1.1.
- (b) Shall be dispatched as a discrete (non-marginal) resource if it is dispatched by the CAISO.

\* \* \*

### **30.7.8 Format And Validation Of Start-Up And Shut-Down Times**

For a Generating Unit or a Resource-Specific System Resource, the submitted Start-Up Time expressed in minutes (min) as a function of down time expressed in minutes (min) must be a staircase function with up to three (3) segments defined by a set of 1 to 4 down time and Start-Up Time pairs. The Start-Up Time is the time required to start the resource if it is offline longer than the corresponding down time. The CAISO shall model Start-Up Times for Multi-Stage Generating Resource at the MSG Configuration level and Transition Times are validated based on the Transition Matrix submitted as provided in Section 27.8. The last segment will represent the time to start the unit from a cold start and will extend to infinity. The submitted Start-Up Time function shall be validated as follows:

- (a) The first down time must be zero (0) min.
- (b) The down time entries must match exactly (in number, sequence, and value) the corresponding down time breakpoints of the maximum Start-Up Time function, as registered in the Master File for the relevant resource.
- (c) The Start-Up Time for each segment must not exceed the Start-Up Time of the corresponding segment of the maximum Start-Up Time function, as registered in the Master File for the relevant resource.
- (d) The Start-Up Time function must be strictly monotonically increasing, i.e., the Start-Up Time must increase as down time increases.

For Participating Load and for a Proxy Demand Resource or Reliability Demand Response Resource, a single Shut-Down time in minutes is the time required for the resource to Shut-Down after receiving a Dispatch Instruction. For Multi-Stage Generating Resources, the Scheduling Coordinator must provide Start-Up Costs for each MSG Configuration into which the resource can be started.

### **30.7.9 Format And Validation Of Start-Up Costs And Shut-Down Costs**

For a Generating Unit or a Resource-Specific System Resource, the submitted Start-Up Cost expressed in dollars (\$) as a function of down time expressed in minutes must be a staircase function with up to three (3) segments defined by a set of 1 to 4 down time and Start-Up Cost pairs. The Start-Up Cost is the cost incurred to start the resource if it is offline longer than the corresponding down time. The last

segment will represent the cost to start the resource from cold Start-Up and will extend to infinity. The submitted Start-Up Cost function shall be validated as follows:

- (a) The first down time must be zero (0) min.
- (b) The down time entries must match exactly (in number, sequence, and value) the corresponding down time breakpoints of the Start-Up Cost function, as registered in the Master File for the relevant resource as either the Proxy Cost or Registered Cost.
- (c) The Start-Up Cost for each segment must not be negative and must be equal to the Start-Up Cost of the corresponding segment of the Start-Up Cost function, as registered in the Master File for the relevant resource. If a value is submitted in a Bid for the Start-Up Cost, it will be overwritten by the Master File value as either the Proxy Cost or Registered Cost based on the option elected pursuant to Section 30.4. If no value for Start-Up Cost is submitted in a Bid, the CAISO will insert the Master File value, as either the Proxy Cost or Registered Cost based on the option elected pursuant to Section 30.4.
- (d) The Start-Up Cost function must be strictly monotonically increasing, i.e., the Start-Up Cost must increase as down time increases.

The Start-Up cost for a Reliability Demand Response Resource shall be zero (0). For Participating Loads and Proxy Demand Resources, a single Shut-Down Cost in dollars (\$) is the cost incurred to Shut-Down the resource after receiving a Dispatch Instruction. The submitted Shut-Down Cost must not be negative. For Multi-Stage Generating Resources, the Scheduling Coordinator must provide Start-Up Costs for each MSG Configuration into which the resource can be started.

\* \* \*

### **31. Day-Ahead Market**

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

Participating Load, Reliability Demand Response Resources, and Proxy Demand Resources, pursuant to their Bids as provided in this Section 31.

\* \* \*

### **31.2 MPM-RRD**

After the Market Close of the DAM, and after the CAISO has validated the Bids pursuant to Section 30.7, the CAISO will perform the MPM-RRD procedures in a series of processing runs that occur prior to the IFM Market Clearing run. The MPM process determines which Bids need to be mitigated in the IFM. The RRD process is the automated process for determining RMR Generation requirements for RMR Units. The MPM-RRD process optimizes resources using the same optimization used in the IFM, but instead of using Demand Bids as in the IFM the MPM-RRD process optimizes resources to meet one hundred (100) percent of the CAISO Demand Forecast and Export Bids to the extent the Export Bids are selected in the MPM-RRD process, and meet one hundred (100) percent of Ancillary Services requirements based on Supply Bids submitted to the DAM. Virtual Bids are excluded from the MPM-RRD process. Bids on behalf of Proxy Demand Resources or Reliability Demand Response Resources are not mitigated and are not considered in the MPM-RRD process. The mitigated or unmitigated Bid identified in the MPM-RRD process for all resources that cleared in the MPM-RRD are then passed to the IFM. The CAISO performs the MPM-RRD for the DAM for the twenty-four (24) hours of the targeted Trading Day.

\* \* \*

#### **31.3.1.4 Eligibility to Set the Day-Ahead LMP**

All Generating Units, Participating Loads, non-Participating Loads, Proxy Demand Resources, Reliability Demand Response Resources, System Resources, System Units, or Constrained Output Generators subject to the provisions in Section 27.7, with Bids, including Generated Bids, that are unconstrained due to Ramp Rates, MSG Transitions, Forbidden Operating Regions, or other temporal constraints are eligible to set the LMP, provided that (a) the Schedule for the Generating Unit or Resource-Specific System Resource is between its Minimum Operating Limit and the highest MW value in its Economic Bid or Generated Bid, or (b) the Schedule for the Participating Load, non-Participating Load, Proxy Demand Resources, Reliability Demand Response Resources, non-Resource-Specific System Resource, or System Unit is between zero (0) MW and the highest MW value in its Economic Bid or Generated Bid. If

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

\* \* \*

### **33.4 MPM-RRD For The HASP And The RTM**

After the Market Close of the HASP and RTM, after the CAISO has validated the Bids pursuant to section 30.7, and prior to running the HASP optimization, the CAISO conducts the MPM-RRD process, the results of which will be utilized in the HASP optimization and all RTM processes for the Trading Hour. Bids on behalf of the Proxy Demand Resources and Reliability Demand Response Resources are not mitigated and are not considered in the MPM-RRD process. The MPM-RRD process for the HASP and RTM produces results for each fifteen (15) minute interval of the Trading Hour and thus may produce up to four (4) mitigated Bids for any given resource for the Trading Hour. A single mitigated Bid for the entire Trading Hour is calculated using the minimum Bid price of the four (4) mitigated Bid curves at each Bid quantity level. The Bids are mitigated only for the Bid quantities that are above the minimum quantity cleared in the CCR across all four (4) fifteen-minute intervals. For a Condition 1 RMR Unit, if the dispatch level produced through the ACR is greater than the dispatch level produced through the CCR, and for a Condition 2 RMR Unit that is dispatched through the ACR, the resource will be flagged as an RMR Dispatch in the RTM and shall constitute a Dispatch notice pursuant to the RMR Contract.

\* \* \*

### **34.5 General Dispatch Principles**

The CAISO shall conduct all Dispatch activities consistent with the following principles:

- (1) The CAISO shall issue AGC instructions electronically as often as every four (4) seconds from its Energy Management System (EMS) to resources providing

Regulation and on Automatic Generation Control to meet NERC and WECC performance requirements;

- (2) In each run of the RTED or RTCD the objective will be to meet the projected Energy requirements over the applicable forward-looking time period of that run, subject to transmission and resource operational constraints, taking into account the short term CAISO Forecast of CAISO Demand adjusted as necessary by the CAISO Operator to reflect scheduled changes to Interchange and non-dispatchable resources in subsequent Dispatch Intervals;
- (3) Dispatch Instructions will be based on Energy Bids for those resources that are capable of intra-hour adjustments and will be determined through the use of SCED except when the CAISO must utilize the RTMD;
- (4) When dispatching Energy from awarded Ancillary Service capacity the CAISO will not differentiate between Ancillary Services procured by the CAISO and Submissions to Self-Provide an Ancillary Service;
- (5) The Dispatch Instructions of a resource for a subsequent Dispatch Interval shall take as a point of reference the actual output obtained from either the State Estimator solution or the last valid telemetry measurement and the resource's operational ramping capability. For Multi-Stage Generating Resources the determination of the point of reference is further affected by the MSG Configuration and the information contained in the Transition Matrix;
- (6) In determining the Dispatch Instructions for a target Dispatch Interval while at the same time achieving the objective to minimize Dispatch costs to meet the forecasted conditions of the entire forward-looking time period, the Dispatch for the target Dispatch Interval will be affected by: (a) Dispatch Instructions in prior intervals, (b) actual output of the resource, (c) forecasted conditions in subsequent intervals within the forward-looking time period of the optimization, and (d) operational constraints of the resource, such that a resource may be dispatched in a direction for the immediate target Dispatch Interval that is

different than the direction of change in Energy needs from the current Dispatch Interval to the next immediate Dispatch Interval, considering the applicable MSG Configuration;

- (7) Through Start-Up Instructions the CAISO may instruct resources to start up or shut down, or may reduce Load for Participating Loads, Reliability Demand Response Resources, and Proxy Demand Resources, over the forward-looking time period for the RTM based on submitted Bids, Start-Up Costs and Minimum Load Costs, Pumping Costs and Pump Shut-Down Costs, as appropriate for the resource, or for Multi-Stage Generating Resource as appropriate for the applicable MSG Configuration, consistent with operating characteristics of the resources that the SCED is able to enforce. In making Start-Up or Shut-Down decisions in the RTM, the CAISO may factor in limitations on number of run hours or Start-Ups of a resource to avoid exhausting its maximum number of run hours or Start-Ups during periods other than peak loading conditions;
- (8) The CAISO shall only start up resources that can start within the applicable time periods of the various CAISO Markets Processes that comprise the RTM;
- (9) The RTM optimization may result in resources being shut down consistent with their Bids and operating characteristics provided that: (a) the resource does not need to be on-line to provide Energy, (b) the resource is able to start up within the applicable time periods of the processes that comprise the RTM, (c) the Generating Unit is not providing Regulation or Spinning Reserve, and (d) Generating Units online providing Non-Spinning Reserve may be shut down if they can be brought up within ten (10) minutes as such resources are needed to be online to provide Non-Spinning Reserves;
- (10) For resources that are both providing Regulation and have submitted Energy Bids for the RTM, Dispatch Instructions will be based on the Regulation Ramp Rate of the resource rather than the Operational Ramp Rate if the Dispatch Operating Point remains within the Regulating Range. The Regulating Range

will limit the Ramping of Dispatch Instructions issued to resources that are providing Regulation;

- (11) For Multi-Stage Generating Resources the CAISO will issue Dispatch Instructions by Resource ID and Configuration ID;
- (12) The CAISO may issue Transition Instructions to instruct resources to transition from one MSG Configuration to another over the forward-looking time period for the RTM based on submitted Bids, Transition Costs and Minimum Load Costs, as appropriate for the MSG Configurations involved in the MSG Transition, consistent with Transition Matrix and operating characteristics of these MSG Configurations. The RTM optimization will factor in limitations on Minimum Up Time and Minimum Down Time defined for each MSG configuration and Minimum Up Time and Minimum Down Time at the Generating Unit or Dynamic Resource-Specific System Resource.

\* \* \*

#### **34.6 Dispatch of Units, Participating Loads, PDRs, and RDRRs**

The CAISO may issue Dispatch Instructions covering:

- (a) Ancillary Services;
- (b) Energy, which may be used for:
  - (i) Congestion relief;
  - (ii) provision of Imbalance Energy; or
  - (iii) replacement of an Ancillary Service;
- (c) agency operation of Generating Units, Participating Loads, Proxy Demand Resources, or Interconnection schedules, for example:
  - (i) output or Demand that can be Dispatched to meet Applicable Reliability Criteria;
  - (ii) Generating Units that can be Dispatched for Black Start;

- (iii) Generating Units that can be Dispatched to maintain governor control regardless of their Energy schedules;
- (d) the operation of voltage control equipment applied on Generating Units as described in this CAISO Tariff;
- (e) MSS Load following instructions provided to the CAISO, which the CAISO incorporates to create their Dispatch Instructions;
- (f) Dispatch necessary to respond to a System Emergency or imminent emergency;
- (g) Transition Instructions; or
- (h) Dispatch of Reliability Demand Response Resources pursuant to Section 34.18.

\* \* \*

#### **34.9.1 System Reliability Exceptional Dispatches**

The CAISO may issue a manual Exceptional Dispatch for Generating Units, System Units, Participating Loads, Proxy Demand Resources, Reliability Demand Response Resources, Dynamic System Resources, and Condition 2 RMR Units pursuant to Section 41.9, in addition to or instead of resources with a Day-Ahead Schedule dispatched by RTM optimization software during a System Emergency, or to prevent an imminent System Emergency or a situation that threatens System Reliability and cannot be addressed by the RTM optimization and system modeling. To the extent possible, the CAISO shall utilize available and effective Bids from resources before dispatching resources without Bids. To deal with any threats to System Reliability, the CAISO may also issue a manual Exceptional Dispatch in the Real-Time for Non-Dynamic System Resources that have not been or would not be selected by the RTM for Dispatch, but for which the relevant Scheduling Coordinator has submitted a Bid into the HASP.

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#### **34.9.3 Transmission-Related Modeling Limitations**

The CAISO may also manually Dispatch resources in addition to or instead of resources with a Day-Ahead Schedule or dispatched by the RTM optimization software, during or prior to the Real-Time as appropriate, to address transmission-related modeling limitations in the Full Network Model.

Transmission-related modeling limitations for the purposes of Exceptional Dispatch, including for

settlement of such Exceptional Dispatch as described in Section 11.5.6, shall consist of any FNM modeling limitations that arise from transmission maintenance, lack of Voltage Support at proper levels as well as incomplete or incorrect information about the transmission network, for which the Participating TOs have primary responsibility. The CAISO shall also manually Dispatch resources under this Section 34.9.3 in response to system conditions including threatened or imminent reliability conditions for which the timing of the Real-Time Market optimization and system modeling are either too slow or incapable of bringing the CAISO Controlled Grid back to reliable operations in an appropriate time-frame based on the timing and physical characteristics of available resources to the CAISO. All reliability-based Exceptional Dispatch Instructions for Reliability Demand Response Resources, including for testing, will be issued under this Section 34.9.3.

#### **34.18 Real-Time Dispatch of RDRRs**

The CAISO may issue an Exceptional Dispatch Instruction for the Reliability Demand Response Resource for reliability or to perform a test as provided in Section 34.9.3. An entity other than the CAISO that has a contractual or tariff-based right to do so, may dispatch a Reliability Demand Response Resource in Real-Time in order to (1) mitigate a local transmission or distribution system emergency pursuant to applicable state or local programs, contracts, or regulatory requirements not set forth in the CAISO Tariff or (2) perform a test. If an entity other than the CAISO dispatches a Reliability Demand Response Resource in Real-Time in order to mitigate a local transmission or distribution system emergency or perform a test, the Scheduling Coordinator for the Demand Response Provider representing the Reliability Demand Response Resource shall immediately inform the CAISO, through the CAISO's Outage reporting system, that such dispatch has occurred or will occur and the MW amount of the dispatch.

##### **34.18.1 Testing of RDRRs**

The CAISO may issue one (1) unannounced Exceptional Dispatch Instruction per year to each Reliability Demand Response Resource pursuant to Section 34.9.2 in order to test the availability and performance of the Reliability Demand Response Resource. The Demand Response Provider representing the Reliability Demand Response Resource may also test its Reliability Demand Response Resources in coordination with the CAISO. Any Demand Response Provider initiated testing will not trigger any CAISO

settlement. The CAISO will share the results of all tests of the Reliability Demand Response Resource with the applicable Local Regulatory Authority. All tests of the Reliability Demand Response Resource shall count toward its RDRR Availability Limit. If, prior to the performance of a CAISO unannounced yearly test, the Reliability Demand Response Resource provides Demand Response Services in that year, its provision of Demand Response Services will eliminate the need for that year's test. Testing of Reliability Demand Response Resources will be conducted as described in the applicable Operating Procedure or Business Practice Manual.

### **34.19 Pricing Imbalance Energy**

#### **34.19.1 General Principles**

Instructed and Uninstructed Imbalance Energy shall be paid or charged the applicable Resource-Specific Settlement Interval LMP except for hourly pre-dispatched Instructed Imbalance Energy, which shall be settled as set forth in Section 11.5.2. These prices are determined using the Dispatch Interval LMPs. The Dispatch Interval LMPs shall be based on the Bid of the marginal Generating Units, System Units, Participating Loads, Reliability Demand Response Resources, and Proxy Demand Resources dispatched by the CAISO to increase or reduce Demand or Energy output in each Dispatch Interval as provided in Section 34.19.2.1.

The CAISO will respond to the Dispatch Instructions issued by the SCED to the extent practical in the time available and acting in accordance with Good Utility Practice. The CAISO will record the reasons for any variation from the Dispatch Instructions issued by the SCED.

#### **34.19.2 Determining Real-Time LMPs**

##### **34.19.2.1 Dispatch Interval Real-Time LMPs**

##### **34.19.2.2 Computation**

For each Dispatch Interval, the CAISO will compute updated Imbalance Energy needs and will Dispatch Generating Units, System Units, Dynamic System Resources, Participating Loads, Reliability Demand Response Resources, and Proxy Demand Resources according to the CAISO's SCED during that time period to meet Imbalance Energy requirements. The RTM transactions will be settled at the Dispatch Interval LMPs in accordance with Section 11.5.

### **34.19.2.3 Eligibility to Set the Real-Time LMP**

All Generating Units, Participating Loads, Proxy Demand Resources, Reliability Demand Response Resources (other than those Reliability Demand Response Resources addressed below in this Section 34.19.2.3), Dynamic System Resources, System Units, or COGs subject to the provisions in Section 27.7, with Bids, including Generated Bids, that are unconstrained due to Ramp Rates or other temporal constraints are eligible to set the LMP, provided that (a) a Generating Unit or a Dynamic Resource-Specific System Resource is Dispatched between its Minimum Operating Limit and the highest MW value in its Economic Bid or Generated Bid, or (b) a Participating Load, a Proxy Demand Resource, a Reliability Demand Response Resource, a Dynamic System Resource that is not a Resource-Specific System Resource, or a System Unit is Dispatched between zero (0) MW and the highest MW value within its submitted Economic Bid range or Generated Bid. A Reliability Demand Response Resource that is dispatched in Real-Time by an entity other than the CAISO in order to mitigate a local transmission or distribution system emergency pursuant to applicable state or local programs, contracts, or regulatory requirements not set forth in the CAISO Tariff, or to perform a test, will not be eligible to set the LMP. If a resource is Dispatched below its Minimum Operating Limit or above the highest MW value in its Economic Bid range or Generated Bid, or the CAISO enforces a resource-specific constraint on the resource due to an RMR or Exceptional Dispatch, the resource will not be eligible to set the LMP. Resources identified as MSS Load following resources are not eligible to set the LMP. A resource constrained at an upper or lower operating limit or dispatched for a quantity of Energy such that its full Ramping capability is constraining the ability of the resource to be dispatched for additional Energy in target interval, cannot be marginal (i.e., it is constrained by the Ramping capability) and thus is not eligible to set the Dispatch Interval LMP. Non-Dynamic System Resources are not eligible to set the Dispatch Interval LMP. Dynamic System Resources are eligible to set the Dispatch Interval LMP. A Constrained Output Generator that has the ability to be committed or shut off within applicable time periods that comprise the RTM will be eligible to set the Dispatch Interval LMP if any portion of its Energy is necessary to serve Demand. Dispatches of Regulation resources by EMS in response to AGC will not set the RTM LMP. Dispatches of Regulation resources to a Dispatch Operating Point by RTM SCED will be eligible to set the RTM LMP.

\* \* \*

#### **36.8.4 Eligible Sources For CRR Allocation**

In the CRR Allocation processes for Seasonal CRRs, Monthly CRRs, and Long Term CRRs, nominated CRR Sources can be either PNodes (including Scheduling Points) or Trading Hubs, except that a Proxy Demand Resource or Reliability Demand Response Resource cannot be a nominated CRR Source in a CRR Allocation process. An LSE or a Qualified OBAALSE may nominate up to one hundred (100) percent of its Adjusted Verified CRR Source Quantities for Seasonal or Monthly CRRs in the combined tiers of the annual and monthly CRR Allocation processes as provided in this Section. For tiers 1 and 2 of the annual CRR Allocation in CRR Year One, an LSE may nominate CRRs from each of its verified CRR Sources in a quantity no greater than seventy-five (75) percent of the Adjusted Verified CRR Source Quantity corresponding to each verified CRR Source. The LSE may then use tier 1 of the monthly CRR Allocations in CRR Year One to nominate up to the full one hundred (100) percent of the Adjusted Verified CRR Source Quantity corresponding to each verified CRR Source. In tiers 1, 2 and 3 of the annual CRR Allocation in each year in which it participates, a Qualified OBAALSE may nominate CRRs from each of its verified CRR Sources in a quantity no greater than seventy-five (75) percent of the Adjusted Verified CRR Source Quantity corresponding to each CRR Source. The Qualified OBAALSE may then use tiers 1 and 2 of the monthly CRR Allocations in the same year to nominate up to the full one hundred (100) percent of the Adjusted Verified CRR Source Quantity corresponding to each verified CRR Source.

\* \* \*

#### **40.4.4 Reductions For Testing**

In accordance with the procedures specified in the Business Practice Manual, the Generating Unit of a Participating Generator or other Generating Units, System Units or Loads of Participating Loads, Reliability Demand Response Resources, or Proxy Demand Resources included in a Resource Adequacy Plan submitted by a Scheduling Coordinator on behalf of a Load Serving Entity can have its Qualifying Capacity reduced, for purposes of the Net Qualifying Capacity annual report under Section 40.4.2 for the next Resource Adequacy Compliance Year, if a CAISO testing program determines that it is not capable of supplying the full Qualifying Capacity amount.

\* \* \*

#### **40.6.4.1 Registration of Use-Limited Resources**

Hydroelectric Generating Units, Proxy Demand Resources, Reliability Demand Response Resources, and Participating Load, including Pumping Load, are deemed to be Use-Limited Resources for purposes of this Section 40 and are not required to submit the application described in this Section 40.6.4.1.

Scheduling Coordinators for other Use-Limited Resources must provide the CAISO an application in the form specified on the CAISO Website requesting registration of a specifically identified resource as a Use-Limited Resource. This application shall include specific operating data and supporting documentation including, but not limited to:

- (1) a detailed explanation of why the resource is subject to operating limitations;
- (2) historical data to show attainable MWhs for each 24-hour period during the preceding year, including, as applicable, environmental restrictions for NOx, SOx, or other factors; and
- (3) further data or other information as may be requested by the CAISO to understand the operating characteristics of the unit.

Within five (5) Business Days after receipt of the application, the CAISO will respond to the Scheduling Coordinator as to whether or not the CAISO agrees that the facility is eligible to be a Use-Limited Resource. If the CAISO determines the facility is not a Use-Limited Resource, the Scheduling Coordinator may challenge that determination in accordance with the CAISO ADR Procedures.

#### **40.6.4.2 Use Plan**

The Scheduling Coordinator shall provide for the following Resource Adequacy Compliance Year a proposed annual use plan for each Use-Limited Resource that is a Resource Adequacy Resource. For each Use-Limited Resource that is a Resource Adequacy Resource but is not a Reliability Demand Response Resource, the proposed annual use plan will delineate on a month-by-month basis the total MWhs of Generation, total run hours, expected daily supply capability (if greater than four (4) hours) and the daily Energy limit, operating constraints, and the timeframe for each constraint. The CAISO will have an opportunity to discuss the proposed annual use plan with the Scheduling Coordinator and suggest potential revisions to meet reliability needs of the system. The Scheduling Coordinator shall then submit

its final annual use plan. Scheduling Coordinators for Use-Limited Resources must submit the proposed and final annual use plans in accordance with the schedule set forth in the Business Practice Manual. The Scheduling Coordinator will be able to update the projections made in the annual use plan in the monthly Resource Adequacy Plans. Hydroelectric Generating Units and Pumping Load will be able to update use plans intra-monthly as necessary to reflect evolving hydrological and meteorological conditions. The annual use plan must reflect the potential operation of the Use-Limited Resource at a level no less than the minimum criteria set forth by the Local Regulatory Authority for qualification of the resource.

#### **40.6.4.3 Bidding Requirements on Use-Limited Resources**

##### **40.6.4.3.1 Non-Hydro, Non-RDRR, and Dispatchable Use-Limited Resources**

Use-Limited Resources, other than those subject to the provisions of 40.6.4.3.2, must submit a Supply Bid or Self-Schedule for their Resource Adequacy Capacity in the Day-Ahead Market whenever the Use-Limited Resources are physically capable of operating in accordance with their operating criteria, including environmental or other regulatory requirements. Use-Limited Resources will also provide a daily Energy limit as part of their Day-Ahead Market offer to enable the CAISO to schedule them for the period in which they are capable of providing the Energy. To the extent that the daily Energy limit has been reached through Self-Schedules, no further action will be taken by the CAISO, unless rescheduling of the Energy is necessary for System Reliability. Use-Limited Resources will attempt to reschedule the Energy in recognition of the System Reliability concern, to the extent that the change is possible without violating a Use-Limited Resource's operating criteria.

##### **40.6.4.3.2 Hydro, RDRR, and Non-Dispatchable Use-Limited Resources**

Hydroelectric Generating Units, Pumping Load, and Non-Dispatchable Use-Limited Resources, but not Reliability Demand Response Resources, shall submit Self-Schedules or Bids in the Day-Ahead Market for their expected available Energy or their expected as-available Energy, as applicable, in the Day-Ahead Market and HASP. Such resources shall also revise their Self-Schedules or submit additional Bids in HASP based on the most current information available regarding expected Energy deliveries.

Hydroelectric Generating Units, Pumping Load, Reliability Demand Response Resources, and Non-Dispatchable Use-Limited Resources will not be subject to commitment in the RUC process. The CAISO

will retain discretion as to whether a particular resource should be considered a Non-Dispatchable Use-Limited Resource, and this decision will be made in accordance with the provisions of Section 40.6.4.1.

\* \* \*

#### **40.6.12 Participating Loads, PDRs, and RDRRs**

Participating Loads, Proxy Demand Resources, or Reliability Demand Response Resources that are included in a Resource Adequacy Plan and Supply Plan, if the Scheduling Coordinator for the Participating Loads, Proxy Demand Resources, or Reliability Demand Response Resources is not the same as that for the Load Serving Entity, will be administered by the CAISO in accordance with the terms and conditions established by the CPUC or the Local Regulatory Authority.

\* \* \*

#### **40.8.1.14 Reliability Demand Response Resources**

The Net Qualifying Capacity of a Reliability Demand Response Resource, for each month, will be based on the resource's average monthly historic demand reduction performance during that same month during the Availability Assessment Hours, as described in Section 40.9.3, using a three-year rolling average. For a Reliability Demand Response Resource with fewer than three years of performance history, for all months for which there is no historic data, the CAISO will use a monthly megawatt value as certified and reported to the CAISO by the Demand Response Provider; otherwise, where available, the CAISO will use the average of historic demand reduction performance data available, by month, for a Reliability Demand Response Resource.

\* \* \*

### **Appendix A Master Definitions Supplement**

#### **- Bid Cost Recovery (BCR) Eligible Resources**

Those resources eligible to participate in the Bid Cost Recovery as specified in Section 11.8, which include Generating Units, System Units, System Resources, Participating Loads, Reliability Demand Response Resources, and Proxy Demand Resources.

\* \* \*

**- Customer Baseline**

A value or values determined by the CAISO based on historical or statistically relevant Load meter data to measure the delivery of Demand Response Services.

\* \* \*

**- Demand Response Event**

A time period, deadline, and transition during which a Proxy Demand Resource or Reliability Demand Response Resource provides Demand Response Services.

\* \* \*

**- Demand Response Provider**

An entity that is responsible for delivering Demand Response Services from a Proxy Demand Resource or Reliability Demand Response Resource providing Demand Response Services, which has undertaken in writing by execution of the applicable agreement to comply with all applicable provisions of the CAISO Tariff.

**- Demand Response Provider Agreement (DRPA)**

An agreement between the CAISO and a Demand Response Provider, a pro forma version of which is set forth in Appendix B.14.

\* \* \*

**- Demand Response Services**

Demand from a Proxy Demand Resource or Reliability Demand Response Resource that can be bid into the Day-Ahead Market and Real-Time Market and dispatched at the direction of the CAISO.

**- Demand Response System**

A collective name for a set of functions of a CAISO application used to collect, approve, and report on information and measurement data for Proxy Demand Resources and Reliability Demand Response Resources.

\* \* \*

**- Discrete Real-Time Dispatch Option**

The option selected by a Reliability Demand Response Resource pursuant to Section 30.6.2.1.2 to be dispatched as a discrete resource in the Real-Time Market.

\* \* \*

**- DRPA**

Demand Response Provider Agreement

\* \* \*

**- Electric Facility**

An electric resource, including a Generating Unit, System Unit, Participating Load, Reliability Demand Response Resource, or Proxy Demand Resource.

\* \* \*

**- Expected Energy**

The total Energy that is expected to be generated or consumed by a resource, based on the Dispatch of that resource, as calculated by the Real-Time Market (RTM), and as finally modified by any applicable Dispatch Operating Point corrections. Expected Energy includes the Energy scheduled in the IFM, and it is calculated the applicable Trading Day. Expected Energy is calculated for Generating Units, System Resources, Resource-Specific System Resources, Participating Loads, Reliability Demand Response Resources, and Proxy Demand Resources. The calculation is based on the Day-Ahead Schedule and the Dispatch Operating Point trajectory for the three-hour period around the target Trading Hour (including the previous and following hours), the applicable Real-Time LMP for each Dispatch Interval of the target Trading Hour, and any Exceptional Dispatch Instructions. Energy from Non-Dynamic System Resources is converted into HASP Intertie Schedules. Expected Energy is used as the basis for Settlements.

\* \* \*

**- Local Capacity Area Resources**

Resource Adequacy Capacity from a Generating Unit listed in the technical study, Participating Load, Proxy Demand Resource, or Reliability Demand Response Resource that is located within a Local Capacity Area capable of contributing toward the amount of capacity required in a particular Local Capacity Area.

\* \* \*

**- Marginal Real-Time Dispatch Option**

The option selected by a Reliability Demand Response Resource pursuant to Section 30.6.2.1.2 to be dispatched as a marginal resource in the Real-Time Market.

\* \* \*

**- Meter Data**

Either (1) Energy usage data collected by a metering device or as may be otherwise derived by the use of Approved Load Profiles or (2) a statistical sampling of Energy usage data that is derived pursuant to a methodology approved by the CAISO pursuant to Section 10.1.7 in cases where interval metering is not available for the entire population of underlying service accounts for a Reliability Demand Response

Resource or a Proxy Demand Resource.

\* \* \*

**- Metered Subsystem (MSS)**

A geographically contiguous system located within a single zone which has been operating as an electric utility for a number of years prior to the CAISO Operations Date as a municipal utility, water district, irrigation district, state agency or federal power marketing authority subsumed within the CAISO Balancing Authority Area and encompassed by CAISO certified revenue quality meters at each interface point with the CAISO Controlled Grid and CAISO certified revenue quality meters on all Generating Units or, if aggregated, each individual resource, Participating Load, Reliability Demand Response Resource, and Proxy Demand Resource internal to the system, which is operated in accordance with a MSS Agreement described in Section 4.9.1.

\* \* \*

**- Minimum Load Bid**

The Bid component that indicates the Minimum Load Cost for the Generating Unit, Participating Load, Reliability Demand Response Resource, or Proxy Demand Resource specified by a non-negative number in dollars per hour, which applies for the entire Trading Day for which it is submitted.

**- Minimum Load Costs**

The costs a Generating Unit, Participating Load, or Proxy Demand Resource incurs operating at Minimum Load, which in the case of Participating Load, Reliability Demand Response Resource, or Proxy Demand Resource may not be negative.

\* \* \*

**- Demand Response Energy Measurement**

The Energy quantity calculated by comparing the Customer Baseline of a Proxy Demand Resource or Reliability Demand Response Resource against its actual underlying Load for a Demand Response Event.

\* \* \*

**- Proxy Demand Resource (PDR)**

A Load or aggregation of Loads capable of measurably and verifiably providing Demand Response Services pursuant to the Demand Response Provider Agreement.

\* \* \*

**- Ramp Rate**

The Bid component that indicates the Operational Ramp Rate, Regulation Ramp Rate, and Operating Reserve Ramp Rate for a Generating Unit, and the Load drop rate and Load pick-up rate for Participating

Loads, Reliability Demand Response Resources, and Proxy Demand Resources, for which the Scheduling Coordinator is submitting Energy Bids or Ancillary Services Bids.

\* \* \*

**- RDRR**

Reliability Demand Response Resource

**- RDRR Availability Limit**

A limit applicable to a Reliability Demand Response Resource that is reached when the Reliability Demand Response Resource has been dispatched in Real-Time for at least a total of fifteen (15) Demand Response Events or a total of forty-eight (48) hours during a Reliability Demand Response Services Term.

\* \* \*

**- Reliability Demand Response Resource (RDRR)**

A Load or aggregation of Loads capable of measurably and verifiably providing Demand Response Services pursuant to the Demand Response Provider Agreement.

**- Reliability Demand Response Services Term**

A six (6) month time period during which or within which a Reliability Demand Response Resource is available to provide Demand Response Services as specified in the Business Practice Manual.

\* \* \*

**- Resource ID**

Identification characters assigned by the CAISO to Generating Units, Loads, Participating Loads, Proxy Demand Resources, Reliability Demand Response Resources, System Units, System Resources, and Physical Scheduling Plants.

\* \* \*

**- Resource Location**

The Resource ID for a Generating Unit, Participating Load, Proxy Demand Resource, Reliability Demand Response Resource, or System Resource.

\* \* \*

**- Scheduling Coordinator Metered Entity**

A Generator, Eligible Customer, End-User, Reliability Demand Response Resource, or Proxy Demand Resource that is not a CAISO Metered Entity.

\* \* \*

**- Supply**

The Energy delivered from a Generating Unit, System Unit, Physical Scheduling Plant, System Resource, the Curtailable Demand provided by a Participating Load, or the Demand Response Services provided by a Proxy Demand Resource or a Reliability Demand Response Resource.

\* \* \*

**Appendix B.14 Demand Response Provider Agreement**

**CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**

**AND**

**[DEMAND RESPONSE PROVIDER]**

**DEMAND RESPONSE PROVIDER AGREEMENT (DRPA)**

**THIS AGREEMENT** is dated this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ and is entered into, by and between:

(a) **[Full legal name]**, having its registered and principal place of business located at [legal address] (the "Demand Response Provider");

and

(b) **California Independent System Operator Corporation**, a California nonprofit public benefit corporation having a principal executive office located at 250 Outcropping Way, Folsom, California 95630 or such place in the State of California as the CAISO Governing Board may from time to time designate (the "CAISO").

The Demand Response Provider and the CAISO are hereinafter referred to as the "Parties".

**Whereas:**

- A.** The CAISO Tariff provides that the CAISO shall only accept Bids for a Proxy Demand Resource or a Reliability Demand Response Resource from a Scheduling Coordinator.
- B.** The CAISO Tariff further provides that Demand Response Services may be provided by Demand Response Providers.
- C.** The Demand Response Provider desires to provide Demand Response Services from Proxy Demand Resources and/or Reliability Demand Response Resources through a Scheduling Coordinator and represents to the CAISO that it will comply with the applicable provisions of the CAISO Tariff.
- D.** The Parties are entering into this Agreement in order to establish the terms and conditions on which the CAISO and the Demand Response Provider will discharge their respective duties and responsibilities under the CAISO Tariff.

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

## **ARTICLE I**

### **DEFINITIONS AND INTERPRETATION**

- 1.1 Master Definitions Supplement.** All terms and expressions used in this Agreement shall have the same meaning as those contained in the Master Definitions Supplement in Appendix A of the CAISO Tariff.
- 1.2 Rules of Interpretation.** The following rules of interpretation and conventions shall apply to this Agreement:
- (a) if there is any inconsistency between this Agreement and the CAISO Tariff, the CAISO Tariff will prevail to the extent of the inconsistency;
  - (b) the singular shall include the plural and vice versa;
  - (c) the masculine shall include the feminine and neutral and vice versa;
  - (d) "includes" or "including" shall mean "including without limitation";
  - (e) references to a Section, Article or Schedule shall mean a Section, Article or a Schedule of this Agreement, as the case may be, unless the context otherwise requires;
  - (f) a reference to a given agreement or instrument shall be a reference to that agreement or instrument as modified, amended, supplemented or restated through the date as of which such reference is made;
  - (g) unless the context otherwise requires, references to any law shall be deemed references to such law as it may be amended, replaced or restated from time to time;
  - (h) unless the context otherwise requires, any reference to a "person" includes any individual, partnership, firm, company, corporation, joint venture, trust, association, organization or other entity, in each case whether or not having separate legal personality;
  - (i) unless the context otherwise requires, any reference to a Party includes a reference to its permitted successors and assigns;
  - (j) any reference to a day, week, month or year is to a calendar day, week, month or year; and
  - (k) the captions and headings in this Agreement are inserted solely to facilitate reference and shall have no bearing upon the interpretation of any of the terms and conditions of this Agreement.

## **ARTICLE II**

### **ACKNOWLEDGEMENTS OF DEMAND RESPONSE PROVIDER AND CAISO**

- 2.1 CAISO Responsibility.** The Parties acknowledge that the CAISO is responsible for the efficient use and reliable operation of the CAISO Controlled Grid consistent with achievement of planning and Operating Reserve criteria no less stringent than those established by the Western Electricity Coordinating Council and the North American Electric Reliability Corporation and further acknowledge that the CAISO may not be able to satisfy fully these responsibilities if the Demand

Response Provider fails to fully comply with all of its obligations under this Agreement and the CAISO Tariff.

- 2.2 Scope of Application to Parties.** The Demand Response Provider and CAISO acknowledge that to submit Bids for Proxy Demand Resources or Reliability Demand Response Resources to the CAISO through a Scheduling Coordinator, the Demand Response Provider must register its Proxy Demand Resources or Reliability Demand Response Resources in the CAISO's Demand Response System. The Demand Response Provider warrants that it owns, operates, or has sufficient contractual entitlement to provide Demand Response Services from the Proxy Demand Resources and Reliability Demand Response Resources it represents in accordance with the CAISO Tariff.

### ARTICLE III

#### TERM AND TERMINATION

- 3.1 Effective Date.** This Agreement shall be effective as of the later of the date it is executed by the Parties or the date accepted for filing and made effective by FERC, if such FERC filing is required, and shall remain in full force and effect until terminated pursuant to Section 3.2 of this Agreement.
- 3.2 Termination**
- 3.2.1 Termination by CAISO.** Subject to Section 5.2, the CAISO may terminate this Agreement by giving written notice of termination in the event that the Demand Response Provider commits any material default under this Agreement and/or the CAISO Tariff which, if capable of being remedied, is not remedied within thirty (30) days after the CAISO has given, to the Demand Response Provider, written notice of the default, unless excused by reason of Uncontrollable Forces in accordance with Article X of this Agreement; provided, however, that any outstanding financial right or obligation or any other obligation under the CAISO Tariff of the Demand Response Provider that has arisen while the Demand Response Provider was submitting Bids for Proxy Demand Resources, or Reliability Demand Response Resources and any provision of this Agreement necessary to give effect to such right or obligation, shall survive until satisfied. With respect to any notice of termination given pursuant to this Section, the CAISO must file a timely notice of termination with FERC, if this Agreement was filed with FERC, or must otherwise comply with the requirements of FERC Order No. 2001 and related FERC orders. The filing of the notice of termination by the CAISO with FERC will be considered timely if: (1) the filing of the notice of termination is made after the preconditions for termination have been met, and the CAISO files the notice of termination within sixty (60) days after issuance of the notice of default; or (2) the CAISO files the notice of termination in accordance with the requirements of FERC Order No. 2001. This Agreement shall terminate upon acceptance by FERC of such a notice of termination, if filed with FERC, or thirty (30) days after the date of the CAISO's notice of default, if terminated in accordance with the requirements of FERC Order No. 2001 and related FERC orders.
- 3.2.2 Termination by Demand Response Provider.** In the event that the Demand Response Provider no longer wishes to submit Bids or transmit Energy over the CAISO Controlled Grid, it may terminate this Agreement, on giving the CAISO not less than ninety (90) days written notice, provided, however, that in accordance with Section 4.1.2, the Demand Response Provider may eliminate from the Demand Response System Proxy Demand Resources or Reliability Demand Response Resources which it no longer provides for and such modification shall be effective upon receipt of notice by the CAISO; provided that a Demand Response Provider with Reliability Demand Response Resources is not permitted to terminate this Agreement effective as of a date within a Reliability Demand Response Services Term to which those Reliability Demand

Response Resources are subject; and provided further that any outstanding financial right or obligation or any other obligation under the CAISO Tariff of the Demand Response Provider that has arisen while the Demand Response Provider was submitting Bids for Proxy Demand Resources or Reliability Demand Response Resources, and any provision of this Agreement necessary to give effect to such right or obligation, shall survive until satisfied. With respect to any notice of termination given pursuant to this Section, the CAISO must file a timely notice of termination with FERC, if this Agreement has been filed with FERC, or must otherwise comply with the requirements of FERC Order No. 2001 and related FERC orders. The filing of the notice of termination by the CAISO with FERC will be considered timely if: (1) the request to file a notice of termination is made after the preconditions for termination have been met, and the CAISO files the notice of termination within thirty (30) days of receipt of such request; or (2) the CAISO files the notice of termination in accordance with the requirements of FERC Order No. 2001. This Agreement shall terminate upon acceptance by FERC of such a notice of termination, if such notice is required to be filed with FERC, or upon ninety (90) days after the CAISO's receipt of the Demand Response Provider's notice of termination, if terminated in accordance with the requirements of FERC Order No. 2001 and related FERC orders.

## ARTICLE IV

### GENERAL TERMS AND CONDITIONS

- 4.1 General Terms and Conditions Applicable to Both Proxy Demand Resources and Reliability Demand Response Resources.**
- 4.1.1 Demand Response Provider Requirements.** The Demand Response Provider must register with the CAISO through the Demand Response System and comply with all terms of the CAISO Tariff. A Demand Response Provider that aggregates the demand response of customers for utilities that distribute: (1) over four million MWh in the previous fiscal year must certify to the CAISO that its participation is not prohibited by the Local Regulatory Authority; or (2) four million MWh or less in the previous fiscal year must certify to the CAISO that its participation is permitted by the Local Regulatory Authority applicable to Demand Response Providers, and that it has satisfied all applicable rules and regulations of the Local Regulatory Authority. The Demand Response Provider must certify to the CAISO that any required bilateral agreements between the Demand Response Provider and the Load Serving Entities or other agreements required by the Local Regulatory Authority are fully executed.
- 4.1.2 Agreement Subject to CAISO Tariff.** The Parties will comply with all applicable provisions of the CAISO Tariff. This Agreement shall be subject to the CAISO Tariff, which shall be deemed to be incorporated herein.
- 4.1.3 Obligations relating to Major Incidents.** The Demand Response Provider shall promptly provide such information as the CAISO may reasonably require in relation to the CAISO's investigations of operating situations or events, or for the CAISO's reporting to the authorities such as the FERC, California Public Utilities Commission, Western Electricity Coordinating Council, or North American Electric Reliability Corporation.
- 4.2 General Terms and Conditions Applicable Solely to Proxy Demand Resources**
- 4.2.1 Technical Characteristics.** As required by Sections 8.3.4 and 8.4 of the CAISO Tariff, the Demand Response Provider shall provide the CAISO with all technical and operational information required for each Proxy Demand Resource that it owns, operates, or to which it has a contractual entitlement. For those Proxy Demand Resources designated by the Demand Response Provider as providing Demand Response Services, the Demand Response Provider

shall indicate whether the Proxy Demand Resource can submit Bids as qualifying Ancillary Services. Pursuant to Sections 8.9 and 8.10 of the CAISO Tariff, the CAISO may verify, inspect and test the capacity and operating characteristics provided for Proxy Demand Resources. The CAISO will maintain the required technical and operational information, which has been verified by the appropriate Load Serving Entity and Utility Distribution Company, as appropriate.

**4.2.2 Metering and Communication.** Metering requirements for the submittal of Settlement Quality Meter Data for Scheduling Coordinator Metered Entities will be in accordance with Section 10.3 of the CAISO Tariff. Pursuant to Sections 8.4.5 and 8.4.6 of the CAISO Tariff, Demand Response Services that are scheduled or bid as qualifying Ancillary Services are required to comply with the CAISO's communication and metering requirements.

**4.2.3 Notification of Changes.** The Demand Response Provider shall notify the CAISO of any proposed change(s) to registration to technical information. The CAISO will update the Master File in accordance with Section 30.7.3.2 of the CAISO Tariff. Pursuant to Sections 8.9 and 8.10 of the CAISO Tariff, the CAISO may verify, inspect and test the capacity and operating characteristics of the revised information provided. Unless the Proxy Demand Resource fails to test at the values in the proposed change(s), the Demand Response Provider's proposed change(s) will become effective upon the effective date for the next scheduled update of the Master File, provided that the Demand Response Provider submits the changed information by the applicable deadline and is tested by the deadline. Subject to such notification, this Agreement shall not apply to any Proxy Demand Resources which the Demand Response Provider no longer owns, operates or to which it no longer has a contractual entitlement.

#### **4.2.4 Obligations Relating to Ancillary Services**

**4.2.4.1 Submission of Bids and Self-provided Schedules.** When the Scheduling Coordinator on behalf of the Demand Response Provider submits a Bid, the Demand Response Provider will, by the operation of this Section 4.2.4.1, warrant to the CAISO that it has the capability to provide that service in accordance with the CAISO Tariff and that it will comply with CAISO Dispatch Instructions for the provision of the service in accordance with the CAISO Tariff.

**4.2.4.2 Ancillary Service Certification.** The Demand Response Provider shall not use a Scheduling Coordinator to submit a Bid for the provision of an Ancillary Service or submit a Submission to Self-Provide an Ancillary Service unless the Scheduling Coordinator serving that Demand Response Provider is in possession of a current Ancillary Service certificate pursuant to Sections 8.3.4 and 8.4 of the CAISO Tariff.

#### **4.3 General Terms and Conditions Applicable Solely to Reliability Demand Response Resources**

**4.3.1 Metering.** Metering requirements for the submittal of Settlement Quality Meter Data for Scheduling Coordinator Metered Entities will be in accordance with Section 10.3 of the CAISO Tariff.

**4.3.2 Notification of Changes.** The Demand Response Provider shall notify the CAISO of any proposed change(s) to the registration of technical information. The CAISO will update the Master File in accordance with Section 30.7.3.2 of the CAISO Tariff. This Agreement shall not apply to any Reliability Demand Response Resources which the Demand Response Provider no longer owns or operates or to which it no longer has a contractual entitlement.

## ARTICLE V

### PENALTIES AND SANCTIONS

- 5.1 Penalties.** If the Demand Response Provider fails to comply with any provisions of this Agreement, the CAISO shall be entitled to impose penalties and sanctions on the Demand Response Provider, including, solely with regard to Proxy Demand Resources, the penalties set forth in Sections 8.9.7 and 8.10.7 of the CAISO Tariff. No penalties or sanctions may be imposed under this Agreement unless a Schedule or CAISO Tariff provision providing for such penalties or sanctions has first been filed with and made effective by FERC. Nothing in this Agreement, with the exception of the provisions relating to the CAISO ADR Procedures, shall be construed as waiving the rights of the Demand Response Provider to oppose or protest any penalty proposed by the CAISO to the FERC or the specific imposition by the CAISO of any FERC-approved penalty on the Demand Response Provider.
- 5.2 Corrective Measures.** If the Demand Response Provider fails to meet or maintain the requirements set forth in this Agreement and/or the CAISO Tariff, the CAISO shall be permitted to take any of the measures, contained or referenced in the CAISO Tariff, which the CAISO deems to be necessary to correct the situation.

## ARTICLE VI

### COSTS

- 6.1 Operating and Maintenance Costs.** The Demand Response Provider shall be responsible for all its costs incurred in meeting its obligations under this Agreement for the Proxy Demand Resources and Reliability Demand Response Resources identified in the Demand Response System.

## ARTICLE VII

### DISPUTE RESOLUTION

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

## ARTICLE VIII

### REPRESENTATIONS AND WARRANTIES

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

- 8.2 Necessary Approvals as to Proxy Demand Resources and Reliability Demand Response Resources.** The Demand Response Provider represents that all necessary leases, approvals, permits, licenses, easements, rights of way or access to install, own and/or operate the Proxy Demand Resources and Reliability Demand Response Resources for which it will Bid or otherwise act under this Agreement have been obtained by the Demand Response Provider prior to submitting technical information.
- 8.3 Local Regulatory Authority.** A Demand Response Provider that aggregates the demand response of customers for utilities that distribute: (1) over four million MWh in the previous fiscal year must represent and warrant to the CAISO that its participation is not prohibited by the Local Regulatory Authority; or (2) four million MWh or less in the previous fiscal year must represent and warrant to the CAISO that its participation is permitted by the Local Regulatory Authority.

## ARTICLE IX

### LIABILITY

- 9.1 Liability.** The provisions of Section 14 of the CAISO Tariff will apply to liability arising under this Agreement, except that all references in Section 14 of the CAISO Tariff to Market Participants shall be read as references to the Demand Response Provider and references to the CAISO Tariff shall be read as references to this Agreement.

## ARTICLE X

### UNCONTROLLABLE FORCES

- 10.1 Uncontrollable Forces Tariff Provisions.** Section 14.1 of the CAISO Tariff shall be incorporated by reference into this Agreement except that all references in Section 14.1 of the CAISO Tariff to Market Participants shall be read as a reference to the Demand Response Provider and references to the CAISO Tariff shall be read as references to this Agreement.

## ARTICLE XI

### MISCELLANEOUS

- 11.1 Assignments.** Either Party may assign or transfer any or all of its rights and/or obligations under this Agreement with the other Party's prior written consent in accordance with Section 22.2 of the CAISO Tariff. Such consent shall not be unreasonably withheld. Any such transfer or assignment shall be conditioned upon the successor in interest accepting the rights and/or obligations under this Agreement as if said successor in interest was an original Party to this Agreement.
- 11.2 Notices.** Any notice, demand, or request which may be given to or made upon either Party regarding this Agreement shall be made in accordance with Section 22.4 of the CAISO Tariff, provided that all references in Section 22.4 of the CAISO Tariff to Market Participants shall be read as a reference to the Demand Response Provider and references to the CAISO Tariff shall be read as references to this Agreement, and unless otherwise stated or agreed shall be made to the representative of the other Party indicated in Schedule 2. A Party must update the information in Schedule 2 of this Agreement as information changes. Such changes shall not constitute an amendment to this Agreement.

- 11.3 Waivers.** Any waiver at any time by either Party of its rights with respect to any default under this Agreement, or with respect to any other matter arising in connection with this Agreement, shall not constitute or be deemed a waiver with respect to any subsequent default or other matter arising in connection with this Agreement. Any delay, short of the statutory period of limitations, in asserting or enforcing any right under this Agreement shall not constitute or be deemed a waiver of such right.
- 11.4 Governing Law and Forum.** This Agreement shall be deemed to be a contract made under, and for all purposes shall be governed by and construed in accordance with, the laws of the State of California, except its conflict of law provisions. The Parties irrevocably consent that any legal action or proceeding arising under or relating to this Agreement to which the CAISO ADR Procedures do not apply, shall be brought in any of the following forums, as appropriate: any court of the State of California, any federal court of the United States of America located in the State of California, or, where subject to its jurisdiction, before the Federal Energy Regulatory Commission.
- 11.5 Consistency with Federal Laws and Regulations.** This Agreement shall incorporate by reference Section 22.9 of the CAISO Tariff as if the references to the CAISO Tariff were referring to this Agreement.
- 11.6 Merger.** This Agreement constitutes the complete and final agreement of the Parties with respect to the subject matter hereof and supersedes all prior agreements, whether written or oral, with respect to such subject matter.
- 11.7 Severability.** If any term, covenant, or condition of this Agreement or the application or effect of any such term, covenant, or condition is held invalid as to any person, entity, or circumstance, or is determined to be unjust, unreasonable, unlawful, imprudent, or otherwise not in the public interest by any court or government agency of competent jurisdiction, then such term, covenant, or condition shall remain in force and effect to the maximum extent permitted by law, and all other terms, covenants, and conditions of this Agreement and their application shall not be affected thereby, but shall remain in force and effect and the Parties shall be relieved of their obligations only to the extent necessary to eliminate such regulatory or other determination unless a court or governmental agency of competent jurisdiction holds that such provisions are not separable from all other provisions of this Agreement.
- 11.8 Amendments.** This Agreement and the Schedules attached hereto may be amended from time to time by the mutual agreement of the Parties in writing. Amendments that require FERC approval shall not take effect until FERC has accepted such amendments for filing and made them effective. Nothing herein shall be construed as affecting in any way the right of the CAISO to make unilateral application to FERC for a change in the rates, terms and conditions of this Agreement under Section 205 of the FPA and pursuant to FERC's rules and regulations promulgated thereunder, and the Demand Response Provider shall have the right to make a unilateral filing with FERC to modify this Agreement pursuant to Section 206 or any other applicable provision of the FPA and FERC's rules and regulations thereunder; provided that each Party shall have the right to protest any such filing by the other Party and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this Agreement shall limit the rights of the Parties or of FERC under Sections 205 or 206 of the FPA and FERC's rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein. The standard of review FERC shall apply when acting upon proposed modifications to this Agreement by the CAISO shall be the "just and reasonable" standard of review rather than the "public interest" standard of review. The standard of review FERC shall apply when acting upon proposed modifications to this Agreement by FERC's own motion or by a signatory other than the CAISO or non-signatory entity shall also be the "just and reasonable" standard of review. Schedules 1, and 2 are provided for informational purposes and revisions to those schedules do not constitute a material change in the Agreement warranting FERC review.

**11.9 Counterparts.** This Agreement may be executed in one or more counterparts at different times, each of which shall be regarded as an original and all of which, taken together, shall constitute one and the same Agreement.

**IN WITNESS WHEREOF**, the Parties hereto have caused this Agreement to be duly executed on behalf of each by and through their authorized representatives as of the date hereinabove written.

**California Independent System Operator Corporation**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Demand Response Provider**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**SCHEDULE 1**

**CAISO IMPOSED PENALTIES AND SANCTIONS**

**[Section 5.1]**

**TO BE INSERTED UPON FERC APPROVAL**

**SCHEDULE 2**

**NOTICES  
(Section 11.2)**

**Demand Response Provider**

Name of Primary  
Representative:

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Title:

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Address:

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City/State/Zip Code:

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Email Address:

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Phone:

---

Fax No:

---

Name of Alternative  
Representative:

---

Title:

---

Address:

---

City/State/Zip Code:

---

Email Address:

---

Phone:

---

Fax No:

---

**CAISO**

Name of Primary Representative:

---

Title:

---

Address:

---

City/State/Zip Code:

---

Email Address:

---

Phone:

---

Fax No:

---

Name of Alternative Representative:

---

Title:

---

Address:

---

City/State/Zip Code:

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Email Address:

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Phone:

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Fax No:

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**California Independent System Operator Corporation**  
**Fifth Replacement FERC Electric Tariff**  
**Reliability Demand Response Resource Tariff Amendment**  
**Attachment B - Blacklines**  
**May 20, 2011**

#### 4.5.1.1.3 Duplicate Information

If two or more Scheduling Coordinators apply simultaneously to register with the CAISO for a single meter or Meter Point for a CAISO Metered Entity or if a Scheduling Coordinator applies to register with the CAISO for a meter or Meter Point for a CAISO Metered Entity for which a Scheduling Coordinator has already registered, the CAISO will return the application with an explanation that only one Scheduling Coordinator may register with the CAISO for the meter or Meter Point in question and that a Scheduling Coordinator has already registered or that more than one Scheduling Coordinator is attempting to register for that meter or Meter Point. The CAISO will ~~send-notify~~ the Scheduling Coordinator Applicant ~~the name and address~~ of the applicable Scheduling Coordinator or Scheduling Coordinator Applicant. Nothing in this Section 4.5.1.1.3 shall prohibit one Scheduling Coordinator from registering with the CAISO to submit Bids for Demand Response Services from a Proxy Demand Resource or Reliability Demand Response Resource associated with a given meter (or Meter Point) where a different Scheduling Coordinator is registered for purposes of serving the demand of the Load associated with that meter (or Meter Point).

\* \* \*

#### 4.9.12 MSS System Unit

**4.9.12.1** A MSS Operator may aggregate one or more Generating Units, Participating Loads, Reliability Demand Response Resources, and/or Proxy Demand Resources as a System Unit. A System Unit must be modeled as an aggregated Generating Unit and must provide a set of Generation Distribution Factors. Except as specifically provided in the MSS Agreement referred to in Section 4.9.1.1, all provisions of the CAISO Tariff applicable to Participating Generators and to Generating Units (and, if the System Unit includes a Load, to Participating Loads, Reliability Demand Response Resources, and Proxy Demand Resources), shall apply fully to the System Unit and the Generating Units and/or Loads included in it. The MSS Operator's MSS Agreement with the CAISO in accordance with Section 4.9.1.1 shall obligate the MSS Operator to comply with all provisions of the CAISO Tariff, as amended from time to time, applicable to the System Unit, including, without limitation, the applicable provisions of Sections 4.6.1 and 7.7. In accordance with Section 7.6.1, the CAISO will obtain control over the System Unit, not the individual Generating Unit, except for Regulation, to comply with Section 4.6.

\* \* \*

**4.9.12.2.6** shall provide, through the Scheduling Coordinator representing the MSS Operator, Settlement Quality Meter Data for the System Unit's Proxy Demand Resources and Reliability Demand Response Resources.

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

\* \* \*

#### **4.13 ~~Demand Response Providers DRPs, RDRRs, and PDRs~~ Proxy Demand Resources**

##### **4.13.1 Relationship Between CAISO and DRPs**

The CAISO shall only accept Bids for Energy from Reliability Demand Response Resources, and shall only accept Bids for Energy or Ancillary Services from Proxy Demand Resources, Submissions to Self-Provide Ancillary Services from Proxy Demand Resources, or ~~S~~submissions of Energy Self-Schedules from Proxy Demand Resources that have provided Submissions to Self-Provide Ancillary Services, if such Reliability Demand Response Resources or Proxy Demand Resources are represented by a Demand Response Provider that has entered into a ~~Proxy-Demand Resource-Response Provider~~ Agreement with the CAISO, has accurately provided the information required in the Demand Response System, has satisfied all Reliability Demand Response Resource or Proxy Demand Resource registration requirements, and has met standards adopted by the CAISO and published on the CAISO Website. The CAISO shall not accept submitted Bids for Energy or Ancillary Services from a Demand Response Provider other than through a Scheduling Coordinator, which Scheduling Coordinator may be the Demand Response Provider itself or another entity.

##### **4.13.2 Applicable Requirements for RDRRs, PDRs, and DRPs**

A single Demand Response Provider must represent each Reliability Demand Response Resource or Proxy Demand Resource and may represent more than one (1) Reliability Demand Response Resource or Proxy Demand Resource. Each Reliability Demand Response Resource or Proxy Demand Resource

that is not within a MSS must be associated with a single Load Serving Entity and a single Utility Distribution Company, and each [Reliability Demand Response Resource or Proxy Demand Resource](#) that is within a MSS must be associated with a single Load Serving Entity. A Demand Response Provider may be, but is not required to be, a Load Serving Entity or a Utility Distribution Company. Each [Reliability Demand Response Resource or Proxy Demand Resource](#) is required to be located in a single Sub-LAP. All underlying Locations of a [Reliability Demand Response Resource or Proxy Demand Resource](#) must be located in a single Sub-LAP. The Meter Data for each [Reliability Demand Response Resource or Proxy Demand Resource](#) will be metered Load data. Each Demand Response Provider is required to satisfy registration requirements and to provide information to allow the CAISO to establish Customer Baselines in accordance with Section 4.13.4 and the applicable Business Practice Manuals. Registration of a Location for participation in [Reliability Demand Response Resources or Proxy Demand Resources](#) requires the approval of the CAISO resulting from its registration process. As part of the submitted registration process, both the appropriately Demand Response Provider designated Load Serving Entity and Utility Distribution Company -will have an opportunity to review the registration Location detail and provide comments with regard to its accuracy. Disputes regarding the acceptances or rejections of a registration of a Location shall be undertaken with the applicable Local Regulatory Authority and shall not be arbitrated or in any way resolved through a CAISO dispute resolution mechanism or process. [A Location cannot be registered to both a Reliability Demand Response Resource and a Proxy Demand Resource for the same Trading Day.](#)

#### **4.13.3 Identification of [RDRRs and PDRs](#) Proxy Demand Resources**

Each Demand Response Provider shall provide data, as described in the Business Practice Manual, identifying each of its [Reliability Demand Response Resources or Proxy Demand Resources](#) and such information regarding the capacity and the operating characteristics of the [Reliability Demand Response Resource or Proxy Demand Resource](#) as may be reasonably requested from time to time by the CAISO. All information provided to the CAISO regarding the operational and technical constraints in the Master File shall be accurate and actually based on physical characteristics of the resources.

#### **4.13.4 Customer Baseline Methodologies for PDRs [and RDRRs](#)**

##### **4.13.4.1 Ten in Ten Non-Event Day Selection Method**

For each Proxy Demand Resource or Reliability Demand Response Resource, the CAISO will calculate the Customer Baseline as follows:

- (a) The CAISO will collect Meter Data for the Proxy Demand Resource or Reliability Demand Response Resource for calendar days preceding the Trading Day on which the Demand Response Event occurred for which the CAISO is calculating the Customer Baseline. To determine the calendar days for which the Meter Data will be collected, the CAISO will work sequentially backwards from the Trading Day under examination up to a maximum of forty-five (45) calendar days prior to the Trading Day, including only Business Days if the Trading Day is a Business Day, including only non-Business Days if the Trading Day is a non-Business Day, and excluding calendar days on which the Proxy Demand Resource was subject to an Outage or previously provided Demand Response Services (other than capacity awarded for AS or RUC) or the Reliability Demand Response Resource was subject to an Outage as described in the Business Practice Manual or previously provided Demand Response Services, except as discussed below. The CAISO will stop collecting Meter Data for this purpose if and when it is able to collect Meter Data for its target number of calendar days, which target number is ten (10) calendar days if the Trading Day is a Business Day or four (4) calendar days if the Trading Day is a non-Business Day. If the CAISO is unable to collect Meter Data for its target number of calendar days, it will attempt to collect Meter Data for a minimum of five (5) calendar days if the Trading Day is a Business Day or a minimum of four (4) calendar days if the Trading Day is a non-Business Day. If the CAISO is unable to collect Meter Data for the minimum number of calendar days described above, the CAISO will instead collect Meter Data for the calendar days on which the Proxy Demand Resource was subject to an Outage or previously provided Demand Response Services (other than capacity awarded for AS or RUC) or the Reliability Demand Response Resource was subject to an Outage as described in the Business Practice Manual or previously provided Demand Response Services, and for which the amount of totalized load was

highest during the hours when the Demand Response Services were provided in the forty-five (45) calendar days prior to the Trading Day.

- (b) The CAISO will calculate the simple hourly average of the collected Meter Data to determine a baseline amount of Energy provided by the Proxy Demand Resource or Reliability Demand Response Resource.
- (c) Unless otherwise requested by the Demand Response Provider and approved by the CAISO, the CAISO will multiply the amount calculated pursuant to Section 4.13.4.1(b) by a percentage equal to the ratio of (i) the average load of the Proxy Demand Resource or Reliability Demand Response Resource during the second, third, and fourth hours preceding the hour of the Trading Day on which the Proxy Demand Resource or Reliability Demand Response Resource provided the Demand Response Services during the Demand ~~R~~esponse ~~e~~vent to (ii) the average load of the Proxy Demand Resource or Reliability Demand Response Resource during the same second, third, and fourth hours of the calendar days for which the CAISO has collected Meter Data pursuant to Section 4.13.4.1(a). The percentage can have a maximum value of one hundred-twenty (120) percent and a minimum value of eighty (80) percent.

#### **4.13.5 Characteristics of PDRs and RDRRs**

##### **4.13.5.1 Availability to Provide Demand Response Services**

Each Proxy Demand Resource and Reliability Demand Response Resource shall become available to provide Demand Response Services pursuant to the Demand Response Provider Agreement following the date on which the Demand Response Provider Agreement is executed by all parties thereto, as specified by the parties, and shall be available to provide Demand Response Services until the Demand Response Provider Agreement is terminated as set forth in the Demand Response Provider Agreement.

##### **4.13.5.2 Size Limits for PDRs and RDRRs**

###### **4.13.5.2.1 PDRs**

The minimum Load curtailment of a Proxy Demand Resource shall be no smaller than 0.1 MW. Loads may be aggregated together to achieve the 0.1 MW threshold. There is no upper limit on the maximum Load curtailment of a Proxy Demand Resource.

#### **4.13.5.2.2 RDRRs**

The minimum Load curtailment of a Reliability Demand Response Resource shall be no smaller than 0.5 MW. Loads may be aggregated together to achieve the 0.5 MW threshold. The maximum Load curtailment of a Reliability Demand Response Resource that selects the Discrete Real-Time Dispatch Option shall be no larger than 50 MW. There is no upper limit on the maximum Load curtailment of a Reliability Demand Response Resource that selects the Marginal Real-Time Dispatch Option.

#### **4.13.5.3 Dispatch Parameters for RDRRs**

Each Reliability Demand Response Resource shall be capable of reaching its maximum Load curtailment within forty (40) minutes after it receives a Dispatch Instruction, and shall be capable of providing Demand Response Services for at least four (4) consecutive hours per Demand Response Event. Each Reliability Demand Response Resource shall have a minimum run time of no more than one (1) hour.

\* \* \*

### **7.1.3 CAISO Control Center Authorities**

The CAISO shall have full authority, subject to this CAISO Tariff, to direct the operation of the facilities referred to in Section 7.1.1 and 7.1.2 including (without limitation), to:

- (a) direct the physical operation by the Participating TOs of transmission facilities under the Operational Control of the CAISO, including (without limitation) circuit breakers, switches, voltage control equipment, protective relays, metering, and Load Shedding equipment;
- (b) commit and dispatch Reliability Must-Run Units, except that the CAISO shall only commit Reliability Must-Run Generation for Ancillary Services capacity according to Section 41;
- (c) order a change in operating status of auxiliary equipment required to control voltage or frequency;

- (d) take any action it considers to be necessary consistent with Good Utility Practice to protect against uncontrolled losses of Load or Generation and/or equipment damage resulting from unforeseen occurrences;
- (e) control the output of Generating Units, Interconnection schedules, and System Resources that are selected to provide Ancillary Services or Energy;
- (f) Dispatch Curtailable Demand and Demand Response Services which have been scheduled to provide Non-Spinning Reserve or Energy from Participating Loads or Proxy Demand Resources or which have been scheduled to provide Energy from Reliability Demand Response Resources;
- (g) procure Energy for a threatened or imminent System Emergency;
- (h) require the operation of resources which are at the CAISO's disposal in a System Emergency, as described in Section 7.7;
- (i) exercise Operational Control of all transmission lines greater than 230kV and associated equipment on the CAISO Controlled Grid;
  - (j) exercise Operation Control of all Interconnections; and
  - (k) exercise Operational Control of all 230kV and lower voltage transmission lines and associated station equipment identified in the CAISO Register as that portion of the CAISO Controlled Grid.

The CAISO will exercise its authority under this Section 7.1.3 by issuing Dispatch Instructions to the relevant Market Participants using the relevant communications method described in this CAISO Tariff.

\* \* \*

#### **10.1.7 Provision of Statistically Derived Meter Data**

A Demand Response Provider representing a Reliability Demand Response Resource or a Proxy Demand Resource may submit a written application to the CAISO for approval of a methodology for deriving Settlement Quality Meter Data for the Reliability Demand Response Resource or Proxy Demand

Resource that consists of a statistical sampling of Energy usage data, in cases where interval metering is not available for the entire population of underlying service accounts for the Reliability Demand Response Resource or Proxy Demand Resource. As specified in the Business Practice Manual, the CAISO and the Demand Response Provider will then engage in written discussion which will result in the CAISO either approving or denying the application.

\* \* \*

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

Scheduling Coordinators shall be responsible for: (i) the collection of Meter Data for the Scheduling Coordinator Metered Entities it represents; (ii) the provision of Settlement Quality Meter Data to the CAISO; and (iii) ensuring that the Settlement Quality Meter Data supplied to the CAISO meets the requirements of Section 10. Scheduling Coordinators shall provide the CAISO with Settlement Quality Meter Data for all Scheduling Coordinator Metered Entities served by the Scheduling Coordinator no later than the day specified in Section 10.3.6 or the day specified in Section 10.3.6.4, as applicable. Each Scheduling Coordinator for a Demand Response Provider shall aggregate the Settlement Quality Meter Data of the underlying Proxy Demand Resource or Reliability Demand Response Resource to the level of the registration configuration of the Proxy Demand Resource or Reliability Demand Response Resource in the Demand Response System. Settlement Quality Meter Data for Scheduling Coordinator Metered Entities shall be either (1) an accurate measure of the actual consumption of Energy by each Scheduling Coordinator Metered Entity in each Settlement Period; (2) for Scheduling Coordinator Metered Entities connected to a UDC Distribution System and meeting that Distribution System's requirement for Load profiling eligibility, a profile of that consumption derived directly from an accurate cumulative measure of the actual consumption of Energy over a known period of time and an allocation of that consumption to Settlement Periods using the applicable Approved Load Profile; or (3) an accurate calculation by the Scheduling Coordinator representing entities operating pursuant to Existing Contracts.

\* \* \*

#### **10.3.6.1 Timing of Settlement Quality Meter Data Submission for Calculation of Initial Settlement Statement T+7B.**

~~(a)~~ Scheduling Coordinators must submit Actual Settlement Quality Meter Data or Scheduling Coordinator Estimated Settlement Quality Meter Data for the Scheduling Coordinator Metered Entities they represent to the CAISO no later than noon on the fifth Business Day after the Trading Day (T+5B) for the Initial Settlement Statement T+7B calculation. Scheduling Coordinators cannot submit Estimated Settlement Quality Meter Data for Proxy Demand Resources.

- (a) In the absence of Actual Settlement Quality Meter Data, Scheduling Coordinators may submit Scheduling Coordinator Estimated Settlement Quality Meter Data using interval metering when available, sound estimation practices, and other available information including, but not limited to, bids, schedules, forecasts, temperature data, operating logs, recorders, and historical data. Scheduling Coordinator Estimated Settlement Quality Meter Data must be a good faith estimate that reasonably represents Demand and/or Generation quantities for each Settlement Period.

~~(a)~~(b) When Actual Settlement Quality Meter Data or Scheduling Coordinator Estimated Settlement Quality Meter Data is not received by the CAISO for a Scheduling Coordinator Metered Entity within five (5) Business Days from the Trading Day (T+5B), the CAISO will estimate the entity's Settlement Quality Meter Data for any outstanding metered Demand and/or Generation, excluding a Proxy Demand Resource and Reliability Demand Response Resource, for use in the Initial Settlement Statement T+7B calculation, as provided in Section 11.1.5.

\* \* \*

**10.3.6.4 Submission of Actual Settlement Quality Meter Data or Scheduling Coordinator Estimated Settlement Quality Meter Data for Reliability Demand Response Resources that Provide Demand Response Services in Real-Time**

Each Scheduling Coordinator for a Demand Response Provider representing a Reliability Demand Response Resource that provides Demand Response Services only in Real-Time shall submit Actual Settlement Quality Meter Data or Scheduling Coordinator Estimated Settlement Quality Meter Data for the Reliability Demand Response Resource by noon of the fifth Business Day after the Trading Day (T+5B) on which the Demand Response Services were provided, including Actual Settlement Quality Meter Data

or Scheduling Coordinator Estimated Settlement Quality Meter Data for a Demand Response Event and for the forty-five (45) calendar days preceding the Trading Day for use in the CAISO's calculation of the Customer Baseline pursuant to Section 4.13.4.

\* \* \*

#### **11.1.5 Settlement Quality Meter Data For Initial Statement T+7B**

The CAISO's Initial Settlement Statement T+7B shall be based on the Settlement Quality Meter Data (actual or Scheduling Coordinator estimated) received in SQMDS. In the event Actual Settlement Quality Meter Data or Scheduling Coordinator Estimated Settlement Quality Meter Data is not received from a Scheduling Coordinator or CAISO Metered Entity, the CAISO will estimate Settlement Quality Meter Data for that outstanding metered Demand or Generation, excluding a Proxy Demand Resource or Reliability Demand Response Resource, for the Initial Settlement Statement T+7B calculation.

- (a) CAISO Estimated Settlement Quality Meter Data for metered Generation will be based on total Expected Energy and dispatch of that resource as calculated in the Real-Time Market and as modified by any applicable corrections to the Dispatch Operating Point for the resource.
- (b) CAISO Estimated Settlement Quality Meter Data for metered Demand will be based on Scheduled Demand by the appropriate LAP. This value will be increased by fifteen (15) percent if the total actual system Demand in Real-Time, as determined by the CAISO each hour, is greater than the total estimated metered demand by more than fifteen (15) percent. Total estimated metered demand is the sum of the value of Scheduling Coordinator submitted metered Demand, CAISO polled estimated Settlement quality metered Demand, and Scheduled Demand for unsubmitted metered Demand at the fifth (5th) Business Day after the Trading Day (T+5B). CAISO Estimated Settlement Quantity Meter Demand for Participating Load will not be increased by fifteen (15) percent.
- (c) CAISO will not estimate Settlement Quality Meter Data for Proxy Demand Resources or Reliability Demand Response Resources.

\* \* \*

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

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

\* \* \*

### **11.5.2 Uninstructed Imbalance Energy**

Scheduling Coordinators shall be paid or charged a UIE Settlement Amount for each LAP, PNode or Scheduling Point for which the CAISO calculates a UIE quantity. UIE quantities are calculated for each resource that has a Day-Ahead Schedule, Dispatch Instruction, Real-Time Interchange Export Schedule or Metered Quantity. For MSS Operators electing gross Settlement, regardless of whether that entity has elected to follow its Load or to participate in RUC, the UIE for such entities is settled similarly to how UIE for non-MSS entities is settled as provided in this Section 11.5.2. The CAISO shall account for UIE in two categories: (1) Tier 1 UIE is accounted as the quantity deviation from the resource's IIE; and (2) Tier 2 UIE is accounted as the quantity deviation from the resource's Day-Ahead Schedule or as described in Section 11.2.5.2.4. For Generating Units, System Units of MSS Operators that have elected gross Settlement, Physical Scheduling Plants, System Resources and all Participating Load, [Reliability Demand Response Resources](#), and Proxy Demand Resources, the Tier 1 UIE Settlement Amount is calculated for each Settlement Interval as the product of its Tier 1 UIE quantity and its Resource-Specific Tier 1 UIE Settlement Interval Price as calculated per Section 11.5.2.1, and the Tier 2 UIE Settlement Amount is calculated for each Settlement Interval as the product of its Tier 2 UIE quantity and the simple average of the relevant Dispatch Interval LMPs. The Tier 2 UIE Settlement Amount for non-Participating Load and MSS Demand under gross Settlement is settled as described in Section 11.5.2.2. For MSS Operators that have elected net Settlement, the Tier 1 UIE Settlement Amount is calculated for each Settlement Interval as the product of its Tier 1 UIE quantity and its Real-Time Settlement Interval MSS Price, and the Tier 2 UIE Settlement Amount is calculated for each Settlement Interval as the product of its Tier 2 UIE quantity and the Real-Time Settlement Interval MSS Price.

\* \* \*

#### **11.5.2.4 Adjustment to Metered Load to Settle UIE**

For the purpose of settling Uninstructed Imbalance Energy of a Scheduling Coordinator representing a Load Serving Entity, the amount of Demand Response PDR-Energy Measurement delivered by a Proxy Demand Resource or Reliability Demand Response Resource that is also served by that Load Serving Entity will be added to the metered load quantity of the Load Serving Entity's Scheduling Coordinator's Load Resource ID with which the Proxy Demand Resource or Reliability Demand Response Resource is associated.

\* \* \*

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

Payments to Scheduling Coordinators, including Scheduling Coordinators for MSS Operators that have elected gross Settlement, that supply Imbalance Energy will be based on Resource-Specific Settlement Interval LMPs. The Resource-Specific Settlement Interval LMPs are established using Dispatch Interval LMPs. Dispatch Interval LMPs will apply to Generating Units, System Units for MSS Operators that have elected gross Settlement, Physical Scheduling Plants, Dynamic System Resources, the Demand response portion of a Participating Load, Reliability Demand Response Resources, and Proxy Demand Resources for Settlement of Imbalance Energy. The Dispatch Interval LMP will be calculated at each PNode associated with such resource irrespective of whether the resource at that PNode has received Dispatch Instructions. The Dispatch Interval LMPs are then used to calculate a Resource-Specific Settlement Interval LMP and a Resource Specific Tier 1 UIE Settlement Interval Price for each Generating Unit, System Unit or MSS Operator that has elected gross Settlement, Physical Scheduling Plant, Dynamic System Resource, Participating Load, Reliability Demand Response Resource, and Proxy Demand Resource within the CAISO Controlled Grid. Payments to Scheduling Coordinators for MSS Operators that have elected net Settlement that supply Imbalance Energy will be based on the Real-Time Settlement Interval MSS Price.

\* \* \*

### **11.6 Settlement of Transactions Involving PDRs or RDRRs Proxy Demand Resources**

#### **11.6.1 Settlement of Energy Transactions Involving PDRs or RDRRs**

Settlements for Energy provided by Demand Response Providers from Proxy Demand Resources or Reliability Demand Response Resources shall be based on the PDR-Demand Response Energy Measurement for the Proxy Demand Resources or Reliability Demand Response Resources. The PDR-Demand Response Energy Measurement for a Proxy Demand Resource or Reliability Demand Response Resource shall be the quantity of Energy equal to the difference between (i) the Customer Baseline for the Proxy Demand Resource or Reliability Demand Response Resource and (ii) either the actual underlying Load or the quantity of Energy calculated pursuant to Section 10.1.7 for the Proxy Demand Resource or Reliability Demand Response Resource for a Demand Response event. For each Proxy Demand Resource or Reliability Demand Response Resource, the CAISO will calculate the Customer Baseline as set forth in Section 4.13.4.

\* \* \*

### **11.8 Bid Cost Recovery**

For purposes of determining the Unrecovered Bid Cost Uplift Payments for each Bid Cost Recovery Eligible Resource as determined in Section 11.8.5 and the allocation of Unrecovered Bid Cost Uplift Payments for each Settlement Interval, the CAISO shall sequentially calculate the Bid Costs, which can be positive (IFM, RUC or RTM Bid Cost Shortfall) or negative (IFM, RUC or RTM Bid Cost Surplus) in the IFM, RUC and the Real-Time Market, as the algebraic difference between the respective IFM, RUC or RTM Bid Cost and the IFM, RUC or RTM Market Revenues, which is netted across the CAISO Markets. In any Settlement Interval a resource is eligible for Bid Cost Recovery payments only if it is On, or in the case of a Participating Load, a Reliability Demand Response Resource, or a Proxy Demand Resource, only if the resource has actually stopped or started consuming pursuant to the Dispatch Instruction. BCR Eligible Resources for different MSS Operators are supply resources listed in the applicable MSS Agreement. All Bid Costs shall be based on mitigated Bids as specified in Section 39.7. Virtual Awards are not eligible for Bid Cost Recovery. Virtual Awards are eligible for make-whole payments due to price corrections pursuant to Section 11.21.2. In order to be eligible for Bid Cost Recovery, Non-Dynamic Resource-Specific System Resources must provide to the CAISO SCADA data by telemetry to the CAISO's EMS in accordance with Section 4.12.3 demonstrating that they have performed in accordance with their CAISO commitments.

\* \* \*

### **30.6 Bidding and Scheduling of PDRs and RDRRs~~Proxy Demand Resources~~**

#### **30.6.1 Bidding and Scheduling of PDRs~~Generally~~**

Unless otherwise specified in the CAISO Tariff and applicable Business Practice Manuals, the CAISO will treat Bids for Energy and Ancillary Services on behalf of Proxy Demand Resources like Bids for Energy and Ancillary Services on behalf of other types of supply resources. A Scheduling Coordinator for a Demand Response Provider representing a Proxy Demand Resource may submit (1) Energy Bids only in the Day-Ahead Market and in the Real-Time Market; (2) RUC Availability Bids; and (3) Ancillary Service Bids in the Day-Ahead Market and Real-Time Market for those Ancillary Services for which the Proxy Demand Resource is certified. A Scheduling Coordinator for a Demand Response Provider representing a Proxy Demand Resource may Self-Provide Ancillary Services for which it is certified. The Demand Response Provider's Demand Response Services for Proxy Demand Resources will be bid separately and independently from the LSE's underlying dDemand Bid for Proxy Demand Resources.

#### **30.6.2 Bidding and Scheduling of RDRRs**

Unless otherwise specified in the CAISO Tariff and applicable Business Practice Manuals, the CAISO will treat Bids for Energy on behalf of Reliability Demand Response Resources like Bids for Energy on behalf of other types of supply resources. A Scheduling Coordinator for a Demand Response Provider representing a Reliability Demand Response Resource may submit Energy Bids for the Reliability Demand Response Resource only in the Day-Ahead Market and in the Real-Time Market, but may not submit Energy Self-Schedules for the Reliability Demand Response Resource, may not Self-Provide Ancillary Services from the Reliability Demand Response Resource, and may not submit RUC Availability Bids or Ancillary Service Bids for the Reliability Demand Response Resource. The Demand Response Provider's Demand Response Services for Reliability Demand Response Resources will be bid separately and independently from the LSE's underlying Demand Bid.

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

###### **30.6.2.1.1 Limitations on Obligation to Bid in the Real-Time Market**

Within each Reliability Demand Response Services Term, any capacity of a Reliability Demand Response Resource that remains uncommitted after the Day-Ahead Market shall be bid in the Real-Time Market in

order to be available to provide Demand Response Services in Real-Time until such time as the Reliability Demand Response Resource has reached the RDRR Availability Limit for the Reliability Demand Response Services Term. Within each Reliability Demand Response Services Term, any capacity of a Reliability Demand Response Resource that remains uncommitted after the Day-Ahead Market may be (but is not required to be) bid in the Real-Time Market in order to be available to provide Demand Response Services in Real-Time after the Reliability Demand Response Resource has reached the RDRR Availability Limit during the Reliability Demand Response Services Term.

#### **30.6.2.1.2 Real-Time Dispatch Options**

For purposes of bidding and scheduling in the Real-Time Market, each Scheduling Coordinator for a Demand Response Provider representing a Reliability Demand Response Resource shall select either the Marginal Real-Time Dispatch Option or the Discrete Real-Time Dispatch Option prior to the start of the initial Reliability Demand Response Services Term applicable to the Reliability Demand Response Resource. The selection for each Reliability Demand Response Resource shall remain in effect until such time as the Scheduling Coordinator for the Reliability Demand Response Resource chooses to change its selection from the Marginal Real-Time Dispatch Option to the Discrete Real-Time Dispatch Option or vice versa, in which case the change in selection shall go into effect at the start of the next Reliability Demand Response Services Term applicable to the Reliability Demand Response Resource.

A Reliability Demand Response Resource that is subject to either the Marginal Real-Time Dispatch Option or the Discrete Real-Time Dispatch Option shall have Minimum Load Costs of zero (0) dollars registered in the Master File.

##### **30.6.2.1.2.1 Marginal Real-Time Dispatch Option**

A Reliability Demand Response Resource that is subject to the Marginal Real-Time Dispatch Option:

- (a) May submit either a single-segment Bid or a multi-segment Bid in the Real-Time Market that must be at least ninety-five (95) percent of the applicable maximum Bid price and can be no greater than one hundred (100) percent of the applicable maximum Bid price set forth in Section 39.6.1.1.
- (b) Shall be dispatched as a marginal resource if it is dispatched by the CAISO.

##### **30.6.2.1.2.2 Discrete Real-Time Dispatch Option**

A Reliability Demand Response Resource that is subject to the Discrete Real-Time Dispatch Option:

- (a) May submit only a single-segment Bid in the Real-Time Market that must be at least ninety-five (95) percent of the applicable maximum Bid price and can be no greater than one hundred (100) percent of the applicable maximum Bid price set forth in Section 39.6.1.1.
- (b) Shall be dispatched as a discrete (non-marginal) resource if it is dispatched by the CAISO.

\* \* \*

**30.7.8 Format And Validation Of Start-Up And Shut-Down Times**

For a Generating Unit or a Resource-Specific System Resource, the submitted Start-Up Time expressed in minutes (min) as a function of down time expressed in minutes (min) must be a staircase function with up to three (3) segments defined by a set of 1 to 4 down time and Start-Up Time pairs. The Start-Up Time is the time required to start the resource if it is offline longer than the corresponding down time. The CAISO shall model Start-Up Times for Multi-Stage Generating Resource at the MSG Configuration level and Transition Times are validated based on the Transition Matrix submitted as provided in Section 27.8. The last segment will represent the time to start the unit from a cold start and will extend to infinity. The submitted Start-Up Time function shall be validated as follows:

- (a) The first down time must be zero (0) min.
- (b) The down time entries must match exactly (in number, sequence, and value) the corresponding down time breakpoints of the maximum Start-Up Time function, as registered in the Master File for the relevant resource.
- (c) The Start-Up Time for each segment must not exceed the Start-Up Time of the corresponding segment of the maximum Start-Up Time function, as registered in the Master File for the relevant resource.
- (d) The Start-Up Time function must be strictly monotonically increasing, i.e., the Start-Up Time must increase as down time increases.

For Participating Load and for a Proxy Demand Resource or Reliability Demand Response Resource, a single Shut-Down time in minutes is the time required for the resource to Shut-Down after receiving a Dispatch Instruction. For Multi-Stage Generating Resources, the Scheduling Coordinator must provide Start-Up Costs for each MSG Configuration into which the resource can be started.

### **30.7.9 Format And Validation Of Start-Up Costs And Shut-Down Costs**

For a Generating Unit or a Resource-Specific System Resource, the submitted Start-Up Cost expressed in dollars (\$) as a function of down time expressed in minutes must be a staircase function with up to three (3) segments defined by a set of 1 to 4 down time and Start-Up Cost pairs. The Start-Up Cost is the cost incurred to start the resource if it is offline longer than the corresponding down time. The last segment will represent the cost to start the resource from cold Start-Up and will extend to infinity. The submitted Start-Up Cost function shall be validated as follows:

- (a) The first down time must be zero (0) min.
- (b) The down time entries must match exactly (in number, sequence, and value) the corresponding down time breakpoints of the Start-Up Cost function, as registered in the Master File for the relevant resource as either the Proxy Cost or Registered Cost.
- (c) The Start-Up Cost for each segment must not be negative and must be equal to the Start-Up Cost of the corresponding segment of the Start-Up Cost function, as registered in the Master File for the relevant resource. If a value is submitted in a Bid for the Start-Up Cost, it will be overwritten by the Master File value as either the Proxy Cost or Registered Cost based on the option elected pursuant to Section 30.4. If no value for Start-Up Cost is submitted in a Bid, the CAISO will insert the Master File value, as either the Proxy Cost or Registered Cost based on the option elected pursuant to Section 30.4.
- (d) The Start-Up Cost function must be strictly monotonically increasing, i.e., the Start-Up Cost must increase as down time increases.

The Start-Up cost for a Reliability Demand Response Resource shall be zero (0). For Participating Loads and Proxy Demand Resources, a single Shut-Down Cost in dollars (\$) is the cost incurred to Shut-Down the resource after receiving a Dispatch Instruction. The submitted Shut-Down Cost must not be negative. For Multi-Stage Generating Resources, the Scheduling Coordinator must provide Start-Up Costs for each MSG Configuration into which the resource can be started.

\* \* \*

### **31. Day-Ahead Market**

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

\* \* \*

#### **31.2 MPM-RRD**

After the Market Close of the DAM, and after the CAISO has validated the Bids pursuant to Section 30.7, the CAISO will perform the MPM-RRD procedures in a series of processing runs that occur prior to the IFM Market Clearing run. The MPM process determines which Bids need to be mitigated in the IFM. The RRD process is the automated process for determining RMR Generation requirements for RMR Units. The MPM-RRD process optimizes resources using the same optimization used in the IFM, but instead of using Demand Bids as in the IFM the MPM-RRD process optimizes resources to meet one hundred (100) percent of the CAISO Demand Forecast and Export Bids to the extent the Export Bids are selected in the MPM-RRD process, and meet one hundred (100) percent of Ancillary Services requirements based on Supply Bids submitted to the DAM. Virtual Bids are excluded from the MPM-RRD process. Bids on behalf of Proxy Demand Resources or Reliability Demand Response Resources are not mitigated and are not considered in the MPM-RRD process. ~~Virtual Bids are excluded from the MPM-RRD process.~~ The mitigated or unmitigated Bid identified in the MPM-RRD process for all resources that cleared in the MPM-RRD are then passed to the IFM. The CAISO performs the MPM-RRD for the DAM for the twenty-four (24) hours of the targeted Trading Day.

\* \* \*

#### **31.3.1.4 Eligibility to Set the Day-Ahead LMP**

All Generating Units, Participating Loads, non-Participating Loads, Proxy Demand Resources, [Reliability Demand Response Resources](#), System Resources, System Units, or Constrained Output Generators subject to the provisions in Section 27.7, with Bids, including Generated Bids, that are unconstrained due to Ramp Rates, MSG Transitions, Forbidden Operating Regions, or other temporal constraints are eligible to set the LMP, provided that (a) the Schedule for the Generating Unit or Resource-Specific System Resource is between its Minimum Operating Limit and the highest MW value in its Economic Bid or Generated Bid, or (b) the Schedule for the Participating Load, non-Participating Load, Proxy Demand Resources, [Reliability Demand Response Resources](#), non-Resource-Specific System Resource, or System Unit is between zero (0) MW and the highest MW value in its Economic Bid or Generated Bid. If (a) a resource's Schedule is constrained by its Minimum Operating Limit or the highest MW value in its Economic Bid or Generated Bid, (b) the CAISO enforces a resource-specific constraint on the resource due to an RMR or Exceptional Dispatch, (c) the resource is constrained by a boundary of a Forbidden Operating Region or is Ramping through a Forbidden Operating Region, or (d) the resource's full Ramping capability is constraining its inter-hour change in Schedule, the resource cannot be marginal and thus is not eligible to set the LMP. Resources identified as MSS Load following resources are not eligible to set the LMP. A Constrained Output Generator will be eligible to set the hourly LMP if any portion of its Energy is necessary to serve Demand.

\* \* \*

#### **33.4 MPM-RRD For The HASP And The RTM**

After the Market Close of the HASP and RTM, after the CAISO has validated the Bids pursuant to section 30.7, and prior to running the HASP optimization, the CAISO conducts the MPM-RRD process, the results of which will be utilized in the HASP optimization and all RTM processes for the Trading Hour. Bids on behalf of the Proxy Demand Resources [and Reliability Demand Response Resources](#) are not mitigated and are not considered in the MPM-RRD process. The MPM-RRD process for the HASP and RTM produces results for each fifteen (15) minute interval of the Trading Hour and thus may produce up to four [\(4\)](#) mitigated Bids for any given resource for the Trading Hour. A single mitigated Bid for the entire

Trading Hour is calculated using the minimum Bid price of the four (4) mitigated Bid curves at each Bid quantity level. The Bids are mitigated only for the Bid quantities that are above the minimum quantity cleared in the CCR across all four (4) fifteen-minute intervals. For a Condition 1 RMR Unit, if the dispatch level produced through the ACR is greater than the dispatch level produced through the CCR, and for a Condition 2 RMR Unit that is dispatched through the ACR, the resource will be flagged as an RMR Dispatch in the RTM and shall constitute a Dispatch notice pursuant to the RMR Contract.

\* \* \*

### 34.5 General Dispatch Principles

The CAISO shall conduct all Dispatch activities consistent with the following principles:

\* \* \*

- (7) Through Start-Up Instructions the CAISO may instruct resources to start up or shut down, or may reduce Load for Participating Loads, Reliability Demand Response Resources, and Proxy Demand Resources, over the forward-looking time period for the RTM based on submitted Bids, Start-Up Costs and Minimum Load Costs, Pumping Costs and Pump Shut-Down Costs, as appropriate for the resource, or for Multi-Stage Generating Resource as appropriate for the applicable MSG Configuration, consistent with operating characteristics of the resources that the SCED is able to enforce. In making Start-Up or Shut-Down decisions in the RTM, the CAISO may factor in limitations on number of run hours or Start-Ups of a resource to avoid exhausting its maximum number of run hours or Start-Ups during periods other than peak loading conditions;

\* \* \*

### 34.6 Dispatch of ~~Dispatch to Units, Participating Loads, and PDRs, and RDRRs~~

The CAISO may issue Dispatch Instructions covering:

\* \* \*

- (f) Dispatch necessary to respond to a System Emergency or imminent emergency;  
~~or~~
- (g) Transition Instructions; or

(h) Dispatch of Reliability Demand Response Resources pursuant to Section 34.18.

\* \* \*

**34.9.1 System Reliability Exceptional Dispatches**

The CAISO may issue a manual Exceptional Dispatch for Generating Units, System Units, Participating Loads, Proxy Demand Resources, Reliability Demand Response Resources, Dynamic System Resources, and Condition 2 RMR Units pursuant to Section 41.9, in addition to or instead of resources with a Day-Ahead Schedule dispatched by RTM optimization software during a System Emergency, or to prevent an imminent System Emergency or a situation that threatens System Reliability and cannot be addressed by the RTM optimization and system modeling. To the extent possible, the CAISO shall utilize available and effective Bids from resources before dispatching resources without Bids. To deal with any threats to System Reliability, the CAISO may also issue a manual Exceptional Dispatch in the Real-Time for Non-Dynamic System Resources that have not been or would not be selected by the RTM for Dispatch, but for which the relevant Scheduling Coordinator has submitted a Bid into the HASP.

\* \* \*

**34.9.3 Transmission-Related Modeling Limitations**

The CAISO may also manually Dispatch resources in addition to or instead of resources with a Day-Ahead Schedule or dispatched by the RTM optimization software, during or prior to the Real-Time as appropriate, to address transmission-related modeling limitations in the Full Network Model.

Transmission-related modeling limitations for the purposes of Exceptional Dispatch, including for settlement of such Exceptional Dispatch as described in Section 11.5.6, shall consist of any FNM modeling limitations that arise from transmission maintenance, lack of Voltage Support at proper levels as well as incomplete or incorrect information about the transmission network, for which the Participating TOs have primary responsibility. The CAISO shall also manually Dispatch resources under this Section 34.9.3 in response to system conditions including threatened or imminent reliability conditions for which the timing of the Real-Time Market optimization and system modeling are either too slow or incapable of bringing the CAISO Controlled Grid back to reliable operations in an appropriate time-frame based on the timing and physical characteristics of available resources to the CAISO. All reliability-based Exceptional

Dispatch Instructions for Reliability Demand Response Resources, including for testing, will be issued under this Section 34.9.3.

### **34.18 Real-Time Dispatch of RDRRs[Not Used]**

The CAISO may issue an Exceptional Dispatch Instruction for the Reliability Demand Response Resource for reliability or to perform a test as provided in Section 34.9.3. An entity other than the CAISO that has a contractual or tariff-based right to do so, may dispatch a Reliability Demand Response Resource in Real-Time in order to (1) mitigate a local transmission or distribution system emergency pursuant to applicable state or local programs, contracts, or regulatory requirements not set forth in the CAISO Tariff or (2) perform a test. If an entity other than the CAISO dispatches a Reliability Demand Response Resource in Real-Time in order to mitigate a local transmission or distribution system emergency or perform a test, the Scheduling Coordinator for the Demand Response Provider representing the Reliability Demand Response Resource shall immediately inform the CAISO, through the CAISO's Outage reporting system, that such dispatch has occurred or will occur and the MW amount of the dispatch.

#### **34.18.1 Testing of RDRRs**

The CAISO may issue one (1) unannounced Exceptional Dispatch Instruction per year to each Reliability Demand Response Resource pursuant to Section 34.9.2 in order to test the availability and performance of the Reliability Demand Response Resource. The Demand Response Provider representing the Reliability Demand Response Resource may also test its Reliability Demand Response Resources in coordination with the CAISO. Any Demand Response Provider initiated testing will not trigger any CAISO settlement. The CAISO will share the results of all tests of the Reliability Demand Response Resource with the applicable Local Regulatory Authority. All tests of the Reliability Demand Response Resource shall count toward its RDRR Availability Limit. If, prior to the performance of a CAISO unannounced yearly test, the Reliability Demand Response Resource provides Demand Response Services in that year, its provision of Demand Response Services will eliminate the need for that year's test. Testing of Reliability Demand Response Resources will be conducted as described in the applicable Operating Procedure or Business Practice Manual.

## **34.19 Pricing Imbalance Energy**

### **34.19.1 General Principles**

Instructed and Uninstructed Imbalance Energy shall be paid or charged the applicable Resource-Specific Settlement Interval LMP except for hourly pre-dispatched Instructed Imbalance Energy, which shall be settled as set forth in Section 11.5.2. These prices are determined using the Dispatch Interval LMPs.

The Dispatch Interval LMPs shall be based on the Bid of the marginal Generating Units, System Units, Participating Loads, [Reliability Demand Response Resources](#), and Proxy Demand Resources dispatched by the CAISO to increase or reduce Demand or Energy output in each Dispatch Interval as provided in Section 34.19.2.1.

The CAISO will respond to the Dispatch Instructions issued by the SCED to the extent practical in the time available and acting in accordance with Good Utility Practice. The CAISO will record the reasons for any variation from the Dispatch Instructions issued by the SCED.

### **34.19.2 Determining Real-Time LMPs**

#### **34.19.2.1 Dispatch Interval Real-Time LMPs**

##### **34.19.2.2 Computation**

For each Dispatch Interval, the CAISO will compute updated Imbalance Energy needs and will Dispatch Generating Units, System Units, Dynamic System Resources, Participating Loads, [Reliability Demand Response Resources](#), and Proxy Demand Resources according to the CAISO's SCED during that time period to meet Imbalance Energy requirements. The RTM transactions will be settled at the Dispatch Interval LMPs in accordance with Section 11.5.

##### **34.19.2.3 Eligibility to Set the Real-Time LMP**

All Generating Units, Participating Loads, Proxy Demand Resources, [Reliability Demand Response Resources \(other than those Reliability Demand Response Resources addressed below in this Section 34.19.2.3\)](#), Dynamic System Resources, System Units, or COGs subject to the provisions in Section 27.7, with Bids, including Generated Bids, that are unconstrained due to Ramp Rates or other temporal constraints are eligible to set the LMP, provided that (a) a Generating Unit or a Dynamic Resource-Specific System Resource is Dispatched between its Minimum Operating Limit and the highest MW value in its Economic Bid or Generated Bid, or (b) a Participating Load, a Proxy Demand Resource, [a Reliability](#)

Demand Response Resource, a Dynamic System Resource that is not a Resource-Specific System Resource, or a System Unit is Dispatched between zero (0) MW and the highest MW value within its submitted Economic Bid range or Generated Bid. A Reliability Demand Response Resource that is dispatched in Real-Time by an entity other than the CAISO in order to mitigate a local transmission or distribution system emergency pursuant to applicable state or local programs, contracts, or regulatory requirements not set forth in the CAISO Tariff, or to perform a test, will not be eligible to set the LMP. If a resource is Dispatched below its Minimum Operating Limit or above the highest MW value in its Economic Bid range or Generated Bid, or the CAISO enforces a resource-specific constraint on the resource due to an RMR or Exceptional Dispatch, the resource will not be eligible to set the LMP. Resources identified as MSS Load following resources are not eligible to set the LMP. A resource constrained at an upper or lower operating limit or dispatched for a quantity of Energy such that its full Ramping capability is constraining the ability of the resource to be dispatched for additional Energy in target interval, cannot be marginal (i.e., it is constrained by the Ramping capability) and thus is not eligible to set the Dispatch Interval LMP. Non-Dynamic System Resources are not eligible to set the Dispatch Interval LMP. Dynamic System Resources are eligible to set the Dispatch Interval LMP. A Constrained Output Generator that has the ability to be committed or shut off within applicable time periods that comprise the RTM will be eligible to set the Dispatch Interval LMP if any portion of its Energy is necessary to serve Demand. Dispatches of Regulation resources by EMS in response to AGC will not set the RTM LMP. Dispatches of Regulation resources to a Dispatch Operating Point by RTM SCED will be eligible to set the RTM LMP.

\* \* \*

#### **36.8.4 Eligible Sources For CRR Allocation**

In the CRR Allocation processes for Seasonal CRRs, Monthly CRRs, and Long Term CRRs, nominated CRR Sources can be either PNodes (including Scheduling Points) or Trading Hubs, except that a Proxy Demand Resource or Reliability Demand Response Resource cannot be a nominated CRR Source in a CRR Allocation process. An LSE or a Qualified OBAALSE may nominate up to one hundred (100) percent (100%) of its Adjusted Verified CRR Source Quantities for Seasonal or Monthly CRRs in the combined tiers of the annual and monthly CRR Allocation processes as provided in this Section. For tiers

1 and 2 of the annual CRR Allocation in CRR Year One, an LSE may nominate CRRs from each of its verified CRR Sources in a quantity no greater than seventy-five ~~(75%)~~ (75) percent of the Adjusted Verified CRR Source Quantity corresponding to each verified CRR Source. The LSE may then use tier 1 of the monthly CRR Allocations in CRR Year One to nominate up to the full one hundred ~~(100%)~~ (100) percent of the Adjusted Verified CRR Source Quantity corresponding to each verified CRR Source. In tiers 1, 2 and 3 of the annual CRR Allocation in each year in which it participates, a Qualified OBAALSE may nominate CRRs from each of its verified CRR Sources in a quantity no greater than seventy-five ~~(75%)~~ (75) percent of the Adjusted Verified CRR Source Quantity corresponding to each CRR Source. The Qualified OBAALSE may then use tiers 1 and 2 of the monthly CRR Allocations in the same year to nominate up to the full one hundred ~~(100%)~~ (100) percent of the Adjusted Verified CRR Source Quantity corresponding to each verified CRR Source.

\* \* \*

#### **40.4.4 Reductions For Testing**

In accordance with the procedures specified in the Business Practice Manual, the Generating Unit of a Participating Generator or other Generating Units, System Units or Loads of Participating Loads, Reliability Demand Response Resources, or Proxy Demand Resources included in a Resource Adequacy Plan submitted by a Scheduling Coordinator on behalf of a Load Serving Entity can have its Qualifying Capacity reduced, for purposes of the Net Qualifying Capacity annual report under Section 40.4.2 for the next Resource Adequacy Compliance Year, if a CAISO testing program determines that it is not capable of supplying the full Qualifying Capacity amount.

\* \* \*

#### **40.6.4.1 Registration of Use-Limited Resources**

Hydroelectric Generating Units, Proxy Demand Resources, Reliability Demand Response Resources, and Participating Load, including Pumping Load, are deemed to be Use-Limited Resources for purposes of this Section 40 and are not required to submit the application described in this Section 40.6.4.1.

Scheduling Coordinators for other Use-Limited Resources, must provide the CAISO an application in the form specified on the CAISO Website requesting registration of a specifically identified resource as a Use-

Limited Resource. This application shall include specific operating data and supporting documentation including, but not limited to:

- (1) a detailed explanation of why the resource is subject to operating limitations;
- (2) historical data to show attainable MWhs for each 24-hour period during the preceding year, including, as applicable, environmental restrictions for NOx, SOx, or other factors; and
- (3) further data or other information as may be requested by the CAISO to understand the operating characteristics of the unit.

Within five (5) Business Days after receipt of the application, the CAISO will respond to the Scheduling Coordinator as to whether or not the CAISO agrees that the facility is eligible to be a Use-Limited Resource. If the CAISO determines the facility is not a Use-Limited Resource, the Scheduling Coordinator may challenge that determination in accordance with the CAISO ADR Procedures.

#### **40.6.4.2 Use Plan**

The Scheduling Coordinator shall provide for the following Resource Adequacy Compliance Year a proposed annual use plan for each Use-Limited Resource that is a Resource Adequacy Resource. For each Use-Limited Resource that is a Resource Adequacy Resource but is not a Reliability Demand Response Resource, the proposed annual use plan will delineate on a month-by-month basis the total MWhs of Generation, total run hours, expected daily supply capability (if greater than four (4) hours) and the daily Energy limit, operating constraints, and the timeframe for each constraint. The CAISO will have an opportunity to discuss the proposed annual use plan with the Scheduling Coordinator and suggest potential revisions to meet reliability needs of the system. The Scheduling Coordinator shall then submit its final annual use plan. Scheduling Coordinators for Use-Limited Resources must submit the proposed and final annual use plans in accordance with the schedule set forth in the Business Practice Manual. The Scheduling Coordinator will be able to update the projections made in the annual use plan in the monthly Resource Adequacy Plans. Hydroelectric Generating Units and Pumping Load will be able to update use plans intra-monthly as necessary to reflect evolving hydrological and meteorological conditions. The annual use plan must reflect the potential operation of the Use-Limited Resource at a

level no less than the minimum criteria set forth by the Local Regulatory Authority for qualification of the resource.

#### **40.6.4.3 Bidding Requirements on Use-Limited Resources**

##### **40.6.4.3.1 Non-Hydro, Non-RDRR, and Dispatchable Use-Limited Resources**

Use-Limited Resources, other than those subject to the provisions of 40.6.4.3.2, must submit a Supply Bid or Self-Schedule for their Resource Adequacy Capacity in the Day-Ahead Market whenever the Use-Limited Resources are physically capable of operating in accordance with their operating criteria, including environmental or other regulatory requirements. Use-Limited Resources will also provide a daily Energy limit as part of their Day-Ahead Market offer to enable the CAISO to schedule them for the period in which they are capable of providing the Energy. To the extent that the daily Energy limit has been reached through Self-Schedules, no further action will be taken by the CAISO, unless rescheduling of the Energy is necessary for System Reliability. Use-Limited Resources will attempt to reschedule the Energy in recognition of the System Reliability concern, to the extent that the change is possible without violating a Use-Limited Resource's operating criteria.

##### **40.6.4.3.2 Hydro, RDRR, and Non-Dispatchable Use-Limited Resources**

Hydroelectric Generating Units, Pumping Load, and Non-Dispatchable Use-Limited Resources, but not Reliability Demand Response Resources, shall submit Self-Schedules or Bids in the Day-Ahead Market for their expected available Energy or their expected as-available Energy, as applicable, in the Day-Ahead Market and HASP. Such resources shall also revise their Self-Schedules or submit additional Bids in HASP based on the most current information available regarding expected Energy deliveries.

Hydroelectric Generating Units, Pumping Load, Reliability Demand Response Resources, and Non-Dispatchable Use-Limited Resources will not be subject to commitment in the RUC process. The CAISO will retain discretion as to whether a particular resource should be considered a Non-Dispatchable Use-Limited Resource, and this decision will be made in accordance with the provisions of Section 40.6.4.1.

\* \* \*

##### **40.6.12 Participating Loads, and PDRs, Proxy Demand Resources and RDRRs**

Participating Loads, ~~or~~ Proxy Demand Resources, or Reliability Demand Response Resources that are included in a Resource Adequacy Plan and Supply Plan, if the Scheduling Coordinator for the

Participating Loads, ~~or~~ Proxy Demand Resources, or Reliability Demand Response Resources is not the same as that for the Load Serving Entity, will be administered by the CAISO in accordance with the terms and conditions established by the CPUC or the Local Regulatory Authority.

\* \* \*

#### **40.8.1.14 Reliability Demand Response Resources**

The Net Qualifying Capacity of a Reliability Demand Response Resource, for each month, will be based on the resource's average monthly historic demand reduction performance during that same month during the Availability Assessment Hours, as described in Section 40.9.3, using a three-year rolling average. For a Reliability Demand Response Resource with fewer than three years of performance history, for all months for which there is no historic data, the CAISO will use a monthly megawatt value as certified and reported to the CAISO by the Demand Response Provider; otherwise, where available, the CAISO will use the average of historic demand reduction performance data available, by month, for a Reliability Demand Response Resource.

\* \* \*

### **Appendix A Master Definitions Supplement**

#### **- Bid Cost Recovery (BCR) Eligible Resources**

Those resources eligible to participate in the Bid Cost Recovery as specified in Section 11.8, which include Generating Units, System Units, System Resources, Participating Loads, Reliability Demand Response Resources, and Proxy Demand Resources.

\* \* \*

#### **- Customer Baseline**

A value or values determined by the CAISO based on historical or statistically relevant Load meter data to measure the delivery of Demand Response Services.

\* \* \*

#### **- Demand Response Event**

A time period, deadline, and transition during which a Proxy Demand Resource or Reliability Demand Response Resource provides Demand Response Services.

\* \* \*

**- Demand Response Provider**

An entity that is responsible for delivering Demand Response Services from a Proxy Demand Resource or Reliability Demand Response Resource providing Demand Response Services, which has undertaken in writing by execution of the applicable agreement to comply with all applicable provisions of the CAISO Tariff.

**- Demand Response Provider Agreement (DRPA)**

An agreement between the CAISO and a Demand Response Provider, a pro forma version of which is set forth in Appendix B.14.

\* \* \*

**- Demand Response Services**

Demand from a Proxy Demand Resource or Reliability Demand Response Resource that can be bid into the Day-Ahead Market and Real-Time Market and dispatched at the direction of the CAISO.

**- Demand Response System**

A collective name for a set of functions of a CAISO application used to collect, approve, and report on information and measurement data for Proxy Demand Resources and Reliability Demand Response Resources.

\* \* \*

**- Discrete Real-Time Dispatch Option**

The option selected by a Reliability Demand Response Resource pursuant to Section 30.6.2.1.2 to be dispatched as a discrete resource in the Real-Time Market.

\* \* \*

**- DRPA**

Demand Response Provider Agreement

\* \* \*

**- Electric Facility**

An electric resource, including a Generating Unit, System Unit, Participating Load, Reliability Demand Response Resource, or Proxy Demand Resource.

\* \* \*

### **- Expected Energy**

The total Energy that is expected to be generated or consumed by a resource, based on the Dispatch of that resource, as calculated by the Real-Time Market (RTM), and as finally modified by any applicable Dispatch Operating Point corrections. Expected Energy includes the Energy scheduled in the IFM, and it is calculated the applicable Trading Day. Expected Energy is calculated for Generating Units, System Resources, Resource-Specific System Resources, Participating Loads, [Reliability Demand Response Resources](#), and Proxy Demand Resources. The calculation is based on the Day-Ahead Schedule and the Dispatch Operating Point trajectory for the three-hour period around the target Trading Hour (including the previous and following hours), the applicable Real-Time LMP for each Dispatch Interval of the target Trading Hour, and any Exceptional Dispatch Instructions. Energy from Non-Dynamic System Resources is converted into HASP Intertie Schedules. Expected Energy is used as the basis for Settlements.

\* \* \*

### **- Local Capacity Area Resources**

Resource Adequacy Capacity from a Generating Unit listed in the technical study, ~~or~~ Participating Load, ~~or~~ Proxy Demand Resource, or Reliability Demand Response Resource that is located within a Local Capacity Area capable of contributing toward the amount of capacity required in a particular Local Capacity Area.

\* \* \*

### **- Marginal Real-Time Dispatch Option**

The option selected by a Reliability Demand Response Resource pursuant to Section 30.6.2.1.2 to be dispatched as a marginal resource in the Real-Time Market.

\* \* \*

### **- Meter Data**

-Either (1) Energy usage data collected by a metering device or as may be otherwise derived by the use of Approved Load Profiles or (2) a statistical sampling of Energy usage data that is derived pursuant to a methodology approved by the CAISO pursuant to Section 10.1.7 in cases where interval metering is not available for the entire population of underlying service accounts for a Reliability Demand Response Resource or a Proxy Demand Resource.

\* \* \*

### **- Metered Subsystem (MSS)**

A geographically contiguous system located within a single zone which has been operating as an electric utility for a number of years prior to the CAISO Operations Date as a municipal utility, water district, irrigation district, state agency or federal power marketing authority subsumed within the CAISO Balancing Authority Area and encompassed by CAISO certified revenue quality meters at each interface point with the CAISO Controlled Grid and CAISO certified revenue quality meters on all Generating Units

or, if aggregated, each individual resource, -Participating Load, [Reliability Demand Response Resource](#), and Proxy Demand Resource internal to the system, which is operated in accordance with a MSS Agreement described in Section 4.9.1.

\* \* \*

#### **- Minimum Load Bid**

The Bid component that indicates the Minimum Load Cost for the Generating Unit, Participating Load, [Reliability Demand Response Resource](#), or Proxy Demand Resource specified by a non-negative number in dollars per hour, which applies for the entire Trading Day for which it is submitted.

#### **- Minimum Load Costs**

The costs a Generating Unit, Participating Load, or Proxy Demand Resource incurs operating at Minimum Load, which in the case of Participating Load, [Reliability Demand Response Resource](#), or Proxy Demand Resource may not be negative.

\* \* \*

#### **- ~~PDRA~~**

~~Proxy Demand Resource Agreement~~

\* \* \*

#### **- ~~Demand Response PDR~~ Energy Measurement**

The Energy quantity calculated by comparing the Customer Baseline of a Proxy Demand Resource or [Reliability Demand Response Resource](#) against its actual underlying Load for a Demand ~~R~~esponse ~~E~~vent.

\* \* \*

#### **- Proxy Demand Resource (PDR)**

A Load or aggregation of Loads capable of measurably and verifiably providing Demand Response Services pursuant to ~~the a~~ Proxy Demand ~~Response Provider~~ [Resource](#) Agreement.

\* \* \*

#### **- ~~Proxy Demand Resource Agreement (PDRA)~~**

~~An agreement between the CAISO and a Demand Response Provider, a pro forma version of which is set forth in Appendix B.14.~~

\* \* \*

#### **- Ramp Rate**

The Bid component that indicates the Operational Ramp Rate, Regulation Ramp Rate, and Operating Reserve Ramp Rate for a Generating Unit, and the Load drop rate and Load pick-up rate for Participating Loads, [Reliability Demand Response Resources](#), and Proxy Demand Resources, for which the Scheduling Coordinator is submitting Energy Bids or Ancillary Services Bids.

\* \* \*

**- RDRR**

Reliability Demand Response Resource

**- RDRR Availability Limit**

A limit applicable to a Reliability Demand Response Resource that is reached when the Reliability Demand Response Resource has been dispatched in Real-Time for at least a total of fifteen (15) Demand Response Events or a total of forty-eight (48) hours during a Reliability Demand Response Services Term.

\* \* \*

**- Reliability Demand Response Resource (RDRR)**

A Load or aggregation of Loads capable of measurably and verifiably providing Demand Response Services pursuant to the Demand Response Provider Agreement.

**- Reliability Demand Response Services Term**

A six (6) month time period during which or within which a Reliability Demand Response Resource is available to provide Demand Response Services as specified in the Business Practice Manual.

\* \* \*

**- Resource ID**

Identification characters assigned by the CAISO to Generating Units, Loads, Participating Loads, Proxy Demand Resources, Reliability Demand Response Resources, System Units, System Resources, and Physical Scheduling Plants.

\* \* \*

**- Resource Location**

The Resource ID for a Generating Unit, Participating Load, Proxy Demand Resource, Reliability Demand Response Resource, or System Resource.

\* \* \*

**- Scheduling Coordinator Metered Entity**

A Generator, Eligible Customer, End-User, Reliability Demand Response Resource, or Proxy Demand Resource that is not a CAISO Metered Entity.

\* \* \*

**- Supply**

The Energy delivered from a Generating Unit, System Unit, Physical Scheduling Plant, System Resource, the Curtailable Demand provided by a Participating Load, or the Demand Response Services provided by a Proxy Demand Resource or a Reliability Demand Response Resource.

\* \* \*

Appendix B.14 ~~Proxy Demand Response Provider Resource~~ Agreement

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

AND

[DEMAND RESPONSE PROVIDER]

~~PROXY DEMAND~~ RESPONSE PROVIDER RESOURCE AGREEMENT (PDRPA)

THIS AGREEMENT is dated this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ and is entered into, by and between:

(a) **[Full legal name]**, having its registered and principal place of business located at [legal address] (the "Demand Response Provider");

and

(b) **California Independent System Operator Corporation**, a California nonprofit public benefit corporation having a principal executive office located at 250 Outcropping Way, Folsom, California 95630 or such place in the State of California as the CAISO Governing Board may from time to time designate, ~~initially 151 Blue Ravine Road, Folsom, California 95630~~ (the "CAISO").

The Demand Response Provider and the CAISO are hereinafter referred to as the "Parties".

**Whereas:**

- A. The CAISO Tariff provides that the CAISO shall only accept Bids for a Proxy Demand Resource or a Reliability Demand Response Resource from a Scheduling Coordinator.
- B. The CAISO Tariff further provides that Demand Response Services may be provided by Demand Response Providers.
- C. The Demand Response Provider desires to provide Demand Response Services from Proxy Demand Resources and/or Reliability Demand Response Resources through a Scheduling Coordinator and represents to the CAISO that it will comply with the applicable provisions of the CAISO Tariff.
- D. The Parties are entering into this Agreement in order to establish the terms and conditions on which the CAISO and the Demand Response Provider will discharge their respective duties and responsibilities under the CAISO Tariff.

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

## **ARTICLE I**

### **DEFINITIONS AND INTERPRETATION**

- 1.1 Master Definitions Supplement.** All terms and expressions used in this Agreement shall have the same meaning as those contained in the Master Definitions Supplement in Appendix A of the CAISO Tariff.
- 1.2 Rules of Interpretation.** The following rules of interpretation and conventions shall apply to this Agreement:
- (a) if there is any inconsistency between this Agreement and the CAISO Tariff, the CAISO Tariff will prevail to the extent of the inconsistency;
  - (b) the singular shall include the plural and vice versa;
  - (c) the masculine shall include the feminine and neutral and vice versa;
  - (d) "includes" or "including" shall mean "including without limitation";
  - (e) references to a Section, Article or Schedule shall mean a Section, Article or a Schedule of this Agreement, as the case may be, unless the context otherwise requires;
  - (f) a reference to a given agreement or instrument shall be a reference to that agreement or instrument as modified, amended, supplemented or restated through the date as of which such reference is made;
  - (g) unless the context otherwise requires, references to any law shall be deemed references to such law as it may be amended, replaced or restated from time to time;
  - (h) unless the context otherwise requires, any reference to a "person" includes any individual, partnership, firm, company, corporation, joint venture, trust, association, organization or other entity, in each case whether or not having separate legal personality;
  - (i) unless the context otherwise requires, any reference to a Party includes a reference to its permitted successors and assigns;
  - (j) any reference to a day, week, month or year is to a calendar day, week, month or year; and
  - (k) the captions and headings in this Agreement are inserted solely to facilitate reference and shall have no bearing upon the interpretation of any of the terms and conditions of this Agreement.

## **ARTICLE II**

### **ACKNOWLEDGEMENTS OF DEMAND RESPONSE PROVIDER AND CAISO**

- 2.1 CAISO Responsibility.** The Parties acknowledge that the CAISO is responsible for the efficient use and reliable operation of the CAISO Controlled Grid consistent with achievement of planning and Operating Reserve criteria no less stringent than those established by the Western Electricity Coordinating Council and the North American Electric Reliability Corporation and further acknowledge that the CAISO may not be able to satisfy fully these responsibilities if the Demand

Response Provider fails to fully comply with all of its obligations under this Agreement and the CAISO Tariff.

- 2.2 Scope of Application to Parties.** The Demand Response Provider and CAISO acknowledge that to submit Bids for Proxy Demand Resources or Reliability Demand Response Resources to the CAISO through a Scheduling Coordinator, the Demand Response Provider must register its Proxy Demand Resources or Reliability Demand Response Resources in the CAISO's Demand Response System. The Demand Response Provider warrants that it owns, operates, or has sufficient contractual entitlement to provide Demand Response Services from the Proxy Demand Resources and Reliability Demand Response Resources it represents in accordance with the CAISO Tariff.

## ARTICLE III

### TERM AND TERMINATION

- 3.1 Effective Date.** This Agreement shall be effective as of the later of the date it is executed by the Parties or the date accepted for filing and made effective by FERC, if such FERC filing is required, and shall remain in full force and effect until terminated pursuant to Section 3.2 of this Agreement.
- 3.2 Termination**
- 3.2.1 Termination by CAISO.** Subject to Section 5.2, the CAISO may terminate this Agreement by giving written notice of termination in the event that the Demand Response Provider commits any material default under this Agreement and/or the CAISO Tariff which, if capable of being remedied, is not remedied within thirty (30) days after the CAISO has given, to the Demand Response Provider, written notice of the default, unless excused by reason of Uncontrollable Forces in accordance with Article X of this Agreement; provided, however, that any outstanding financial right or obligation or any other obligation under the CAISO Tariff of the Demand Response Provider that has arisen while the Demand Response Provider was submitting Bids for Proxy Demand Resources, or Reliability Demand Response Resources and any provision of this Agreement necessary to give effect to such right or obligation, shall survive until satisfied. With respect to any notice of termination given pursuant to this Section, the CAISO must file a timely notice of termination with FERC, if this Agreement was filed with FERC, or must otherwise comply with the requirements of FERC Order No. 2001 and related FERC orders. The filing of the notice of termination by the CAISO with FERC will be considered timely if: (1) the filing of the notice of termination is made after the preconditions for termination have been met, and the CAISO files the notice of termination within sixty (60) days after issuance of the notice of default; or (2) the CAISO files the notice of termination in accordance with the requirements of FERC Order No. 2001. This Agreement shall terminate upon acceptance by FERC of such a notice of termination, if filed with FERC, or thirty (30) days after the date of the CAISO's notice of default, if terminated in accordance with the requirements of FERC Order No. 2001 and related FERC orders.
- 3.2.2 Termination by Demand Response Provider.** In the event that the Demand Response Provider no longer wishes to submit Bids or transmit Energy over the CAISO Controlled Grid, it may terminate this Agreement, on giving the CAISO not less than ninety (90) days written notice, provided, however, that in accordance with Section 4.1.25, the Demand Response Provider may eliminate from the Demand Response System Proxy Demand Resources or Reliability Demand Response Resources which it no longer provides for and such modification shall be effective upon receipt of notice by the CAISO; provided that a Demand Response Provider with Reliability Demand Response Resources is not permitted to terminate this Agreement effective as of a date within a Reliability Demand Response Services Term to which those Reliability Demand

Response Resources are subject; and provided further that any outstanding financial right or obligation or any other obligation under the CAISO Tariff of the Demand Response Provider that has arisen while the Demand Response Provider was submitting Bids for Proxy Demand Resources or Reliability Demand Response Resources, and any provision of this Agreement necessary to give effect to such right or obligation, shall survive until satisfied. With respect to any notice of termination given pursuant to this Section, the CAISO must file a timely notice of termination with FERC, if this Agreement has been filed with FERC, or must otherwise comply with the requirements of FERC Order No. 2001 and related FERC orders. The filing of the notice of termination by the CAISO with FERC will be considered timely if: (1) the request to file a notice of termination is made after the preconditions for termination have been met, and the CAISO files the notice of termination within thirty (30) days of receipt of such request; or (2) the CAISO files the notice of termination in accordance with the requirements of FERC Order No. 2001. This Agreement shall terminate upon acceptance by FERC of such a notice of termination, if such notice is required to be filed with FERC, or upon ninety (90) days after the CAISO's receipt of the Demand Response Provider's notice of termination, if terminated in accordance with the requirements of FERC Order No. 2001 and related FERC orders.

## ARTICLE IV

### GENERAL TERMS AND CONDITIONS

#### 4.1 General Terms and Conditions Applicable to Both Proxy Demand Resources and Reliability Demand Response Resources.

4.1.1 Demand Response Provider Requirements. The Demand Response Provider must register with the CAISO through the Demand Response System and comply with all terms of the CAISO Tariff. A Demand Response Provider that aggregates the demand response of customers for utilities that distribute: (1) over four million MWh in the previous fiscal year must certify to the CAISO that its participation is not prohibited by the Local Regulatory Authority; or (2) four million MWh or less in the previous fiscal year must certify to the CAISO that its participation is permitted by the Local Regulatory Authority applicable to Demand Response Providers, and that it has satisfied all applicable rules and regulations of the Local Regulatory Authority. The Demand Response Provider must certify to the CAISO that any required bilateral agreements between the Demand Response Provider and the Load Serving Entities or other agreements required by the Local Regulatory Authority are fully executed.

4.1.2 Agreement Subject to CAISO Tariff. The Parties will comply with all applicable provisions of the CAISO Tariff. This Agreement shall be subject to the CAISO Tariff, which shall be deemed to be incorporated herein.

4.1.3 Obligations relating to Major Incidents. The Demand Response Provider shall promptly provide such information as the CAISO may reasonably require in relation to the CAISO's investigations of operating situations or events, or for the CAISO's reporting to the authorities such as the FERC, California Public Utilities Commission, Western Electricity Coordinating Council, or North American Electric Reliability Corporation.

#### 4.2 General Terms and Conditions Applicable Solely to Proxy Demand Resources

4.2.1 Technical Characteristics. As required by Sections 8.3.4 and 8.4 of the CAISO Tariff, the Demand Response Provider shall provide the CAISO with all technical and operational information required for each Proxy Demand Resource that it owns, operates, or to which it has a contractual entitlement. For those Proxy Demand Resources designated by the Demand Response Provider as providing Demand Response Services, the Demand Response Provider

shall indicate whether the Proxy Demand Resource can submit Bids as qualifying Ancillary Services. Pursuant to Sections 8.9 and 8.10 of the CAISO Tariff, the CAISO may verify, inspect and test the capacity and operating characteristics provided for Proxy Demand Resources. The CAISO will maintain the required technical and operational information, which has been verified by the appropriate Load Serving Entity and Utility Distribution Company, as appropriate.

**4.2.2 Metering and Communication.** Metering requirements for the submittal of Settlement Quality Meter Data for Scheduling Coordinator Metered Entities will be in accordance with Section 10.3 of the CAISO Tariff. Pursuant to Sections 8.4.5 and 8.4.6 of the CAISO Tariff, Demand Response Services that are scheduled or bid as qualifying Ancillary Services are required to comply with the CAISO's communication and metering requirements.

**4.2.3 Notification of Changes.** The Demand Response Provider shall notify the CAISO of any proposed change(s) to registration to technical information. The CAISO will update the Master File in accordance with Section 30.7.3.2 of the CAISO Tariff. Pursuant to Sections 8.9 and 8.10 of the CAISO Tariff, the CAISO may verify, inspect and test the capacity and operating characteristics of the revised information provided. Unless the Proxy Demand Resource fails to test at the values in the proposed change(s), the Demand Response Provider's proposed change(s) will become effective upon the effective date for the next scheduled update of the Master File, provided that the Demand Response Provider submits the changed information by the applicable deadline and is tested by the deadline. Subject to such notification, this Agreement shall not apply to any Proxy Demand Resources which the Demand Response Provider no longer owns, operates or to which it no longer has a contractual entitlement.

#### **4.2.4 Obligations Relating to Ancillary Services**

**4.2.4.1 Submission of Bids and Self-provided Schedules.** When the Scheduling Coordinator on behalf of the Demand Response Provider submits a Bid, the Demand Response Provider will, by the operation of this Section 4.2.4.1, warrant to the CAISO that it has the capability to provide that service in accordance with the CAISO Tariff and that it will comply with CAISO Dispatch Instructions for the provision of the service in accordance with the CAISO Tariff.

**4.2.4.2 Ancillary Service Certification.** The Demand Response Provider shall not use a Scheduling Coordinator to submit a Bid for the provision of an Ancillary Service or submit a Submission to Self-Provide an Ancillary Service unless the Scheduling Coordinator serving that Demand Response Provider is in possession of a current Ancillary Service certificate pursuant to Sections 8.3.4 and 8.4 of the CAISO Tariff.

#### **4.3 General Terms and Conditions Applicable Solely to Reliability Demand Response Resources**

**4.3.1 Metering.** Metering requirements for the submittal of Settlement Quality Meter Data for Scheduling Coordinator Metered Entities will be in accordance with Section 10.3 of the CAISO Tariff.

**4.3.2 Notification of Changes.** The Demand Response Provider shall notify the CAISO of any proposed change(s) to the registration of technical information. The CAISO will update the Master File in accordance with Section 30.7.3.2 of the CAISO Tariff. This Agreement shall not apply to any Reliability Demand Response Resources which the Demand Response Provider no longer owns or operates or to which it no longer has a contractual entitlement.

~~**4.3 Demand Response Provider Requirements.** The Demand Response Provider must register with the CAISO through the Demand Response System and comply with all terms of the CAISO Tariff. A Demand Response Provider that aggregates the demand response of customers for utilities that distribute: (1) over four million MWh in the previous fiscal year must certify to the CAISO that its~~

~~participation is not prohibited by the Local Regulatory Authority; or (2) four million MWh or less in the previous fiscal year must certify to the CAISO that its participation is permitted by the Local Regulatory Authority applicable to Demand Response Providers, and that it has satisfied all applicable rules and regulations of the Local Regulatory Authority. The Demand Response Provider must certify to the CAISO that any required bilateral agreements between the Demand Response Provider and the Load Serving Entities or other agreements required by the Local Regulatory Authority are fully executed.~~

~~**4.4 — Notification of Changes.** The Demand Response Provider shall notify the CAISO of any proposed change(s) to registration to technical information. The CAISO will update the Master File in accordance with Section 30.7.3.2 of the CAISO Tariff. Pursuant to Sections 8.9 and 8.10 of the CAISO Tariff, the CAISO may verify, inspect and test the capacity and operating characteristics of the revised information provided. Unless the Proxy Demand Resource fails to test at the values in the proposed change(s), the Demand Response Provider's proposed change(s) will become effective upon the effective date for the next scheduled update of the Master File, provided that the Demand Response Provider submits the changed information by the applicable deadline and is tested by the deadline. Subject to such notification, this Agreement shall not apply to any Proxy Demand Resources which the Demand Response Provider no longer owns, operates or to which it no longer has a contractual entitlement.~~

~~**4.5 — Agreement Subject to CAISO Tariff.** The Parties will comply with all applicable provisions of the CAISO Tariff. This Agreement shall be subject to the CAISO Tariff, which shall be deemed to be incorporated herein.~~

#### ~~**4.6 — Obligations Relating to Ancillary Services**~~

~~**4.6.1 — Submission of Bids and Self-provided Schedules.** When the Scheduling Coordinator on behalf of the Demand Response Provider submits a Bid, the Demand Response Provider will, by the operation of this Section 4.6.1, warrant to the CAISO that it has the capability to provide that service in accordance with the CAISO Tariff and that it will comply with CAISO Dispatch Instructions for the provision of the service in accordance with the CAISO Tariff.~~

~~**4.6.2 — Ancillary Service Certification.** The Demand Response Provider shall not use a Scheduling Coordinator to submit a Bid for the provision of an Ancillary Service or submit a Submission to Self-Provide an Ancillary Service unless the Scheduling Coordinator serving that Demand Response Provider is in possession of a current Ancillary Service certificate pursuant to Sections 8.3.4 and 8.4 of the CAISO Tariff.~~

~~**4.7 — Obligations relating to Major Incidents.** The Demand Response Provider shall promptly provide such information as the CAISO may reasonably require in relation to the CAISO's investigations of operating situations or events, or for the CAISO's reporting to the authorities such as the FERC, California Public Utilities Commission, Western Electricity Coordinating Council, or North American Electric Reliability Corporation.~~

## **ARTICLE V**

### **PENALTIES AND SANCTIONS**

**5.1 Penalties.** If the Demand Response Provider fails to comply with any provisions of this Agreement, the CAISO shall be entitled to impose penalties and sanctions on the Demand Response Provider, including, solely with regard to Proxy Demand Resources, the penalties set forth in Sections 8.9.7 and 8.10.7 of the CAISO Tariff. No penalties or sanctions may be imposed under this Agreement unless a Schedule or CAISO Tariff provision providing for such penalties or sanctions has first been filed with and made effective by FERC. Nothing in this Agreement, with

the exception of the provisions relating to the CAISO ADR Procedures, shall be construed as waiving the rights of the Demand Response Provider to oppose or protest any penalty proposed by the CAISO to the FERC or the specific imposition by the CAISO of any FERC-approved penalty on the Demand Response Provider.

- 5.2 Corrective Measures.** If the Demand Response Provider fails to meet or maintain the requirements set forth in this Agreement and/or the CAISO Tariff, the CAISO shall be permitted to take any of the measures, contained or referenced in the CAISO Tariff, which the CAISO deems to be necessary to correct the situation.

## ARTICLE VI

### COSTS

- 6.1 Operating and Maintenance Costs.** The Demand Response Provider shall be responsible for all its costs incurred in meeting its obligations under this Agreement for the Proxy Demand Resources and Reliability Demand Response Resources identified in the Demand Response System.

## ARTICLE VII

### DISPUTE RESOLUTION

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

## ARTICLE VIII

### REPRESENTATIONS AND WARRANTIES

- 8.1 Authorization to Enter Into Agreement.** Each Party represents and warrants that the execution, delivery and performance of this Agreement by it has been duly authorized by all necessary corporate and/or governmental actions, to the extent authorized by law.
- 8.2 Necessary Approvals as to Proxy Demand Resources and Reliability Demand Response Resources.** The Demand Response Provider represents that all necessary leases, approvals, permits, licenses, easements, rights of way or access to install, own and/or operate the Proxy Demand Resources and Reliability Demand Response Resources for which it will Bid or otherwise act under this Agreement have been obtained by the Demand Response Provider prior to submitting technical information.
- 8.3 Local Regulatory Authority.** A Demand Response Provider that aggregates the demand response of customers for utilities that distribute: (1) over four million MWh in the previous fiscal year must represent and warrant to the CAISO that its participation is not prohibited by the Local

Regulatory Authority; or (2) four million MWh or less in the previous fiscal year must represent and warrant to the CAISO that its participation is permitted by the Local Regulatory Authority.

## ARTICLE IX

### LIABILITY

- 9.1 **Liability.** The provisions of Section 14 of the CAISO Tariff will apply to liability arising under this Agreement, except that all references in Section 14 of the CAISO Tariff to Market Participants shall be read as references to the Demand Response Provider and references to the CAISO Tariff shall be read as references to this Agreement.

## ARTICLE X

### UNCONTROLLABLE FORCES

- 10.1 **Uncontrollable Forces Tariff Provisions.** Section 14.1 of the CAISO Tariff shall be incorporated by reference into this Agreement except that all references in Section 14.1 of the CAISO Tariff to Market Participants shall be read as a reference to the Demand Response Provider and references to the CAISO Tariff shall be read as references to this Agreement.

## ARTICLE XI

### MISCELLANEOUS

- 11.1 **Assignments.** Either Party may assign or transfer any or all of its rights and/or obligations under this Agreement with the other Party's prior written consent in accordance with Section 22.2 of the CAISO Tariff. Such consent shall not be unreasonably withheld. Any such transfer or assignment shall be conditioned upon the successor in interest accepting the rights and/or obligations under this Agreement as if said successor in interest was an original Party to this Agreement.
- 11.2 **Notices.** Any notice, demand, or request which may be given to or made upon either Party regarding this Agreement shall be made in accordance with Section 22.4 of the CAISO Tariff, provided that all references in Section 22.4 of the CAISO Tariff to Market Participants shall be read as a reference to the Demand Response Provider and references to the CAISO Tariff shall be read as references to this Agreement, and unless otherwise stated or agreed shall be made to the representative of the other Party indicated in Schedule 2. A Party must update the information in Schedule 2 of this Agreement as information changes. Such changes shall not constitute an amendment to this Agreement.
- 11.3 **Waivers.** Any waiver at any time by either Party of its rights with respect to any default under this Agreement, or with respect to any other matter arising in connection with this Agreement, shall not constitute or be deemed a waiver with respect to any subsequent default or other matter arising in connection with this Agreement. Any delay, short of the statutory period of limitations, in asserting or enforcing any right under this Agreement shall not constitute or be deemed a waiver of such right.
- 11.4 **Governing Law and Forum.** This Agreement shall be deemed to be a contract made under, and for all purposes shall be governed by and construed in accordance with, the laws of the State of California, except its conflict of law provisions. The Parties irrevocably consent that any legal

action or proceeding arising under or relating to this Agreement to which the CAISO ADR Procedures do not apply, shall be brought in any of the following forums, as appropriate: any court of the State of California, any federal court of the United States of America located in the State of California, or, where subject to its jurisdiction, before the Federal Energy Regulatory Commission.

- 11.5 Consistency with Federal Laws and Regulations.** This Agreement shall incorporate by reference Section 22.9 of the CAISO Tariff as if the references to the CAISO Tariff were referring to this Agreement.
- 11.6 Merger.** This Agreement constitutes the complete and final agreement of the Parties with respect to the subject matter hereof and supersedes all prior agreements, whether written or oral, with respect to such subject matter.
- 11.7 Severability.** If any term, covenant, or condition of this Agreement or the application or effect of any such term, covenant, or condition is held invalid as to any person, entity, or circumstance, or is determined to be unjust, unreasonable, unlawful, imprudent, or otherwise not in the public interest by any court or government agency of competent jurisdiction, then such term, covenant, or condition shall remain in force and effect to the maximum extent permitted by law, and all other terms, covenants, and conditions of this Agreement and their application shall not be affected thereby, but shall remain in force and effect and the Parties shall be relieved of their obligations only to the extent necessary to eliminate such regulatory or other determination unless a court or governmental agency of competent jurisdiction holds that such provisions are not separable from all other provisions of this Agreement.
- 11.8 Amendments.** This Agreement and the Schedules attached hereto may be amended from time to time by the mutual agreement of the Parties in writing. Amendments that require FERC approval shall not take effect until FERC has accepted such amendments for filing and made them effective. Nothing herein shall be construed as affecting in any way the right of the CAISO to make unilateral application to FERC for a change in the rates, terms and conditions of this Agreement under Section 205 of the FPA and pursuant to FERC's rules and regulations promulgated thereunder, and the Demand Response Provider shall have the right to make a unilateral filing with FERC to modify this Agreement pursuant to Section 206 or any other applicable provision of the FPA and FERC's rules and regulations thereunder; provided that each Party shall have the right to protest any such filing by the other Party and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this Agreement shall limit the rights of the Parties or of FERC under Sections 205 or 206 of the FPA and FERC's rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein. The standard of review FERC shall apply when acting upon proposed modifications to this Agreement by the CAISO shall be the "just and reasonable" standard of review rather than the "public interest" standard of review. The standard of review FERC shall apply when acting upon proposed modifications to this Agreement by FERC's own motion or by a signatory other than the CAISO or non-signatory entity shall also be the "just and reasonable" standard of review. Schedules 1, and 2 are provided for informational purposes and revisions to those schedules do not constitute a material change in the Agreement warranting FERC review.
- 11.9 Counterparts.** This Agreement may be executed in one or more counterparts at different times, each of which shall be regarded as an original and all of which, taken together, shall constitute one and the same Agreement.

**IN WITNESS WHEREOF**, the Parties hereto have caused this Agreement to be duly executed on behalf of each by and through their authorized representatives as of the date hereinabove written.

**California Independent System Operator Corporation**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Demand Response Provider**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**SCHEDULE 1**

**CAISO IMPOSED PENALTIES AND SANCTIONS**

**[Section 5.1]**

**TO BE INSERTED UPON FERC APPROVAL**

**SCHEDULE 2**

**NOTICES  
(Section 11.2)**

**Demand Response Provider**

Name of Primary  
Representative:

\_\_\_\_\_

Title:

\_\_\_\_\_

Address:

\_\_\_\_\_

City/State/Zip Code:

\_\_\_\_\_

Email Address:

\_\_\_\_\_

Phone:

\_\_\_\_\_

Fax No:

\_\_\_\_\_

Name of Alternative  
Representative:

\_\_\_\_\_

Title:

\_\_\_\_\_

Address:

\_\_\_\_\_

City/State/Zip Code:

\_\_\_\_\_

Email Address:

\_\_\_\_\_

Phone:

\_\_\_\_\_

Fax No:

\_\_\_\_\_

**CAISO**

Name of Primary Representative:

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Title:

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Address:

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City/State/Zip Code:

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Email Address:

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Phone:

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Fax No:

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Name of Alternative Representative:

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Title:

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Address:

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City/State/Zip Code:

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Email Address:

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Phone:

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Fax No:

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**California Independent System Operator Corporation**  
**Fifth Replacement FERC Electric Tariff**  
**Reliability Demand Response Resource Tariff Amendment**  
**Attachment C- List of modifications to existing ISO tariff provisions**  
**May 20, 2011**

## ATTACHMENT C

### **List of Modifications to Existing ISO Tariff Provisions to Accommodate the Implementation of the Reliability Demand Response Resource Product**

As referenced in the transmittal letter for this tariff amendment, in addition to making the tariff changes discussed in the transmittal letter, the ISO proposes to modify the following tariff sections to add reliability demand response resources to the types of resources that are already subject to various tariff provisions:

- Section 4.5.1.1.3, regarding duplicate information;
- Sections 4.9.12.1, 4.9.12.2.6, and 4.9.12.3, regarding aggregation of resources as a system unit;
- Section 4.13.2, regarding applicable requirements for reliability demand response resources, proxy demand resources, and demand response providers;
- Section 4.13.3, regarding identification of reliability demand response resources and proxy demand resources;
- Section 7.1.3(f), regarding ISO control center authorities;
- Section 10.3.2.1, regarding the duty to provide settlement quality meter data;
- Section 10.3.6.1(b), regarding the timing of settlement quality meter data submission for the calculation of initial settlement statement T+7B;
- Section 11.1.5, regarding settlement quality meter data for initial statement T+7B;
- Section 11.2.1.1, regarding integrated forward market payments for the supply of energy;
- Section 11.5.4.1, regarding the application and calculation of dispatch interval locational marginal prices (“LMPs”);
- Section 11.8, regarding settlement of unrecovered bid cost recovery uplift payments;

- Section 30.7.8, regarding format and validation of start-up and shut-down costs;
- Section 31, regarding the sequential functions of the day-ahead market;
- Section 31.2, regarding the market power mitigation-reliability requirement determination (“MPM-RRD”);
- Section 31.3.1.4, regarding eligibility to set the day-ahead LMP;
- Section 33.4, regarding the MPM-RRD for the hour-ahead scheduling process and the real-time market;
- Section 34.5(7), regarding general dispatch principles;
- Section 34.6, regarding dispatch instructions;
- Section 34.9.1, regarding the issuance of exceptional dispatches for system reliability purposes;
- Sections 34.19.1 and 34.19.2.2, regarding the pricing of imbalance energy;
- Section 36.8.4, regarding eligible sources for CRR allocation;
- Section 40.4.4, regarding reductions of qualifying capacity;
- Appendix A, definition of bid cost recovery eligible resources;
- Appendix A, definition of demand response system;
- Appendix A, definition of electric facility;
- Appendix A, definition of expected energy;
- Appendix A, definition of local capacity area resources;
- Appendix A, definition of metered subsystem;
- Appendix A, definition of minimum load bid;
- Appendix A, definition of minimum load costs;
- Appendix A, definition of ramp rate;

- Appendix A, definition of resource ID;
- Appendix A, definition of resource location;
- Appendix A, definition of scheduling coordinator metered entity; and
- Appendix A, definition of supply.

**California Independent System Operator Corporation  
Fifth Replacement FERC Electric Tariff  
Reliability Demand Response Resource Tariff Amendment  
Attachment D - List of key dates in the stakeholder process  
May 20, 2011**

## ATTACHMENT D

### List of Key Dates in Reliability Demand Response Resource Stakeholder Process

<b>Date</b>	<b>Event/Due Date</b>
June 10, 2010	ISO hosts meeting of stakeholder working group for reliability demand response resource product that includes discussion of ISO presentation entitled "RDRP Stakeholder Initiative Working Group Meeting"
June 18, 2010	ISO hosts meeting of stakeholder working group for reliability demand response resource product that includes discussion of ISO presentation entitled "RDRP Stakeholder Initiative Working Group Meeting"
July 12, 2010	ISO issues paper entitled "Reliability Demand Response Product Straw Proposal" for discussion at stakeholder meeting scheduled for August 5, 2010
August 5, 2010	ISO hosts stakeholder meeting that includes discussion of ISO paper issued on July 12 and ISO presentation entitled "RDRP Stakeholder Initiative Working Group Meeting"
August 12, 2010	Due date for written stakeholder comments on ISO paper issued on July 12
August 17, 2010	ISO hosts conference call with stakeholder working group for reliability demand response resource product
September 1, 2010	ISO issues papers entitled "Reliability Demand Response Product Draft Final Proposal" and "CAISO Response to Stakeholder Comments on the RDRP Straw Proposal" for discussion on stakeholder conference call scheduled for September 13, 2010
September 13, 2010	ISO hosts stakeholder conference call that includes discussion of ISO papers issued on September 1 and ISO presentation entitled "RDRP Stakeholder Initiative Draft Final Proposal Review"
September 20, 2010	Due date for written stakeholder comments on ISO paper issued on September 1
September 23, 2010	ISO issues paper entitled "Reliability Demand Response Product Revised Draft Final Proposal"
September 29, 2010	Due date for written stakeholder comments on ISO paper issued on September 23
October 15, 2010	ISO issues paper entitled "Reliability Demand Response Product Revised Draft Final Proposal Version 2.0"
November 1, 2010	ISO Governing Board approves final reliability demand response resource proposal

<b>Date</b>	<b>Event/Due Date</b>
March 3, 2011	ISO issues paper entitled "External Business Requirements Specification for Reliability Demand Response Product"
March 9, 2011	ISO issues draft tariff language to implement reliability demand response resource product
March 15, 2011	Due date for written stakeholder comments on draft tariff language issued on March 9
March 21, 2011	ISO issues paper entitled "Comments on Draft Reliability Demand Response Product Tariff Language and ISO Response to Comments"
March 22, 2011	ISO hosts stakeholder conference call that includes discussion of draft tariff language issued on March 9
March 31, 2011	ISO issues updated draft tariff language to implement reliability demand response resource product, and issues paper entitled "ISO Response to Comments on Draft Reliability Demand Response Product Tariff Language"
April 13, 2011	ISO issues further updated draft tariff language to implement reliability demand response resource product
April 20, 2011	Due date for written stakeholder comments on draft tariff language and paper issued on March 31 and April 13
April 27, 2011	ISO hosts stakeholder conference call that includes discussion of draft tariff language and paper issued on March 31 and April 13
April 29, 2011	ISO issues further updated draft tariff language to implement reliability demand response resource product
May 4, 2011	Due date for written stakeholder comments on draft tariff language issued on April 29

**California Independent System Operator Corporation  
Fifth Replacement FERC Electric Tariff  
Reliability Demand Response Resource Tariff Amendment  
Attachment E- ISO Board Memorandum and Resolution  
May 20, 2011**



# Memorandum

**To:** ISO Board of Governors

**From:** Keith Casey, Vice President, Market & Infrastructure Development

**Date:** October 26, 2010

**Re:** **Decision on the Reliability Demand Response Product**

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*This memorandum requires Board action.*

## EXECUTIVE SUMMARY

The California Public Utilities Commission allows all forms of retail demand response programs to satisfy resource adequacy capacity requirements. Management has had long-standing concerns regarding the large megawatt quantity and restricted availability of retail emergency-triggered demand response programs that qualify as resource adequacy resources. We believe that resource adequacy resources should be available to prevent an emergency, rather than only being available to resolve an emergency that is already underway. In addition, the megawatt quantity of these conditional-use programs that count toward satisfying a load-serving entity's resource adequacy requirement should be capped. As part of its demand response proceeding (R.07-01-041), the CPUC approved a multi-party settlement agreement that resolved these concerns in a reasonable and mutually acceptable way and spawned the development of the reliability demand response product.

The California Independent System Operator Corporation is seeking the Board of Governors' approval of the proposed reliability demand response product. This new product will enable retail emergency-triggered demand response programs, e.g., interruptible, air-conditioning and agricultural pumping load programs, to integrate into ISO markets and operations. The product is scheduled to be implemented by spring 2012.

Management recommends implementation of the reliability demand response product to:

- Integrate retail emergency demand response programs into the ISO market;
- Reflect the value of these emergency resources in the ISO market;
- Gain access to these resources earlier in the ISO's emergency operating procedures;

- Limit the amount of emergency demand response resources that count towards satisfying the resource adequacy requirement of CPUC jurisdictional entities;
- Fulfill the ISO's obligations under the CPUC approved settlement agreement; and
- Add additional demand response capability to the ISO market by spring 2012.

In 2009, retail emergency-triggered demand response programs accounted for nearly 4% (approximately 2,150 MW) of the total resource adequacy capacity obligation of CPUC jurisdictional entities. This significant amount of resource adequacy capacity is not integrated into ISO markets and systems but is made available to the ISO operator only during an emergency through a manual process. A manual process does not provide the ISO operator clear visibility to the location and quantity of these emergency resources and does not allow the value of these resources to be reflected in the locational marginal price. The proposed reliability demand response product resolves these concerns by providing a wholesale market mechanism to integrate retail emergency demand response into the ISO market.

In addition to instigating the development of the reliability demand response product, the settlement limits the megawatt quantity of retail emergency demand response that can count toward satisfying the CPUC resource adequacy requirement to two-percent of the ISO all-time system peak (or 1,005 MW), which is based on an ISO operational evaluation of historic use, need to avoid firm load shedding, and other ISO and RTO practices. The settlement requires the investor-owned utilities to transition their CPUC approved retail emergency-triggered demand response programs into the ISO reliability demand response product, and makes these resources available for dispatch earlier under ISO emergency operating procedures. The settlement also requires that the utilities make efforts to promote and transition customers from emergency-triggered demand response programs into price-responsive demand response programs that align with the ISO market. With the implementation of the reliability demand response product, the ISO will be able to dispatch these emergency-triggered programs when and where they are needed and, appropriately, reflect their value in the ISO market.

***Moved, that the ISO Board of Governors approves the proposed reliability demand response product, as detailed in the memorandum dated October 26, 2010; and***

***Moved, that the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposed tariff change.***

## **BACKGROUND**

The settlement addressed Management concerns regarding the quantity, use, and resource adequacy treatment of retail emergency-triggered demand response programs. Development of the reliability demand response product was a key element and outcome of the settlement. The settlement was supported by a broad cross-section of market participants, including the

three California investor-owned utilities, two ratepayer interest groups, a large consumer representative and a demand response provider.

The settlement agreement outlined broad principles for the reliability demand response product, which was designed to:

- Be compatible with investor-owned utility emergency demand response programs;
- Meet minimum operating and technical requirements, including recognition of maximum resource availability limits;
- Be dispatched economically once the resource is made available for dispatch as specified in ISO emergency operating procedures;
- Recognize that the underlying customers have “high strike” prices;
- Have multi-reliability uses, including ISO system emergencies and utility local transmission and distribution system emergencies;
- Be available to all demand response providers, subject to applicable rules of the local regulatory authority;
- Be settled through the ISO market; and
- Be dispatchable by location and megawatt quantity.

The reliability demand response product proposed by the ISO and shaped by stakeholder input embodies these principles and fulfills an important ISO principle that the value of these emergency-triggered demand resources be reflected in the ISO market.

## **PROPOSAL**

The reliability demand response product design ensures compatibility with, and the integration of, existing retail emergency-triggered demand response programs, such as interruptible load programs, direct-load control programs like air-conditioning cycling, and agriculture pumping programs. The reliability demand response product design will allow reliability demand response resources to offer energy economically in the day-ahead market, and any remaining uncommitted capacity thereafter to be bid as energy in the real-time through the ISO hour-ahead scheduling process.

The reliability demand response product will integrate large single or aggregated-demand response resources that may be configured to offer energy economically in the day-ahead market and, as a minimum requirement, can respond to a reliability event for the delivery of energy in real-time. Such dispatches are expected infrequently and with limited notice under an ISO issued warning notice as specified in ISO emergency operating procedures.

The reliability demand response product has multiple uses, including:

- Mitigating imminent or threatened operating reserve deficiencies;
- Addressing transmission emergencies on the ISO-controlled grid; and
- Resolving local transmission and distribution system emergencies.

To qualify as a reliability demand response product resource, the resource must be capable of delivering reliability energy in real-time, reaching its full curtailment in no longer than 40 minutes, and be dispatched by the ISO's automated dispatching system within a geographic location and for a specified megawatt quantity. The megawatt quantity that is available from a reliability demand response product resource during any particular hour is submitted to the ISO by the scheduling coordinator for the demand response provider in the hour-ahead scheduling process with a bid between the ISO bid cap and 95% of the ISO bid cap. Use of a bid range will enable a scheduling coordinator to use bid costs as a means to prioritize the dispatch of reliability demand response resources.

A reliability demand response product resource will participate in the ISO market as a supply resource, relying on the functionality and infrastructure the ISO recently implemented for its proxy demand resource product. The product also will include an option that allows reliability demand response product resources to receive a discrete dispatch. This feature will allow a resource to be dispatched to pre-specified megawatt levels, by hour, regardless of the resource's electricity consumption at the time of deployment. This will enable the integration of existing retail emergency-triggered demand response programs, such as the interruptible load programs, that require a discrete dispatch. Like other resources, reliability demand response product resources will be eligible to set the locational marginal price when they are the marginal resource.

## **POSITIONS OF THE PARTIES**

### ***Stakeholder process***

The foundation of demand response resources is built on load adjustments made by retail electricity customers, and it is essential that the ISO closely coordinate its development of wholesale demand response products with the input of stakeholders that have retail interests and concerns. ISO staff engaged its stakeholders in a working group process in addition to its traditional stakeholder process to develop the details of the reliability demand response product. Between June and September 2010, ISO staff conducted three working group sessions, a stakeholder meeting, a stakeholder conference call, and provided four opportunities to provide formal, written comments on Management's proposal.

Stakeholders generally support the reliability demand response product proposal. Below is a discussion of the key issues that staff addressed and the design modifications that were made based on stakeholder feedback.

### **Day-ahead participation capability**

Stakeholders strongly support this element of the proposal, which provides the ability for a reliability demand response product resource to participate economically in the day-ahead market, like a proxy demand resource, and as an emergency resource in real-time under the terms of this new product. Enabling reliability demand response product resources to participate in the day-ahead market allows the ISO and the demand response provider to capture additional value from resources that have the ability to respond economically in the day-ahead timeframe yet can curtail additional load in the real-time when required under a system or local emergency.

### **Performance incentive**

Management originally proposed a performance incentive which was met with strong stakeholder opposition. In response, we removed this feature and will develop availability standards for these types of demand response resources under phase three of its standard capacity product initiative. Stakeholders support this approach.

### **Dispatching reliability demand response resources for local transmission and distribution system needs**

The settlement agreement preserves the right for the investor-owned utilities to dispatch their emergency demand response resources to respond to local transmission and distribution system emergencies. These local emergency dispatches will occur outside of the ISO market and will not set the locational marginal price. Certain market participants felt that reliability demand response product resources should have the opportunity to set the locational marginal price in all instances. This cannot be accomplished. The dispatch of a reliability demand response product resource to address a utility's local emergency would have to be done through exceptional dispatch. Exceptional dispatch simply adds cost to the system, in the form of uplift charges, and does not have the desired effect of setting the locational marginal price. For this reason, the ISO finds that any benefits derived from the ISO dispatching a utility's use of its demand response programs to address a local system constraint are outweighed by the cost, complexity, and coordination of doing so.

### **Exceptional dispatch**

Certain stakeholders felt that reliability demand response resources should not be subject to exceptional dispatches. Management will maintain the exceptional dispatch of reliability demand response product resources since the ISO cannot forego its ability to dispatch resources under its exceptional dispatch authority and allow a situation to worsen if system conditions are dire and a market application fails or does not commit a required resource that can resolve a pressing reliability concern. Thus, the ISO will preserve its exceptional dispatch authority of reliability demand response product resources with the expectation that this capability will be used judiciously and infrequently.

**Prohibition against the reliability demand response product providing ancillary service and/or residual unit commitment capacity**

Certain stakeholders felt that reliability demand response resources should be able to participate in the residual unit commitment and ancillary services market. However, Management determined that it is not feasible for reliability demand response product resources to offer these capacity services. This is due to the complexity associated with co-mingling the real-time energy bid associated with awarded residual unit commitment and/or ancillary service capacity and the energy associated with reliability demand response product resources, given the different dispatch parameters between the reliability demand response product and these capacity services. Demand response resources are eligible to provide these capacity services, along with day-ahead and real-time energy, through the proxy demand resource product.

**MANAGEMENT RECOMMENDATION**

Management requests Board approval of the reliability demand response product as detailed in this memorandum. The benefits of implementing the reliability demand response product is the integration of retail emergency-triggered demand response programs into the ISO market, enabling the value of these resources to be reflected in the ISO market and enhancing the reliable operation of the ISO controlled grid. Additionally, approval of the reliability demand response product fulfills the terms of the CPUC approved settlement agreement on the quantity, use, and resource adequacy treatment of retail emergency-triggered demand response programs.



**Board of Governors      November 1-2, 2010      Decision on Reliability Demand Response Product**

**Motion**

***Moved, that the ISO Board of Governors approves the proposed reliability demand response product, as detailed in the memorandum dated October 26, 2010; and***

***Moved, that the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposed tariff change.***

**Moved: Doll                      Second: Foster**

Board Action: <b>Passed</b>	Vote Count: <b>4-0-0</b>
Doll	Y
Foster	Y
Habashi	Y
Willrich	Y

**Motion Number: 2010-11-G3**