

January 31, 2019

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. ER19-\_\_\_\_\_-000**

**Tariff Clarifications Filing Related to Previously Accepted  
Commitment Cost Enhancements Phase 3 Changes and  
Waiver of 60-Day Notice Requirement**

Dear Secretary Bose:

The California Independent System Operator Corporation (CAISO) submits this tariff amendment to add additional details regarding the commitment cost enhancements phase 3 (CCE3) tariff changes that the Commission has already accepted to: (1) implement opportunity costs for eligible use-limited resources; and (2) fill in gaps that arise due to the intersection between CCE3 and the CAISO's reliability services initiative (RSI).<sup>1</sup> Specifically, the CAISO proposes incremental amendments to: (1) address any gaps identified because of a comprehensive review of the interaction between CCE3 and other CAISO initiatives;<sup>2</sup> (2) align tariff provisions relating to opportunity costs to create consistency with software and business processes that the CAISO has developed in its implementation efforts; and (3) make other clarifications and clean-up changes relating to the CCE3 initiative.

The CAISO also is refiling one proposed change from the original CCE3 tariff amendment regarding generator design capabilities registered in the CAISO's Master File. The Commission rejected this language solely because it was contained in the same tariff record as other CCE3 tariff changes the Commission rejected on separate, substantive grounds. The CAISO proposes to include the proposed change in tariff section 4.6.4 regarding resource characteristics. This tariff clarification will benefit market participants by providing

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<sup>1</sup> The CAISO submits this filing pursuant to section 205 of the Federal Power Act, 16 U.S.C. § 824d. References in this transmittal letter to the tariff are references to the CAISO tariff, and references to section numbers are references to sections of the CAISO tariff, unless otherwise stated.

<sup>2</sup> The other initiatives were RSI and the bidding rules enhancements initiative.

additional guidance regarding the obligation to provide resource-specific information.

Stakeholders generally support the revisions in the tariff amendment and recognize the value of this effort to clarify and fill gaps in the tariff before CCE3 implementation. The vast majority of the revisions are minor tariff clarifications. The more substantive issues this filing addresses are:

- Tariff section 30.4.1.1.6.2.1, which the Commission accepted as part of CCE3, provides that the CAISO may update the opportunity cost calculation more frequently than monthly based on market conditions. The CAISO is proposing to remove this authority because the CAISO cannot update opportunity cost calculations more frequently than monthly because the delivered functionality and business processes only allow for monthly updates.
- The CAISO continues to propose an April 1, 2019, effective date for the CCE3 tariff changes generally and the proposed tariff clarifications in this filing. The CAISO is amending tariff section 30.4.1.1.6.1.2 to provide that opportunity cost adders will not be available until the first day of the month following the effective date of this tariff section, *i.e.*, May 1, 2019. The reason for this lag is that the CAISO needs to turn the Master File flags for use-limited resources on and trigger the first set of opportunity cost calculations, which will take at least several days, and possibly longer for the initial deployment.
- The previously approved CCE3 tariff provisions narrow the definition of a use-limited resource, which will mean that some resources' regulatory or operational limitations qualified them as use-limited resources under the old definition, but they will no longer qualify under the new definition. The proposed revisions allow these non-use-limited resources to continue to be subject to resource adequacy provisions in tariff section 40.6.4 regarding availability requirements, and continue to be subject to the exemption from the generated bid rules in tariff section 40.6.8(e). The CAISO proposes to define a new category of resources, called "conditionally available resources," for this purpose. A conditionally available resource is a resource with one or more regulatory or operational limits that are not eligible use-limits and that faces frequent and recurring periods of unavailability because of those limitations.

The CAISO respectfully requests waiver of the Commission's 60-day notice requirement to permit the tariff revisions contained in this filing to be

effective April 1, 2019, the same date that the CCE3 tariff changes are scheduled to go into effect, which is one day short of the Commission's full 60-day notice requirement.<sup>3</sup>

The CAISO views this filing as containing three discrete sets of elements that stand on their own. Those three elements are: (1) removing CAISO authority to make intra-monthly changes to a resource's opportunity cost calculations; (2) all other revisions regarding opportunity costs and resource adequacy; and (3) resource characteristics revisions in tariff section 4.6.4. From a substantive perspective, these three aspects of the filing are separate elements of a multi-part filing that are severable from each other and not interrelated, interdependent, or affected by the Commission's actions on any other element. Thus, the Commission should evaluate the justness and reasonableness of each set of proposed tariff changes based on their individual merits.

## I. Background

During the past several years, the CAISO has conducted a series of stakeholder initiatives to incrementally improve its tariff mechanisms regarding the calculation of: (i) commitment costs, *i.e.*, costs to start up resources (start-up costs) and costs to keep resources running at a minimum operating level (minimum load costs); and (ii) energy bid components used in generated energy bids (bids generated when resource adequacy resources fail to submit required bids) and default energy bids (used in local market power mitigation).<sup>4</sup> The CAISO has implemented a series of tariff enhancements to reflect more accurate resource costs to conduct economically efficient least-cost dispatch.<sup>5</sup> These initiatives have included the commitment cost enhancements initiatives, of which CCE3 is the most recent.

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<sup>3</sup> Specifically, the CAISO requests waiver of the Commission's full 60-day notice requirement set forth in Section 35.3 of the Commission's regulations, 18 C.F.R. § 35.3, pursuant to Section 35.11 of the Commission's regulations, 18 C.F.R. § 35.11. Good cause exists to grant the requested waiver because the requested effective date is April 1, 2019, which is contemporaneous with the CCE3 tariff changes effective date.

<sup>4</sup> Under the CAISO tariff, commitment costs are calculated using either a defined "proxy cost" methodology or "registered cost" methodology, the latter methodology being available only to use-limited resources in limited circumstances as discussed below. The proxy cost methodology uses flexible daily commitment cost values while the registered cost methodology uses commitment cost values that are fixed every 30 days and registered in the CAISO's Master File.

<sup>5</sup> See *Cal. Indep. Sys. Operator Corp.*, 128 FERC ¶ 61,282 (2009); *Cal. Indep. Sys. Operator Corp.*, 134 FERC ¶ 61,257 (2011); *Cal. Indep. Sys. Operator Corp.*, 141 FERC ¶ 61,237 (2012); *Cal. Indep. Sys. Operator Corp.*, 145 FERC ¶ 61,082 (2013); *Cal. Indep. Sys. Operator Corp.*, 149 FERC ¶ 61,284 (2014); *Cal. Indep. Sys. Operator Corp.*, 152 FERC ¶ 61,185 (2015) (CCE2 Order).

During this same period, the CAISO also conducted RSI, a two-phased stakeholder process to improve the CAISO's resource adequacy program.<sup>6</sup> Among other proposals, the first phase of RSI included the creation of the resource adequacy availability incentive mechanism (RAAIM) to incentivize resources to meet their resource adequacy obligations by penalizing them if they do not meet those obligations.<sup>7</sup> Phase one of RSI also included exemptions from the generated bid provisions in the CAISO tariff and exemptions from RAAIM.<sup>8</sup> The CAISO filed tariff revisions to implement the RSI phase one changes, expecting that these changes would go into effect with tariff revisions the CAISO filed shortly thereafter, the commitment cost enhancements phase two (CCE2) tariff changes. CCE2 was a separate stakeholder initiative to narrow the definition of a use-limited resource.<sup>9</sup> The CAISO anticipated that many resources would no longer be eligible for use-limited status due to the narrowing of the definition but might still be eligible for an exemption from the generated bid provisions or, perhaps, an exemption from RAAIM.<sup>10</sup> Indeed, the CAISO requested waiver of the Commission's notice requirements for the express purpose of allowing the narrowed definition of a use-limited resource proposed in the CCE2 tariff amendment to go into effect on the same date as almost all of the RSI phase one revisions.<sup>11</sup>

As it turned out, the Commission accepted the RSI phase one proposal, and the CAISO implemented it on November 1, 2016.<sup>12</sup> Although the Commission generally accepted the commitment cost-related changes in the

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<sup>6</sup> Stakeholder materials from the two phases of RSI are available at <http://www.caiso.com/informed/Pages/StakeholderProcesses/CompletedClosedStakeholderInitiatives/Default.aspx>. Following the stakeholder process, the CAISO filed tariff revisions to implement RSI phase one in Docket No. ER15-1825-000, and filed tariff revisions to implement RSI phase two in Docket No. ER18-1-000.

<sup>7</sup> See transmittal letter for tariff amendment to implement RSI phase one, Docket No. ER15-1825-000, at 29-73 (May 29, 2015) (RSI Phase One Transmittal Letter).

<sup>8</sup> See *id.* at 22-23, 74-83.

<sup>9</sup> Stakeholder materials from CCE2 are available at <http://www.caiso.com/informed/Pages/StakeholderProcesses/CommitmentCostEnhancements.aspx>. The CAISO filed the tariff revisions to implement CCE2 tariff changes in Docket No. ER15-1875-000, exactly a week after it filed the RSI phase one tariff amendment. The CCE2 tariff amendment also included tariff revisions to update provisions on transition costs for multi-stage generating resources.

<sup>10</sup> See RSI Phase One Transmittal Letter at 22-24, 45-46, 79; transmittal letter for CCE2, Docket No. ER15-1875-000, at 11-12, 15-16 (CCE2 Transmittal Letter).

<sup>11</sup> See CCE2 Transmittal Letter at 16-17.

<sup>12</sup> *Cal. Indep. Sys. Operator Corp.*, 153 FERC ¶ 61,002 (2015) (accepting RSI phase one tariff revisions); *Cal. Indep. Sys. Operator Corp.*, 155 FERC ¶ 61,216 (2016) (granting CAISO request for limited tariff waiver to make RSI phase one tariff revisions effective November 1, 2016).

CCE2 tariff amendment, the Commission rejected the proposed new definition of a use-limited resource.<sup>13</sup> The Commission rejected the proposed narrowing of the definition without prejudice to the CAISO submitting a new use-limited proposal that the addressed concerns raised in that latter order.<sup>14</sup> The CAISO put the RSI phase one changes into effect but not the narrowed definition of a use-limited resource.

Most recently, in 2018 the CAISO filed a tariff amendment to implement the CCE3 initiative (CCE3 Tariff Amendment), which included the new definition of a use-limited resource.<sup>15</sup> This tariff amendment addressed concerns the Commission had raised regarding the narrowed definition of a use-limited resource and the opportunity cost policies. It also included tariff revisions to implement policy changes regarding resource characteristics.<sup>16</sup> The Commission accepted the CAISO's proposals in the CCE3 Tariff Amendment to: (1) implement a methodology to allow eligible use-limited resources to include opportunity cost adders in their commitment costs and energy bid costs; (2) limit the registered cost methodology to use-limited resources with fewer than 12 months of locational marginal pricing data; (3) permit eligible resources to renegotiate outdated or erroneous negotiated values used for commitment cost and generated energy bids; and (4) clarify the definition of use-limited resources and make certain tariff clarifications.<sup>17</sup> The Commission accepted these CCE3 tariff changes effective November 1, 2018, but later granted a petition for limited tariff waiver to make them effective April 1, 2019.<sup>18</sup>

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<sup>13</sup> CCE2 Order at PP 34-39. In the CCE2 Order, the Commission accepted the tariff revisions on transition costs for multi-stage generating resources. *Id.* at P 33.

<sup>14</sup> *Id.* at P 39.

<sup>15</sup> The CAISO filed the CCE3 Tariff Amendment in Docket No. ER18-1169-000 on March 23, 2018. In this transmittal letter, the CAISO refers to Docket No. ER18-1169 in its entirety as the "CCE3 proceeding."

<sup>16</sup> The Commission accepted the tariff revisions to implement the bidding rules enhancements initiative in 2016. *Cal. Indep. Sys. Operator Corp.*, 157 FERC ¶ 61,138 (2016).

<sup>17</sup> *Cal. Indep. Sys. Operator Corp.*, 163 FERC ¶ 61,211 (2018), at PP 32-35, 53 (CCE3 Order), and Appendix, *order conditionally accepting compliance filing*, 165 FERC ¶ 61,140, at P 11 (2018). The CAISO's filing to comply with the latter order is currently pending with the Commission.

<sup>18</sup> *Cal. Indep. Sys. Operator Corp.*, 165 FERC ¶ 61,038 (2018). For ease of reference, the CAISO refers in this transmittal letter to the tariff changes in the CCE3 Tariff Amendment that the Commission accepted (but not the ones it rejected) as the "CCE tariff changes."

However, in the CCE3 Order, the Commission rejected the CAISO's proposed resource characteristics tariff changes, including the proposed clarifications to section 4.6.4,<sup>19</sup> which the Commission found were not severable from the other resource characteristics changes, because they were contained in the same tariff record.<sup>20</sup>

After the Commission accepted the CCE3 tariff changes, the CAISO hosted a series of meetings and workshops with stakeholders to prepare for implementation. Through this process, the CAISO determined that it needed to clarify and address certain gaps in the CCE3 tariff changes. In particular, the CAISO needed to add implementation detail to align the CCE3 tariff changes with the tariff changes the Commission accepted in RSI phase one and the bidding rules enhancements initiative. In addition, the CAISO discovered that minor corrections and clarifications to the CCE3 opportunity cost tariff provisions were needed.

The effort culminated in this tariff amendment filing. Prior to this filing, the CAISO also conducted two rounds of stakeholder review of draft tariff language and draft business practice manual language and provided opportunities for stakeholder comments in writing and on conference calls to discuss these materials.<sup>21</sup>

## **II. CAISO Tariff Provisions Relevant to this Filing**

### **A. Use-Limited Resources and Opportunity Costs**

When the CCE3 tariff changes go into effect on April 1, 2019, the tariff will define a use-limited resource as a resource demonstrated to satisfy these criteria: (1) the resource has one or more limitations affecting its number of starts, its number of run-hours, or its energy output due to (a) design considerations, (b) environmental restrictions, or (c) qualifying contractual limitations; (2) the CAISO market process used to dispatch the resource cannot recognize the resource's limitation(s); and (3) the resource's ability to select

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<sup>19</sup> CCE3 Order at P 47.

<sup>20</sup> *Id.* Further, the Commission rejected certain other proposals in the CCE3 Tariff Amendment. *Id.* at PP 44-46, 53, and Appendix. The CAISO timely filed a request for rehearing of the Commission's findings regarding all of the rejected proposals, which is pending before the Commission.

<sup>21</sup> Materials related to the implementation meetings and stakeholder process to develop the tariff revisions contained in this filing are available at <http://www.aiso.com/informed/Pages/StakeholderProcesses/CommitmentCostEnhancements.aspx>. The CAISO also provides a list of key dates in the stakeholder process for this tariff amendment in attachment C to this filing. The CAISO did not require approval by the CAISO Governing Board to file this tariff amendment.

hours of operation is not dependent on an energy source outside of the resource's control being available during such hours.<sup>22</sup> A scheduling coordinator seeking to obtain use-limited resource status for a resource must follow the registration and validation process in the CAISO tariff and the business practice manual.<sup>23</sup>

As described further below, a scheduling coordinator for a use-limited resource that elects the proxy cost methodology may also seek to establish opportunity cost adders for any limitation(s) that: (1) satisfy the tariff requirements to be a use-limited resource; (2) apply for period(s) longer than the time horizon considered in the applicable day-ahead market process; and (3) can be reflected in a monthly, annual, and/or rolling 12-month period.<sup>24</sup>

## **B. Commitment and Compensation of Generating Resources**

Under its tariff, the CAISO optimizes economic commitment and dispatch of generating resources in its markets based on resources' energy bids and submitted commitment costs. Besides the market participant-submitted energy bids, the CAISO market also uses default energy bids for local market power mitigation and generated bids.

### **1. Commitment Costs**

In the day-ahead market, (*i.e.*, the integrated forward market (IFM) and the residual unit commitment (RUC) process), the CAISO commits long-start units through the IFM and RUC and publishes a financially binding day-ahead schedule for IFM awards.<sup>25</sup> In making commitment decisions, the market considers the costs of energy bids and the costs of starting up resources (start-up costs), the costs of running resources at their minimum operating levels (minimum load costs),<sup>26</sup> and transition costs for resources that can operate in different configurations.<sup>27</sup>

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<sup>22</sup> Tariff section 30.4.1.1.6.1.1 as accepted in the CCE3 proceeding; tariff appendix A, definition of the term "Use-Limited Resource" as accepted in the CCE3 proceeding.

<sup>23</sup> Tariff section 30.4.1.1.6.1 as accepted in the CCE3 proceeding.

<sup>24</sup> Tariff section 30.4.1.1.6.1.2 as accepted in the CCE3 proceeding.

<sup>25</sup> The real-time market commits resources in the short-term unit commitment and the real-time unit commitment processes every 15 minutes.

<sup>26</sup> Tariff section 31.3; tariff appendix A, definitions of "Start-Up Cost" and "Minimum Load Costs."

<sup>27</sup> The tariff refers to these resources as multi-stage generating (MSG) resources. Tariff appendix A, definitions of "Multi-Stage Generating Resources" and "Transition Cost" as revised in the CCE3 proceeding.

All resources, except use-limited resources whose scheduling coordinators elect the registered cost methodology described below, bid their start-up costs, minimum load costs, and transition costs under the proxy cost methodology, which sets forth the costs the resources may bid.<sup>28</sup> When the CCE3 tariff changes go into effect on April 1, 2019, use-limited resources that meet eligibility criteria specified in the tariff can also include a new type of cost – an opportunity cost adder – in their bids.<sup>29</sup> The CAISO will determine the opportunity cost adder using a calculation process if feasible; but if calculation not feasible, the CAISO will instead use a negotiation process to establish the opportunity cost adder.<sup>30</sup> If resources do not recover their bid-in costs (*i.e.*, commitment costs and energy, ancillary services, and RUC costs) through the market, resources recover them through a bid cost recovery uplift payment.<sup>31</sup>

As an alternative to the proxy cost methodology, scheduling coordinators for use-limited resources can elect the registered cost methodology to register fixed commitment cost values of their choosing in the Master File for 30 days.<sup>32</sup> When the CCE3 tariff changes go into effect, the registered cost methodology will be limited to use-limited resources with fewer than 12 months of locational marginal pricing data.<sup>33</sup>

## 2. Default Energy Bids

The CAISO uses default energy bids to mitigate bids of resources subject to local market power mitigation.<sup>34</sup> When a resource's bid is mitigated, the

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<sup>28</sup> Tariff sections 30.4.1.1.1(a) and 30.4.1.1.2(a).

<sup>29</sup> Tariff sections 30.4.1.1.1(a) and 30.4.1.1.2(a) as revised in the CCE3 proceeding and tariff section 30.4.1.1.6.1.2 as accepted in the CCE3 proceeding. The types of opportunity cost adders potentially available under the proxy cost methodology are called start-up opportunity costs and minimum load opportunity costs. Tariff appendix A, definitions of the terms "Start-Up Opportunity Costs" and "Minimum Load Opportunity Costs" as accepted in the CCE3 proceeding.

<sup>30</sup> Tariff sections 30.4.1.1.6.2 and 30.4.1.1.6.3 as accepted in the CCE3 proceeding.

<sup>31</sup> Resources subject to the proxy cost methodology submit daily bids for their start-up costs, minimum load costs, and transition costs that are between zero and 125 percent of the calculated proxy cost, which is largely based on daily natural gas prices. Tariff sections 30.4.1.1.1(b), 30.4.1.1.2(b), 30.4.1.1.5, 30.7.9(c), and 30.7.10 as revised in the CCE3 proceeding.

<sup>32</sup> Tariff section 30.4.1.2.

<sup>33</sup> Tariff section 30.4.1.2 as revised in the CCE3 proceeding. The registered costs are subject to a cap set at 150 percent of the calculated projected proxy cost, which includes monthly natural gas futures prices. Tariff section 39.6.1.6. Projected proxy cost is different from proxy cost and is determined using a different calculation. Both proxy cost and projected proxy cost are calculated using various inputs in addition to natural gas prices.

<sup>34</sup> Tariff section 39.7.1, *et seq.*



CAISO systems substitute the default energy bid for the resource's bid in the market clearing process and use the default energy bid to determine the resource's bid cost recovery compensation.<sup>35</sup> Default energy bids also factor into the settlement of residual imbalance energy and exceptional dispatches in some circumstances.<sup>36</sup>

Each scheduling coordinator can choose one of three options as its preferred option for calculating default energy bids: (1) the variable cost option; (2) the negotiated rate option; or (3) the locational marginal price option.<sup>37</sup> When the changes in the CCE3 tariff changes go into effect on April 1, 2019, use-limited resources subject to the variable cost option and that meet eligibility criteria specified in the tariff can include an opportunity cost adder in their default energy bids.<sup>38</sup>

### **3. Generated Bids**

The CAISO generates cost-based bids using the same cost components and resource-specific information used in the default energy bid under the variable cost option when a scheduling coordinator does not submit a bid for a resource adequacy resource subject to a must-offer requirement or under the generally applicable scheduling and bidding rules in the CAISO tariff and the business practice manual.<sup>39</sup> Use-limited resources that are resource adequacy resources and certain other types of resources are exempt from the resource adequacy must-offer bid generation rules.<sup>40</sup>

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<sup>35</sup> Tariff section 11.8, *et seq.*

<sup>36</sup> Tariff sections 11.5.5 and 11.5.6.

<sup>37</sup> Tariff sections 39.7.1 – 39.7.1.3. Further, a scheduling coordinator for a frequently mitigated unit has a fourth option for calculating default energy bids, the frequently mitigated unit option. Existing tariff section 39.7.1.4. The CAISO may also establish temporary default energy bids. Existing tariff section 39.7.1.5.

<sup>38</sup> Tariff sections 39.7.1.1 and 39.7.1.1.3 as revised in the CCE3 proceeding. The type of opportunity cost adder potentially available under the variable cost option are called variable energy opportunity costs. Tariff appendix A, definition of the term “Variable Energy Opportunity Costs” as accepted in the CCE3 proceeding.

<sup>39</sup> Tariff sections 30.7.3.4 and 40.6.8; tariff appendix A, definition of “Generated Bid.”

<sup>40</sup> Tariff section 40.6.8(e). Exemption from bid generation and exemption from RAAIM are distinct issues. It is possible for a resource to be exempt from bid generation but not to be exempt from RAAIM, or to be exempt from RAAIM but not to be exempt from bid generation.

### **C. Resource Adequacy**

The resource adequacy program in California was implemented by state law. Under the program, the CAISO works collaboratively with the California Public Utilities Commission (CPUC) and other local regulatory authorities to develop procurement requirements to ensure that the capacity procured by the load-serving entities under their respective jurisdictions is adequate to meet the CAISO's operational needs and maintain grid reliability.<sup>41</sup> The resource adequacy program requires that load-serving entities procure resource capacity to meet their forecasted load, plus a reserve margin, local area capacity needs, and their share of flexible resource adequacy requirements.

The CAISO's resource adequacy provisions are primarily set forth in section 40 of its tariff. Under the tariff provisions, resource adequacy resources subject to must-offer requirements – including use-limited resources as specified in the tariff provisions – must bid into the CAISO market based on their availability.<sup>42</sup> To the extent the resources fail to bid during the specified availability assessment hours, they are subject to charges under RAIM.<sup>43</sup>

Several tariff provisions on use-limited resources are included with the resource adequacy provisions in tariff section 40. As part of the CCE3 tariff changes the CAISO deleted tariff section 40.6.4.1, which addressed the registration of use-limited resources, but the CAISO left the other provisions in tariff section 40 on use-limited resources intact.

### **D. Data Required for Generating Resources**

The tariff requires each generator participating in the CAISO markets to provide data identifying each of its resources and such information regarding the capacity and operating characteristics of the resources as the CAISO may request from time to time. The CAISO maintains its Master File as an electronic repository for such data. The tariff requires that all information provided to the CAISO regarding the operational and technical constraints of a resource registered in the Master File be accurate and based on the resource's physical characteristics (except for the pump ramping conversion factor, which is configurable).<sup>44</sup>

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<sup>41</sup> Information regarding the resource adequacy program is available on the CPUC website at <http://www.cpuc.ca.gov/RA/>.

<sup>42</sup> Tariff section 40.6.4.3, *et seq.*

<sup>43</sup> Tariff section 40.9, *et seq.*

<sup>44</sup> Tariff section 4.6.4; tariff appendix A, definition of "Master File."

### **III. Proposed Tariff Revisions**

#### **A. Clarifications Regarding the Process to Obtain Use-Limited Resource Status**

The registration and validation process for use-limited resources requires each scheduling coordinator to demonstrate that the resource meets the use-limited resource criteria in the tariff.<sup>45</sup> The CAISO proposes to clarify that the registration and validation process requires the scheduling coordinator to demonstrate annually that the resource's limits meet the use-limited resource criteria specified in both the tariff and the business practice manual.<sup>46</sup> This will provide greater specificity regarding the registration and validation process.

The last of the three criteria that a resource must meet to be considered a use-limited resource is that the resource's ability to select hours of operation is not dependent on an energy source outside of the resource's control being available during such hours.<sup>47</sup> The CAISO proposes to clarify this third criterion to specify that it also requires that the resource's usage needs to be rationed.<sup>48</sup>

The CAISO also proposes to clarify that the following types of resources are not eligible to register as use-limited resources: reliability demand response resources; regulatory must-take generation, where 100 percent of the capacity is regulatory must-take; combined heat and power resources where 100 percent of the capacity is dedicated to a host industrial process; and variable energy resources.<sup>49</sup> These resource types are not eligible to be use-limited resources because they are unable to select the hours or energy output levels they can provide in the CAISO market. Therefore, they cannot satisfy the third criterion for use-limited resource status described above, and cannot be use-limited resources.

#### **B. Clarifications Regarding When Opportunity Cost Adders Will Be Available in the CAISO Markets**

The CAISO proposes to clarify there will be a one-month lag between the overall effective date of the CCE3 tariff changes (*i.e.*, April 1, 2019) and the earliest date that opportunity costs can be reflected in bids (*i.e.*, May 1, 2019).<sup>50</sup>

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<sup>45</sup> Tariff section 30.4.1.1.6.1 as accepted in the CCE3 proceeding.

<sup>46</sup> Tariff sections 30.4.1.1.6.1 and 30.4.1.1.6.1.1 as revised by this filing.

<sup>47</sup> Tariff section 30.4.1.1.6.1.1(3) as accepted in the CCE3 proceeding.

<sup>48</sup> Tariff section 30.4.1.1.6.1.1(3) as revised by this filing.

<sup>49</sup> Tariff section 30.4.1.1.6.1.1 as revised by this filing.

<sup>50</sup> Tariff section 30.4.1.1.6.1.2 as revised by this filing.

This lag is necessary because the CAISO must turn the Master File flags for use-limited resources on and trigger the first set of opportunity cost calculations, which will take at least several days, and possibly longer for the initial deployment. The CAISO requires opportunity costs to be available in the CAISO system to generate the opportunity cost adders. This tariff change provides greater clarity to market participants regarding when opportunity cost adders can be used in the CAISO markets, assuming the market participant has completed the process to establish opportunity costs and has established an opportunity cost adder by April 1.

The CAISO also proposes to provide minor clarifications to the tariff language that relating to the process for establishing and maintaining opportunity cost adders to require that scheduling coordinators demonstrate annually that the resource's limits continue to meet the use-limited criteria. Only resources that have an eligible limit will be use-limited resources. Only use-limited resources are eligible for an opportunity cost adder.

Regarding the calculation of opportunity cost adders, the CAISO proposes to delete a sentence in the tariff stating that circumstances may suggest there is a basis to update the calculations more frequently than each month<sup>51</sup> This proposed authority was not reflected in CCE3 policy development documents; rather, it was introduced in the tariff stakeholder process as permissive language based on one stakeholder's desire.<sup>52</sup> The Draft Final Proposal for the CCE3 Tariff Amendment explained that:

[t]he software platform that will be used to develop the model and calculate opportunity costs will be determined in implementation. Processing speeding of the software and required CAISO resource time will both determine how frequently the model can be run.<sup>53</sup>

Based on the costs and timeframe for development and delivery of software, the functionality to perform the calculations more frequently than on a monthly basis is not available. Nor is it feasible for the CAISO to perform this work through a manual process due to the magnitude of the data and calculations that would be required. The CAISO also does not believe the functionality to be necessary to

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<sup>51</sup> Tariff section 30.4.1.1.6.2.1 as revised by this filing.

<sup>52</sup> Page 33 of the Draft Final Proposal, Contained in attachment C to the CCE3 Tariff Amendment, explained that "the ISO proposes to run the model and update opportunity costs monthly," and page 4 of the CAISO Governing Board memorandum, contained in Attachment E thereto, stated that "[t]he ISO will update these opportunity costs monthly throughout the year to reflect the resource's actual commitment by the market."

<sup>53</sup> Footnote 15 of the Draft Final Proposal, contained in Attachment C to the CCE3 Tariff Amendment.

have at the outset. Because the functionality is not available, the CAISO must remove this sentence from the tariff. As the CAISO gains experience with the opportunity cost process and the monthly updates, the CAISO can evaluate and prioritize future enhancements, including whether intra-monthly updates might be an appropriate future enhancement.<sup>54</sup>

### **C. Clarifications Regarding Negotiated Default Energy Bids**

The CAISO proposes to revise the tariff provisions regarding the process for submitting a default energy bid under the negotiated rate option to specify that any negotiated default energy bid for a resource that includes a previously negotiated opportunity cost component as of April 1, 2019 (*i.e.*, the effective date of the CCE3 Tariff Amendment and the instant filing) will remain in effect, subject to the CAISO's renegotiation rights under the tariff, unless the scheduling coordinator seeks to obtain an opportunity cost adder. If the scheduling coordinator seeks to obtain an opportunity cost adder, the scheduling coordinator must either elect a default energy bid under the variable cost option or the CAISO will reopen the negotiated default energy bid to, at a minimum, ensure that the opportunity cost components are consistent to avoid any duplication of cost recovery.<sup>55</sup> This proposed tariff provision is just and reasonable because it allows scheduling coordinators to maintain their negotiated default energy bids (which include previously established opportunity costs) or to pursue an opportunity cost pursuant to the new methodology.

### **D. Clarifications Regarding the Resource Adequacy Provisions in Tariff Section 40**

#### **1. Clarifications to Address Resources with Limitations that No Longer Qualify as Use-Limited Resources**

Tariff section 40.6.4 defines availability requirements for use-limited resources that provide resource adequacy capacity. Implementation of the CCE3 tariff revisions on April 1, 2019, will render this section's provisions obsolete because the purpose of the opportunity cost policy is to provide a means for resources that meet the new definition of use-limited to bid 24 hours a day, 7 days a week so long as the opportunity costs are reflected in their bids. Use-limited resource adequacy resources will continue to be exempt from bid

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<sup>54</sup> The CAISO has made additional non-substantive changes to improve organization and clarity in the tariff sections relating to Opportunity Costs. In addition, the CAISO removed the reference to RMR Condition 2 resources from the category of ineligible resources. The CAISO's policy on CCE3 did not include this reference.

<sup>55</sup> Tariff section 39.7.1.3.1 as revised by this filing.

generation rules, which will provide additional flexibility for scheduling coordinators to manage resource limits.<sup>56</sup>

One consequence of narrowing the definition of a use-limited resource is certain resources that currently meet the definition based on regulatory or operational limitations would not qualify as use-limited resources under the CCE3 tariff changes. RSI phase one created bid generation and RAIM exemptions for specific technology types that exist independent of the resource's status as a use-limited resource. Nevertheless, the CAISO believes there inevitably will be other resources that either will not fall into a specific technology category for purposes of bid insertion and RAIM exemptions or that have regulatory restrictions for which the market cannot fully account.

Accordingly, the CAISO proposes to address this gap by establishing the availability requirements for resource adequacy resources with limitations that no longer will qualify as use-limited under the CCE3 narrower definition of a use-limited resource, but still face an inherent regulatory or operational limitation that prevents, or significantly interferes with, a 24/7 bidding obligation.<sup>57</sup> The CAISO proposes to delete all references in tariff section 40.6.4 to use-limited resources to make clear that the section no longer pertains to use-limited resources. The substance of the section, however, largely will remain in place and apply to resource adequacy resources that previously were use-limited.

In summary, resource adequacy resources that fall into this category would have the same bidding obligation they had as use-limited resources under the older and broader definition. The CAISO also proposes to define a "conditionally available resource" to be a resource with one or more regulatory or operational limits that are not eligible use limits, but that cause the resource to face frequent and recurring periods of unavailability.<sup>58</sup> In addition, the CAISO proposes to retain the category of "non-dispatchable resource," by modifying the existing defined term "non-dispatchable use-limited resource" to delete the

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<sup>56</sup> See CCE3 Order at PP 11, 28, 32, 34.

<sup>57</sup> Tariff sections 40.6.4, 40.6.4.1, and 40.6.4.3 as revised by this filing, and tariff sections 40.6.4.2, 40.6.4.3.1, 40.6.4.3.2(a)(1)-(2) and -(b), 40.6.4.3.3, and 40.6.4.3.4 as deleted by this filing. In addition, the CAISO proposes to include language in revised tariff section 40.6.4.1 regarding eligible intermittent resources that is currently contained in tariff section 40.6.4.3.4, and to include language in revised tariff section 40.6.4.2 regarding RUC availability bids that is currently contained in tariff section 40.6.4.3.2(a)(2).

<sup>58</sup> Tariff appendix A, definition of "Conditionally Available Resource" as added by this filing. The definition also states that a resource can be both a conditionally available resource and a use-limited resource if it has eligible use limits and also meets the definition of a conditionally available resource.

phrase “use-limited” from both the term and its definition.<sup>59</sup> The CAISO has revised tariff section 40.6.4 to specify the bidding obligations of these conditionally available resources and non-dispatchable resources.

## **2. Clarifications Regarding Exemptions from Generated Bids**

The CAISO proposes to add conditionally available resources and non-dispatchable resources (discussed above) to the list of resources in tariff section 40.6.8(e) that are exempt from the resource adequacy bid generation rules. This will ensure that such resources continue to be exempt from the bid generation rules even after they no longer meet the new definition of use-limited resources under CCE3. The CAISO also proposes several minor conforming changes to tariff section 40.6.8(e) to ensure that it covers the intended resources and to improve the clarity and syntax of the section.

Some stakeholders expressed concern that the CAISO may not be able to implement the new bid generation exemption proposed for conditionally available resources by April 1 implementation. They stated that they have yet to see draft technical documentation on how the exemption will be implemented and that the exemption would not be tested in market simulation. The CAISO discussed this matter with stakeholders and is confident that the new exemption will be available on April 1 because the CAISO can leverage existing functionality to implement these changes. No particular market simulation is necessary to test these existing systems.

Stakeholders also expressed concern about how a resource will register with the CAISO as a conditionally available resource. Although the specifics of the CAISO business processes for registering as a conditionally available resource are still being developed, the CAISO expects that it will be similar to the pre-CCE3 process for a resource to register as a use-limited resource – *i.e.*, the scheduling coordinator must explain how the resource meets the definition, provide supporting documentation of the relevant limit or limits, and furnish any additional relevant data as requested. The process will be included in the business practice manual as an implementation detail.

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<sup>59</sup> Tariff appendix A currently defines a “Non-Dispatchable Use-Limited Resource” in tariff appendix A as a use-limited resource that cannot be increased or curtailed at the direction of the CAISO in the real-time dispatch of the CAISO balancing authority area to supply or consume energy, such as certain qualifying facilities. In addition to deleting the phrase “use-limited” from the term and its definition, the CAISO proposes to clarify the definition by deleting the phrase “of the CAISO balancing authority area.” This change provides clarity because real-time dispatch does not necessarily have to be of the CAISO balancing authority area.

### 3. Clarifications Regarding Exemptions from RAIM

Tariff section 40.9.2(b)(1) states that variable energy resources are exempt from the RAIM provisions applicable to local and system capacity. The CAISO proposes to revise this language so the RAIM exemption instead applies to participating intermittent resources and to eligible intermittent resources in the process of qualifying to become participating intermittent resources.<sup>60</sup> This revision clarifies the resources exempt from RAIM under the current CAISO market design, namely wind and solar resources that are participating intermittent resources or are in the process of becoming participating resources.

The definition of a variable energy resource in the CAISO tariff is taken verbatim from the Commission's Order No. 764, and the CAISO added it to the tariff as part of the CAISO's compliance with that order.<sup>61</sup> In Order No. 764, the Commission recognized wind and solar resources as types of variable energy resources. The Commission left it to public utility transmission providers to determine whether they could develop the necessary power production forecasting requirements for other technology types that also arguably meet the definition of a variable energy resource.<sup>62</sup>

The CAISO has developed forecasting methodologies only for resources that operate distinctly as wind and solar resources.<sup>63</sup> Accordingly, for the purposes of the CAISO markets, only wind and solar resources are treated as variable energy resources. Using the broader term variable energy resource in tariff section 40.9.2(b)(1) has created confusion for other resource types, such as run-of-river hydro, that argue they should be exempt from RAIM because they meet the broad definition of a variable energy resource. Because the CAISO has no approved methodology for forecasting such resources, it has not offered

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<sup>60</sup> A participating intermittent resource is a variable energy resource whose output the CAISO can forecast pursuant to the CAISO's technical standards, and an eligible intermittent resource is a variable energy resource with a participating generator agreement (or similar agreement) with the CAISO. See tariff appendix A, definitions of "Participating Intermittent Resource" and "Eligible Intermittent Resource."

<sup>61</sup> See *Integration of Variable Energy Resources*, Order No. 764, FERC Stats. & Regs. ¶ 31,331, at P 210 (Order No. 764), *order on reh'g and clarification*, Order No. 764-A, 141 FERC ¶ 61,232 (2012), *order on clarification and reh'g*, Order No. 764-B, 144 FERC ¶ 61,222 (2013); *Cal. Indep. Sys. Operator Corp.*, 146 FERC ¶ 61,205, at P 17 (2014). Tariff appendix A defines a variable energy resource as a device for the production of electricity that is characterized by an energy source that: (1) is renewable; (2) cannot be stored by the facility owner or operator; and (3) has variability that is beyond the control of the facility owner or operator.

<sup>62</sup> Order No. 764 at P 213.

<sup>63</sup> See tariff appendix Q.



RAAIM exemptions for them. When the CAISO staff presented the initial RAAIM proposal to the CAISO Board of Governors for approval, it drew a direct connection between CAISO forecasting and the need for the RAAIM exemption, stating: “Under the ISO’s real-time market structure, wind and solar resources under the proposed availability incentive methodology would be assessed using the resources’ forecasts as a baseline for comparison. In other words, absent the exemption, these resources could be rewarded for performing less than other resources.”<sup>64</sup>

To clarify for market participants which resource types should expect a RAAIM exemption under section 40.9.2(b)(1), the CAISO proposes to revise this tariff section to reference participating intermittent resources and eligible intermittent resources in the process of qualifying to become participating intermittent resources, instead of variable energy resources more broadly. This provides clarity because only wind and solar resources currently can be participating intermittent resources. Under the tariff revisions, if the CAISO develops forecasting methodologies for technology types besides wind and solar, then at that point those other resources also would qualify for the exemption.

#### **4. Other Clarifications Regarding the Resource Adequacy Provisions**

The tariff sets forth the obligations of specific types of resource adequacy resources to make themselves available in the day-ahead and in real-time markets.<sup>65</sup> The CAISO needs to make conforming changes to these tariff provisions to follow other changes proposed in this filing. The CAISO proposes to delete the cross-references in the tariff provisions to the bidding exemptions for use-limited resources that are currently in tariff section 40.6.4, which the CAISO now proposes to revise so that it omits any mention of use-limited resources.<sup>66</sup>

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<sup>64</sup> See CAISO Board of Governors memo approving phase one of RSI, at 6, available at <http://www.caiso.com/Documents/DecisionReliabilityServicesPhase2-Memo-Mar2015.pdf>.

<sup>65</sup> Tariff sections 40.6.1 – 40.6.2. The tariff defines the day-ahead as the 24-hour period prior to the trading day and defines the real-time as any time period during the 24 operating hours of any given day. Tariff appendix A, definitions of “Day-Ahead” and “Real-Time.”

<sup>66</sup> Tariff sections 40.6.1, 40.6.1.1(a)-(b) and 40.6.2(f) as revised by this filing, and the deletion in this filing of the sentence in tariff section 40.6.3 stating that “[s]uch a resource that is also a Use-Limited Resource subject to Section 40.6.4 is required, consistent with their applicable use plan, to submit Economic Bids or Self-Schedules for Resource Adequacy Capacity into the Real-Time Market.”

Several sub-sections in tariff section 40 currently set forth real-time availability requirements for short start units, medium start units, long start units, and extremely long-start resources.<sup>67</sup> The CAISO proposes to clarify and consolidate these different provisions into tariff section 40.6.2. First, the CAISO proposes to state in tariff section 40.6.2 that short start units and medium start units that are resource adequacy resources without an IFM schedule or a RUC schedule for any of their resource adequacy capacity for a trading hour must be available to the CAISO through real-time as specified in the tariff.<sup>68</sup> The CAISO also proposes to clarify and move to tariff section 40.6.2 existing tariff language regarding real-time availability for long start units and extremely long-start resources.<sup>69</sup> The CAISO proposes no substantive changes to these provisions now being consolidated in tariff section 40.6.2.

#### **E. Enhance Tariff Provisions on Resource Characteristics Registered in the Master File**

The tariff currently requires that all information provided to the CAISO regarding the operational and technical constraints of resources registered in the Master File be accurate and based on resources' actual physical characteristics.<sup>70</sup> The CAISO proposed to clarify these tariff provisions in the CCE3 Tariff Amendment, but the Commission rejected that proposal because the tariff records in which those changes were included also included other tariff

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<sup>67</sup> Tariff sections 40.6.2(b) and (f), 40.6.3, and 40.6.7. The tariff defines a short start unit as a generating unit that has a cycle time of less than 5 hours, has a start-up time of less than 2 hours, and can be fully optimized with respect to this start-up time. The tariff defines a medium start unit as a generating unit that requires between 2 and 5 hours to start-up and synchronize to the grid. The tariff defines a long start unit as a generating unit that requires between 5 and 18 hours to start-up and synchronize to the grid. Lastly, the tariff defines an extremely long-start resource as a generating unit or a resource-specific system resource that has a start-up time of greater than 18 hours or a non-resource-specific system resource with certain contractual limitations. Tariff appendix A, definitions of "Short Start Unit," "Medium Start Unit," "Long Start Unit," and "Extremely Long-Start Resource."

<sup>68</sup> Tariff section 40.6.2(b) as revised by this filing. This new tariff language essentially says the same thing as the following tariff language in tariff section 40.6.3 that the CAISO proposes to delete: "A resource that is not a Long Start Unit or an Extremely Long-Start Resource [*i.e.*, that is a Short Start Unit or a Medium Start Unit] that is a Resource Adequacy Resource and that does not have an IFM Schedule or a RUC Schedule for any of its capacity in a given Trading Hour is required to participate in the Real-Time Market in accordance with Section 40.6.2."

<sup>69</sup> Compare tariff sections 40.6.2(b) as revised by this filing and tariff sections 40.6.2(c)-(d) as added by this filing, with tariff sections 40.6.2(f) and 40.6.7 as deleted by this filing and the deletion in this filing of the sentence in tariff section 40.6.3 stating that "[t]he CAISO may waive these availability obligations for a resource that is not a Long Start Unit or an Extremely Long-Start Resource that does not have an IFM Schedule or a RUC Schedule based on the procedure to be published on the CAISO Website."

<sup>70</sup> Existing tariff section 4.6.4.

amendments the Commission rejected on substantive grounds.<sup>71</sup> The language the CAISO re-proposes here was not severable because of that procedural and logistical issue; it was severable on substantive grounds. For that reason, the CAISO finds it is appropriate to refile these provisions in this tariff amendment to improve the tariff language and provide greater clarity.

The proposed revisions state that the information provided must be an accurate reflection of the design capabilities (rather than the physical characteristics, as under the current tariff) of a unit and its constituent equipment when operating at maximum sustainable performance over minimum run time, recognizing that resource performance may degrade over time. Information registered in the Master File must also conform to any additional and applicable definitional requirements in appendix A to the tariff. Further, a scheduling coordinator may not submit a bid for a generating unit or offer to provide any other service in the CAISO markets if that bid or offer could not be delivered feasibly based on the registered operational and technical constraints for that generating unit. All information registered in the Master File (except for certain information regarding the pump ramping conversion factor) must follow the offers and services provided by the resources in the CAISO markets.<sup>72</sup>

These clarifying changes will ensure that the Master File includes the most accurate information on a resource's actual capabilities, which in turn aligns with how it feasibly can participate in the CAISO markets. For example, a resource's maximum level of performance over a short increment of time would not reflect how that resource would perform in the CAISO market. Also, it is more feasible to determine objectively a resource's design capability than to determine objectively a resource's physical characteristics. The existing tariff reference to a resource's physical characteristics leaves open the question of whether the Master File should reflect what the unit is capable of doing when operated to its breaking point or whether the registered values may reflect how the unit is capable of performing when operated with its long-term maintenance interests in mind. The design capability approach, in contrast, involves how the unit was initially designed to be used, subject only to expected performance degradation that may occur as the equipment gets older. Thus, the design capability approach has clear benefits over the current tariff provisions.

The Commission should accept these clarifications. Although the Commission originally rejected identical clarifications in the CCE3 Order, the Commission explained that it "reject[ed] CAISO's proposal to replace physical characteristics with design capability values because it is not severable from the

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<sup>71</sup> See the discussion in section I of this transmittal letter.

<sup>72</sup> Tariff section 4.6.4 as revised by this filing.

[CAISO's] market values proposal," which the Commission also rejected.<sup>73</sup> The Commission found they are not severable because "[t]he design capability proposal is in the same tariff record as the market values proposal, and thus, since we are rejecting the market values proposal, we must also reject the design capability values proposal."<sup>74</sup> In the instant filing, however, the CAISO has included the design capability proposal in its own separate tariff record. Therefore, the Commission should accept that proposal here.

#### **F. Miscellaneous Tariff Clarifications**

In addition to the tariff changes discussed above, the CAISO proposes minor clarifications to:

- (1) Correct punctuation errors, reflect the April 1, 2019, effective date of the CCE3 tariff changes, use current tariff-defined terms, and update tariff cross-references;<sup>75</sup> and
- (2) Improve the syntax and clarify the meaning of certain tariff provisions.<sup>76</sup>

#### **IV. Effective Date and Request for Waiver of 60-Day Notice Period**

The CAISO requests that the Commission accept the tariff revisions in this filing effective April 1, 2019, one day short of the Commission's full 60-day notice requirement.<sup>77</sup> The CAISO respectfully requests that the Commission waive the 60-day notice requirement to permit these tariff revisions to become effective 60 days after the date of this filing, which includes the day of the requested effective date. Good cause exists to grant waiver in this instance because the requested effective date an effective date of April 1, 2019, will allow the clarifications in this filing to go into effect on the same date as the tariff revisions accepted by the Commission under the CCE3 Tariff Amendment.

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<sup>73</sup> CCE3 Order at P 47.

<sup>74</sup> *Id.* As explained above in section I of this transmittal letter, the CAISO filed a request for rehearing as to the Commission's rejection of certain proposals in the CCE3 Tariff Amendment.

<sup>75</sup> Tariff sections 30.4.1.1.6.1.1, 30.4.1.1.6.2.2, 40.6.5.1, 40.10.6.1(f), and 43A.5.1 as revised by this filing; tariff appendix A, definition of "Opportunity Costs" as revised by this filing.

<sup>76</sup> Tariff sections 40.6.1 and 40.9.2(a)(3) as revised by this filing.

<sup>77</sup> 18 C.F.R. §§ 35.3 and 35.11.

## V. Communications

Pursuant to Rule 203(b)(3) of the Commission's Rules of Practice and Procedure,<sup>78</sup> the individuals listed below are to receive correspondence and other communications regarding this filing:

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## VI. Service

The CAISO has served copies of this filing on the California Public Utilities Commission, the California Energy Commission, and all parties with scheduling coordinator agreements under the CAISO tariff. In addition, the CAISO has posted a copy of the filing on the CAISO website.

## VII. Contents of Filing

In addition to this transmittal letter, this filing includes the following attachments:

Attachment A	Clean CAISO tariff sheets incorporating this tariff amendment;
Attachment B	Red-lined document showing the revisions in this tariff amendment; and
Attachment C	List of key stakeholder dates

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<sup>78</sup> 18 C.F.R. § 385.203(b)(3).

**VIII. Conclusion**

For the reasons set forth above, the CAISO requests that the Commission accept the tariff revisions contained in this filing effective April 1, 2019.

Respectfully submitted,

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**Attachment A – Clean Tariff**

**Commitment Cost Enhancements and Reliability Services Initiative Clarifications**

**California Independent System Operator Corporation**

#### **4.6.4 Identification of Generating Units**

Each Participating Generator shall provide data identifying each of its Generating Units and such information regarding the capacity and the operating characteristics of the Generating Unit as may be reasonably requested from time to time by the CAISO. Each Participating Generator shall provide information on its governor setting and certify that it has not inhibited the real power response of any Generating Unit by any means that would override the governor response except as necessary to address physical operational constraints for reasons that include ambient temperature limitations, outages of mechanical equipment or regulatory considerations. In the event there is a need to inhibit the real power response of any Generating Unit, the Participating Generators shall provide a written description of this limitation with its certification. All information provided to the CAISO regarding the operational and technical constraints in the Master File must be an accurate reflection of the design capabilities of the resources and its constituent equipment when operating at maximum sustainable performance over Minimum Run Time, recognizing that resource performance may degrade over time. Information registered in the Master File by a Scheduling Coordinator must also conform to any additional definitional requirements in Appendix A as may exist as to that information. A Scheduling Coordinator may not submit a Bid for a Generating Unit or offer to provide any other service in the CAISO Markets if that Bid or offer could not be delivered feasibly based on the operational and technical constraints for that Generating Unit registered in the Master File. All information registered in the Master File shall be consistent with the offers and services provided by the resources in the CAISO Markets. The Pump Ramping Conversion Factor is configurable and need not reflect a resource's design capabilities.

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#### **30.4.1.1.6 Use-Limited Resources**

##### **30.4.1.1.6.1 Registration and Validation Process**

A Scheduling Coordinator seeking to obtain Use-Limited Resource status for resource(s) will follow the registration and validation process set forth in this CAISO Tariff and the Business Practice Manual. The registration and validation process requires each Scheduling Coordinator to demonstrate on an annual



basis that the resource has one or more limits that meet the Use-Limited Resource criteria as set forth in Section 30.4.1.1.6.1.1 and the Business Practice Manual, and allows each Scheduling Coordinator to seek to recover Opportunity Costs for Use-Limited Resources by making the demonstration set forth in Section 30.4.1.1.6.1.2.

#### **30.4.1.1.6.1.1 Use-Limited Resource Criteria**

In order for a resource to be considered a Use-Limited Resource, a Scheduling Coordinator must provide sufficient documentation demonstrating that the resource has one or more limit that meet all three of the following criteria:

- (1) The resource has one or more limitations affecting its number of starts, its number of run-hours, or its Energy output due to (a) design considerations, (b) environmental restrictions, or (c) qualifying contractual limitations;
- (2) The CAISO Market Process used to dispatch the resource cannot recognize the resource's limitation(s); and
- (3) The resource's ability to select hours of operation is not dependent on an energy source outside of the resource's control being available during such hours but the resource's usage needs to be rationed.

Design considerations that satisfy the requirements of this Section are those resulting from physical equipment limitations. A non-exhaustive list of such physical equipment limitations includes restrictions documented in original equipment manufacturer recommendations or bulletins, or limiting equipment such as storage capability for hydroelectric generating resources. Other design considerations that satisfy the requirements of this Section are those resulting from performance criteria for Demand Response Resources established pursuant to programs or contracts approved by Local Regulatory Authorities. Environmental restrictions that satisfy the requirements of this Section are those imposed by regulatory bodies, legislation, or courts. A non-exhaustive list of such environmental restrictions includes limits on emissions, water use restrictions, run-hour limitations in operating permits or other environmental limits that directly or indirectly limit starts, run hours, or MWh limits, but excludes restrictions with soft caps that allow the resource to increase production above the soft caps through the purchase of additional compliance instruments. Qualifying contractual limitations that satisfy the requirements of this Section are

those contained in long-term contracts that: (i) were reviewed and approved by a Local Regulatory Authority on or before January 1, 2015, or were pending approval by a Local Regulatory Authority on or before January 1, 2015 and were later approved; and (ii) were evaluated by the Local Regulatory Authority for the overall cost-benefit of those contracts taking into consideration the overall benefits and burdens, including the limitations on such resources' numbers of starts, numbers of run-hours, or Energy output. Contracts limits that provide for higher payments when start-up, run-hour, or Energy output thresholds are exceeded are not qualifying contractual limitations. Effective April 1, 2022, no contractual limitations will constitute qualifying contractual limitations that satisfy the requirements of this Section. Pursuant to a process set forth in the Business Practice Manual, the CAISO will review the limits and the supporting documentation provided by the Scheduling Coordinator as well as any translation of indirect limits to determine whether the Scheduling Coordinator has made the required showing under this Section. Any dispute regarding the CAISO's determination will be subject to the generally applicable CAISO ADR Procedures set forth in Section 13, which apply except where a CAISO Tariff provision expressly provides for a different means of resolving disputes.

The following types of resources are not eligible to register as Use-Limited Resources: Reliability Demand Response Resources, Regulatory Must-Take Generation, where 100% of the capacity is regulatory must-take, Combined Heat and Power Resources where 100% of the capacity is dedicated to a host industrial process, and Variable Energy Resources.

#### **30.4.1.1.6.1.2 Establishing Opportunity Cost Adders**

A Scheduling Coordinator for a Use-Limited Resource that elects the Proxy Cost methodology may seek to establish Opportunity Cost adders for any limitation(s) that meet all three (3) of the following criteria:

- (1) Satisfy the requirements of Section 30.4.1.1.6.1.1;
- (2) Apply for period(s) longer than the time horizon considered in the applicable Day-Ahead Market process; and
- (3) Can be reflected in a monthly, annual, and/or rolling twelve (12) month period.

The CAISO will review the documentation provided by the Scheduling Coordinator and determine whether the CAISO can calculate an Opportunity Cost pursuant to the methodology set forth in Section 30.4.1.1.6.2 using the Opportunity Cost calculator, or whether the Opportunity Cost for the limitation must

instead be established pursuant to the negotiation process set forth in Section 30.4.1.1.6.3. Resources with limits that can be modelled using the Opportunity Cost calculator, are not eligible for a negotiated Opportunity Cost. Any Opportunity Cost formula rate resulting from either through the calculated or negotiated process, will remain in place unless and until the formula rate is modified or terminated by the CAISO. Opportunity Costs determined pursuant to a formula rate will remain in place until updated pursuant to Section 30.4.1.1.6.2.1 or Section 30.4.1.1.6.3 to reflect any changes in input values to the formula rate. Any Opportunity Cost bid adder will not be available until the first day of the month following the effective date of this tariff section.

A Scheduling Coordinator may submit documentation, either to establish a new limitation or to modify an existing limitation, in which case the Scheduling Coordinator can request reconsideration that may result in a new formula rate. In addition, Scheduling Coordinators must demonstrate on an annual basis that the resource has one or more limits that meet the Use-Limited Resource criteria as required pursuant to Section 30.4.1.1.6.1. In accordance with Section 39.7.1.3.2.2, the CAISO will make informational filings with FERC of any new, modified, or terminated Opportunity Cost formula rate developed pursuant to Section 30.4.1.1.6.2 or negotiated pursuant to Section 30.4.1.1.6.3.

A Use-Limited Resource to the extent it has a limitation that satisfies the requirements of Section 30.4.1.1.6.1 but applies for a period less than or equal to the time horizon considered in the Day-Ahead Market, is not eligible for an Opportunity Cost for any limitation.

#### **30.4.1.1.6.2 Calculation of Opportunity Cost Adders**

##### **30.4.1.1.6.2.1 Calculation Schedule**

The CAISO will calculate, and will update the most recent calculations of, Start-Up Opportunity Costs for each validated limitation on a Use-Limited Resource's number of starts, Minimum Load Opportunity Costs for each validated limitation on a Use-Limited Resource's number of run-hours, and Variable Energy Opportunity Costs for each validated limitation on a Use-Limited Resource's Energy output for which the Scheduling Coordinator has made the required showing under Section 30.4.1.1.6.1.2. Such calculations or updated calculations will actually be used to set the adder for each validated limitation that can be reflected in a monthly or a rolling twelve (12) month period and will be advisory for each validated limitation that can be reflected in an annual period. The CAISO plans to perform the calculations and

updated calculations once a month. It is possible that circumstances may prevent the CAISO from performing the calculations on a monthly basis, in which case the CAISO will prioritize the workload based on Opportunity Costs most likely to need updating. The CAISO will provide the results of the calculations or updated calculations for a Use-Limited Resource to its Scheduling Coordinator.

In the event that the CAISO is unable to perform such calculations or updated calculations for all Use-Limited Resources, the CAISO will give priority to performing such calculations or updated calculations for those Use-Limited Resources that are currently on pace to reach their maximum allowed numbers of starts, maximum allowed numbers of run-hours, or maximum allowed Energy output more quickly than the most recent calculations of Opportunity Costs indicated. To the extent that the CAISO is unable to perform such calculations or updated calculations for a Use-Limited Resource, the CAISO will utilize the most recently calculated or updated Opportunity Costs that have been set or are advisory for the Use-Limited Resource.

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### **39.7.1.3 Negotiated Rate Option**

#### **39.7.1.3.1 Submission Process**

Scheduling Coordinators that elect the Negotiated Rate Option for the Default Energy Bid shall submit a proposed Default Energy Bid along with supporting information and documentation as described in a BPM. Within ten (10) Business Days of receipt, the CAISO or an Independent Entity selected by the CAISO will provide a written response. If the CAISO or Independent Entity accepts the proposed Default Energy Bid, it will generally become effective within eleven (11) Business Days from the date of acceptance by the CAISO and remain in effect until: (1) the Default Energy Bid is modified by FERC; (2) the Default Energy Bid is modified by mutual agreement of the CAISO and the Scheduling Coordinator; or (3) the Default Energy Bid expires, is terminated or is modified pursuant to any agreed upon term or condition or pertinent FERC order.

If the CAISO or Independent Entity selected by the CAISO does not accept the proposed Default Energy Bid, the CAISO or Independent Entity selected by the CAISO and the Scheduling Coordinator shall enter

a period of good faith negotiations that terminates sixty (60) days following the date of submission of a proposed Default Energy Bid by a Scheduling Coordinator. If at any time during this period, the CAISO or Independent Entity selected by the CAISO and the Scheduling Coordinator agree upon the Default Energy Bid, it will generally become effective within eleven (11) Business Days of the date of agreement and remain in effect until: (1) the Default Energy Bid is modified by FERC; (2) the Default Energy Bid is modified by mutual agreement of the CAISO and the Scheduling Coordinator; or (3) the Default Energy Bid expires, is terminated or is modified pursuant to any agreed upon term or condition or pertinent FERC order.

If by the end of the sixty (60)-day period the CAISO or Independent Entity selected by the CAISO and the Scheduling Coordinator fail to agree on the Default Energy Bid to be used under the Negotiated Rate Option, the Scheduling Coordinator has the right to file a proposed Default Energy Bid with FERC pursuant to Section 205 of the Federal Power Act.

During the sixty (60)-day period following the submission of a proposed negotiated Default Energy Bid by a Scheduling Coordinator, and pending FERC's acceptance in cases where the CAISO or Independent Entity selected by the CAISO fail to agree on the Default Energy Bid for use under the Negotiated Rate Option and the Scheduling Coordinator filed a proposed Default Energy Bid with FERC pursuant to Section 205 of the Federal Power Act, the Scheduling Coordinator has the option of electing to use any of the other options available pursuant to Section 39.7. If the Scheduling Coordinator does not elect to use any of the other options available pursuant to Section 39.7, or if sufficient data do not exist to calculate a Default Energy Bid using any of these options, the CAISO may establish a temporary Default Energy Bid as specified in Section 39.7.1.5.

Any negotiated Default Energy Bid for a resource that includes an opportunity cost component as of April 1, 2019, will remain in effect, subject to the CAISO's renegotiation rights pursuant to Section 39.7.1.3.2.1, unless the Scheduling Coordinator pursues an Opportunity Cost pursuant to Section 30.4.1.1.6.1.2. If a Scheduling Coordinator pursues an Opportunity Cost pursuant to Section 30.4.1.1.6.1.2, the Scheduling Coordinator must either elect the Variable Cost Default Energy Bid or the CAISO will renegotiate the negotiated Default Energy Bid to, at a minimum, utilize the Variable Energy Opportunity Cost as a component of the negotiated Default Energy Bid in place of any previously negotiated Opportunity Cost

value.

\* \* \* \* \*

#### **40.6.1 Day-Ahead Availability**

Except as otherwise provided in Sections 40.6.1.1 and 40.6.4, Scheduling Coordinators supplying Resource Adequacy Capacity shall make such Resource Adequacy Capacity, available Day-Ahead to the CAISO as follows:

- (1) Resource Adequacy Resources physically capable of operating must submit: (a) Economic Bids for Energy and/or Self-Schedules for all their Resource Adequacy Capacity and (b) Economic Bids for Ancillary Services and/or a Submission to Self-Provide Ancillary Services in the IFM for all of their Resource Adequacy Capacity that is certified to provide Ancillary Services. For Resource Adequacy Capacity that is certified to provide Ancillary Services and is not covered by a Submission to Self-Provide Ancillary Services, the resource must submit Economic Bids for each Ancillary Service for which the resource is certified. For Resource Adequacy Capacity subject to this requirement for which no Economic Energy Bid or Self-Schedule has been submitted, the CAISO shall insert a Generated Bid in accordance with Section 40.6.8. For Resource Adequacy Capacity subject to this requirement for which no Economic Bids for Ancillary Services or Submissions to Self-Provide Ancillary Services have been submitted, the CAISO shall insert a Generated Bid in accordance with Section 40.6.8 for each Ancillary Service the resource is certified to provide.
- (2) Resource Adequacy Resources must be available except for limitations specified in the Master File, legal or regulatory prohibitions or as otherwise required by this CAISO Tariff or by Good Utility Practice.
- (3) Through the IFM co-optimization process, the CAISO will utilize available Resource Adequacy Capacity to provide Energy or Ancillary Services in the most efficient manner to clear the Energy market, manage congestion and procure required Ancillary Services.

In so doing, the IFM will honor submitted Energy Self-Schedules of Resource Adequacy Capacity unless the CAISO is unable to satisfy one hundred percent (100%) of the Ancillary Services requirements. In such cases, the CAISO may curtail all or a portion of a submitted Energy Self-Schedule to allow Ancillary Service-certified Resource Adequacy Capacity to be used to meet the Ancillary Service requirements. The CAISO will not curtail for the purpose of meeting Ancillary Service requirements a Self-Schedule of a resource internal to a Metered Subsystem that was submitted by the Scheduling Coordinator for that Metered Subsystem. If the IFM reduces the Energy Self-Schedule of Resource Adequacy Capacity to provide an Ancillary Service, the Ancillary Service Marginal Price for that Ancillary Service will be calculated in accordance with Section 27.1.2 using the Ancillary Service Bids submitted by the Scheduling Coordinator for the Resource Adequacy Resource or inserted by the CAISO pursuant to this Section 40.6.1, and using the resource's Generated Energy Bid to determine the Resource Adequacy Resource's opportunity cost of Energy. If the Scheduling Coordinator for the Resource Adequacy Resource believes that the opportunity cost of Energy based on the Resource Adequacy Resource's Generated Energy Bid is insufficient to compensate for the resource's actual opportunity cost, the Scheduling Coordinator may submit evidence justifying the increased amount to the CAISO and to the FERC no later than seven (7) days after the end of the month in which the submitted Energy Self-Schedule was reduced by the CAISO to provide an Ancillary Service.

The CAISO will treat such information as confidential and will apply the procedures in Section 20.4 of this CAISO Tariff with regard to requests for disclosure of such information. The CAISO shall pay any higher opportunity costs approved by FERC.

- (4) A Resource Adequacy Resources must participate in the RUC to the extent that the resource has available Resource Adequacy Capacity that is not reflected in an IFM Schedule. Resource Adequacy Capacity participating in RUC will be optimized using a zero dollar (\$0/MW-hour) RUC Availability Bid.

- (5) Capacity from Resource Adequacy Resources selected in RUC will not be eligible to receive a RUC Availability Payment.

#### **40.6.1.1 Day-Ahead Availability -- Specific RA Resource Types**

- (a) **Distributed Generation Facilities** – Distributed Generation Facilities shall comply with the IFM and RUC bidding requirements that apply to the same technology type of a resource connected to the CAISO Controlled Grid.
- (b) **Non-Generator Resources**
  - (1) Non-Generator Resources that do not use Regulation Energy Management shall submit –
    - (A) Economic Bids or Self-Schedules into the IFM for all RA Capacity for all hours of the month the resource is physically capable of operating; and
    - (B) \$0/MW RUC Availability Bids for all RA Capacity for all hours of the month the resource is physically capable of operating,
  - (2) Non-Generator Resources using Regulation Energy Management shall submit Economic Bids or Self-Schedules into the IFM for all RA Capacity for Regulation for all hours of the month the resource is physically capable of operating.
- (c) **Extremely Long-Start Resources.** Extremely Long-Start Resources that are Resource Adequacy Resources must make themselves available to the CAISO by complying with -
  - (1) the Extremely Long-Start Commitment Process under Section 31.7 or otherwise committing the ELS Resource upon instruction from the CAISO, if physically capable; and
  - (2) the applicable provisions of Section 40.6.1 regarding Day-Ahead availability for the Trading Days for which it was committed.

#### **40.6.2 Real-Time Availability**

- (a) **General Requirement.** Resource Adequacy Resources that have received an IFM Schedule for Energy or Ancillary Services or a RUC Schedule for all or part of their Resource Adequacy Capacity must remain available to the CAISO through Real-Time for



Trading Hours for which they receive an IFM or RUC Schedule, including any Resource Adequacy Capacity of such resources that is not included in an IFM Schedule or RUC Schedule, except for Resource Adequacy Capacity that is subject to Section 40.6.4.

- (b) **Short Start Units or Medium Start Units.** Short Start Units or Medium Start Units that are Resource Adequacy Resources that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour must be available to the CAISO through Real-Time. Resource Adequacy Resources with Resource Adequacy Capacity that is required to be available to the CAISO through Real-Time and does not have an IFM Schedule or a RUC Schedule for a given Trading Hour must submit to the RTM for that Trading hour: (a) Energy Bids and Self-Schedules for the full amount of the available Resource Adequacy Capacity, including capacity for which it has submitted Ancillary Services Bids or Submissions to Self-Provide Ancillary Services; and (b) Ancillary Services Bids and Submissions to Self-Provide Ancillary Services for the full amount of the available Ancillary Service-certified Resource Adequacy Capacity and for each Ancillary Service for which the resource is certified, including capacity for which it has submitted Energy Bids and Self-Schedules. The CAISO may waive these availability obligations for a resource that is not a Long Start Unit or an Extremely Long-Start Resource that does not have an IFM Schedule or a RUC Schedule based on a procedure to be published on the CAISO Website. The CAISO will insert Generated Bids in accordance with Section 40.6.8 for any Resource Adequacy Capacity subject to the above requirements for which the resource has failed to submit the appropriate bids to the RTM.
- (c) **Long Start Units.** Long Start Units not committed in the Day-Ahead Market will be released from any further obligation to submit Self-Schedules or Bids for the relevant Operating Day. Scheduling Coordinators for Long Start Units are not precluded from self-committing the unit after the Day-Ahead Market and submitting a Self-Schedule or Wheeling-Out in the RTM, unless precluded by terms of their contracts.

- (d) **Extremely Long-Start Resources.** Once an Extremely Long-Start Resource providing Resource Adequacy Capacity is committed by the CAISO, it shall comply, for the Trading Days for it was committed, with the Real-Time availability provisions in sub-sections (a) and (b) of this Section 40.6.2, including those provisions that otherwise apply only to Short Start Units or Medium Start Units.
- (e) **Self-Schedules.** The CAISO will honor submitted Energy Self-Schedules of Resource Adequacy Capacity unless the CAISO is unable to satisfy one hundred (100) percent of its Ancillary Services requirements. In such cases, the CAISO may curtail all or a portion of a submitted Energy Self-Schedule to allow Ancillary Service-certified Resource Adequacy Capacity to be used to meet the Ancillary Service requirements, as long as such curtailment does not lead to a real-time shortfall in energy supply. If the CAISO reduces a submitted Real-Time Energy Self-Schedule for Resource Adequacy Capacity when that capacity is needed to meet an Ancillary Services requirement, the Ancillary Service Marginal Price for that capacity will be calculated in accordance with Sections 27.1.2 and 40.6.1.
- (f) **Distributed Generation Facilities.** Distributed Generation Facilities shall comply with the RTM bidding requirements that apply to the same technology type of resource connected to the CAISO Controlled Grid.
- (g) **Non-Generator Resources**
- (1) Non-Generator Resources that do not use Regulation Energy Management shall submit –
    - (A) Economic Bids or Self-Schedules into the RTM for any remaining RA Capacity scheduled in the IFM or RUC; and
    - (B) Economic Bids or Self-Schedules into the RTM for all RA Capacity not scheduled in the IFM.
  - (2) Non-Generator Resources using Regulation Energy Management that are not Use-Limited Resources under Section 40.4.6.1 shall submit Economic Bids or Self-Schedules into the RTM for any remaining RA Capacity from resource

scheduled in IFM or RUC.

#### **40.6.3 [Not Used]**

#### **40.6.4 Availability Requirements for Resources with Operational Limitations that are not Qualified Use-Limits**

##### **40.6.4.1 Must-Offer Obligation in DAM and RTM**

Any Hydroelectric Generating Unit, Pumping Load, Non-Dispatchable Resource, or Conditionally Available Resource that provides Resource Adequacy Capacity must submit Self-Schedules or Bids in the Day-Ahead Market for their expected available Energy or their expected as-available Energy, as applicable, in the Day-Ahead Market and RTM up to the quantity of Resource Adequacy Capacity the resource is providing. Such resources shall also revise their Self-Schedules or submit additional Bids in RTM based on the most current information available regarding Expected Energy deliveries.

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

##### **40.6.4.2 RUC Availability Bids**

The following resource types providing Resource Adequacy Capacity are not required to submit RUC Availability Bids for that capacity, but any such bids they do submit must be \$0/MW RUC Availability Bids: Hydroelectric Generating Units, Pumping Load, Reliability Demand Response Resources, Combined Heat and Power Resources, Regulatory Must-Take Generation, Non-Dispatchable Resources, Non-Generator Resources using Regulation Energy Management, Conditionally Available Resources, and Eligible Intermittent Resources.

##### **40.6.4.3 Ancillary Services Bids from Participating Loads that is Pumping Load**

Participating Load that is Pumping Load shall submit Non-Spin Ancillary Services Bids and/or a Submission to Self-Provide Non-Spin Ancillary Services in the Day-Ahead Market for its Resource Adequacy Capacity that is certified to provide Non-Spinning Reserve Ancillary Service, and Economic Bids for Energy in the Real-Time Market for its Non-Spinning Reserve Capacity that receives an Ancillary Service Award in the Day-Ahead Market.

#### **40.6.4.4 Proxy Demand Resources**

- (a) Short Start and Medium Start Proxy Demand Resources that provide Resource Adequacy Capacity shall submit \$0/MW RUC Availability Bids for all of their Resource Adequacy Capacity for all hours of the month the resource is physically available; however, any RUC schedule for these resources will not be binding.
- (b) Long Start Proxy Demand Resources are not required to submit Bids or Self Schedules in the RUC for their Resource Adequacy Capacity.

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#### **40.6.5.1 Additional Availability Requirements for Dynamic and Non-Dynamic Resource-Specific System Resources**

A Dynamic or Non-Dynamic Resource-Specific System Resource that supplies Resource Adequacy Capacity, and is not otherwise a Use-Limited Resource, will be subject to the requirements of Sections 40.6.1 and 40.6.2.

\* \* \* \* \*

#### **40.6.7 [Not Used]**

#### **40.6.8 Use of Generated Bids**

- (a) **Day-Ahead Market.** Prior to completion of the Day-Ahead Market, the CAISO will determine if Resource Adequacy Capacity subject to the requirements of Section 40.6.1 and for which the CAISO has not received notification of an Outage has not been reflected in a Bid and will insert a Generated Bid for such capacity into the CAISO Day-Ahead Market.
- (b) **Real-Time Market.** Prior to running the Real-Time Market, the CAISO will determine if Resource Adequacy Capacity subject to the requirements of Section 40.6.2 and for which the CAISO has not received notification of an Outage has not been reflected in a Bid and

will insert a Generated Bid for such capacity into the Real-Time Market.

- (c) **Partial Bids for RA Capacity.** If a Scheduling Coordinator for an RA Resource submits a partial bid for the resource's RA Capacity, the CAISO will insert a Generated Bid only for the remaining RA Capacity. In addition, the CAISO will determine if all dispatchable Resource Adequacy Capacity from Short Start Units, not otherwise selected in the IFM or RUC, is reflected in a Bid into the Real-Time Market and will insert a Generated Bid for any remaining dispatchable Resource Adequacy Capacity for which the CAISO has not received notification of an Outage.
- (d) **Calculation of Generated Bids.** A Generated Bid for Energy will be calculated pursuant to Sections 30.7.3.4 and 30.7.3.5. A Generated Bid for Ancillary Services will equal zero dollars (\$0/MW-hour).
- (e) **Exemptions.** Notwithstanding any of the provisions of Section 40.6.8, for the following resources types providing Resource Adequacy Capacity, the CAISO only inserts a Bid in the Day-Ahead Market or Real-Time Market where the generally applicable bidding rules in Section 30 call for bid insertion: Use-Limited Resource, Non-Generator Resource, Eligible Intermittent Resource, Hydroelectric Generating Unit, Proxy Demand Resource, Reliability Demand Response Resource, Participating Load, including Pumping Load, Combined Heat and Power Resource, Conditionally Available Resource, Non-Dispatchable Resource, and resources providing Regulatory Must-Take Generation.
- (f) **NRS-RA Resources.** The CAISO will submit a Generated Bid in the Day-Ahead Market or Real-Time Market for a non-Resource Specific System Resource in each RAAIM assessment hour, to the extent that the resource provides Resource Adequacy Capacity subject to the requirements of Sections 40.6.1 or 40.6.2 and does not submit an outage request or Bid for the entire amount of that Resource Adequacy Capacity.

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#### **40.8.1.6 Wind and Solar**

As used in this Section, wind units are those wind Generating Units without backup sources of Generation and solar units are those solar Generating Units without backup sources of Generation. Wind and solar units, other than Qualifying Facilities with Existing QF Contracts, must be Participating Intermittent Resources or subject to availability provisions of Section 40.6.4.

The Qualifying Capacity of all wind or solar units, including Qualifying Facilities, for each month will be based on their monthly historic performance during that same month during the hours of noon to 6:00 p.m., using a three-year rolling average. For wind or solar units with less than three years operating history, all months for which there is no historic performance data will utilize the monthly average production factor of all units (wind or solar, as applicable) within the TAC Area, or other production data from another area determined by the CAISO to be appropriate if the unit is not within

\* \* \* \* \*

#### **40.9.2 Exemptions**

- (a) **Capacity Exempt from RAAIM – All Provisions.** The entire capacity of a resource in any of the following categories is exempt from the RAAIM provisions in Section 40.9 --
  - (1) Resources with a PMax less than 1.0 MW;
  - (2) Non-specified resources that provide Resource Adequacy Capacity under contracts for Energy delivered within the CAISO Balancing Authority Area;
  - (3) Participating Load including Pumping Load; and
  - (4) RMR Units.
- (b) **Capacity Exempt from RAAIM – Local/System**
  - (1) The entire capacity of a resource in any of the following categories is exempt from the RAAIM provisions in Section 40.9 applicable to local and system Resource Adequacy Capacity –
    - (A) Participating Intermittent Resources;

- (B) Eligible Intermittent Resources in the process of qualifying to become a Participating Intermittent Resource; and
- (C) Combined Heat and Power Resources.

\* \* \* \* \*

#### **40.10.6 Flexible RA Capacity Must-Offer Obligation**

##### **40.10.6.1 Day-Ahead and Real-Time Availability**

\* \* \* \* \*

(f) **Short, Medium or Long Start Units.**

- (1) Short Start Units or Medium Start Units providing Flexible RA Capacity that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour are required to participate in the Real-Time Market consistent with the provisions in Section 40.6.2 that apply to Short Start Units providing RA Capacity.
- (2) Long Start Units providing Flexible RA Capacity that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour are required to participate in the Real-Time Market consistent with the provisions in Section 40.6.2 that apply to Long Start Units providing RA Capacity.
- (3) If availability is required under Section 40.6.2, the Scheduling Coordinator for the resource must submit to the RTM for that Trading hour for which the resource is capable of responding to Dispatch Instructions: (i) Energy Bids for the full amount of the available Flexible RA Capacity, including capacity for which it has submitted Ancillary Services Bids; and (ii) Ancillary Services Bids for the full amount of its Flexible RA Capacity that is certified to provide Ancillary Services, and for each Ancillary Service for which the resource is certified, including capacity for which it has submitted Energy Bids.

\* \* \* \* \*

**43A.5.1 Availability Obligations**

CPM Capacity shall be subject to all of the availability, dispatch, testing, reporting, verification and any other applicable requirements imposed under Section 40.6 or Section 40.10.6 as applicable to Resource Adequacy Resources identified in Resource Adequacy Plans and Flexible RA Capacity resources identified in Resource Flexible RA Capacity Plans. In accordance with those requirements, CPM Capacity designated under the CPM shall meet the Day-Ahead availability requirements specified in Section 40.6.1 and the Real-Time availability requirements of Section 40.6.2, and Flexible Capacity CPM shall meet the Day-Ahead and Real-Time availability requirements specified in Section 40.10.6.1. If the CAISO has not received an Economic Bid or a Self-Schedule for CPM Capacity, the CAISO shall utilize a Generated Bid in accordance with the procedures specified in Section 40.6.8. In addition to Energy Bids, resources designated under the CPM shall submit Ancillary Service Bids for their CPM Capacity to the extent that the resource is certified to provide the Ancillary Service.

\* \* \* \* \*

**Appendix A**

**Master Definition Supplement**

\* \* \* \* \*

**- Conditionally Available Resource**

A resource that has one or more regulatory or operational limits that are not eligible Use Limits pursuant to Section 30.4.1.1.6.1.2 and that faces frequent and recurring periods of unavailability because of those limitations. A resource can be both a Conditionally Available Resource and a Use-Limited Resource if it has eligible Use Limits and also meets the definition of a Conditionally Available Resource.

\* \* \* \* \*



**- Non-Dispatchable Resource**

A resource that cannot be increased or curtailed at the direction of the CAISO in the Real-Time Dispatch to Supply or consume Energy, such as certain Qualifying Facilities.

\* \* \* \* \*

**- Opportunity Costs**

Start-Up Opportunity Costs, Minimum Load Opportunity Costs, or Variable Energy Opportunity Costs.

**Attachment B – Marked Tariff**

**Commitment Cost Enhancements and Reliability Services Initiative Clarifications**

**California Independent System Operator Corporation**

#### 4.6.4 Identification of Generating Units

Each Participating Generator shall provide data identifying each of its Generating Units and such information regarding the capacity and the operating characteristics of the Generating Unit as may be reasonably requested from time to time by the CAISO. Each Participating Generator shall provide information on its governor setting and certify that it has not inhibited the real power response of any Generating Unit by any means that would override the governor response except as necessary to address physical operational constraints for reasons that include ambient temperature limitations, outages of mechanical equipment or regulatory considerations. In the event there is a need to inhibit the real power response of any Generating Unit, the Participating Generators shall provide a written description of this limitation with its certification. 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 except for~~ must be an accurate reflection of the design capabilities of the resources and its constituent equipment when operating at maximum sustainable performance over Minimum Run Time, recognizing that resource performance may degrade over time. Information registered in the Master File by a Scheduling Coordinator must also conform to any additional definitional requirements in Appendix A as may exist as to that information. A Scheduling Coordinator may not submit a Bid for a Generating Unit or offer to provide any other service in the CAISO Markets if that Bid or offer could not be delivered feasibly based on the operational and technical constraints for that Generating Unit registered in the Master File. All information registered in the Master File shall be consistent with the offers and services provided by the resources in the CAISO Markets. ~~The Pump Ramping Conversion Factor, which~~ is configurable and need not reflect a resource's design capabilities.

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#### 30.4.1.1.6 Use-Limited Resources

##### 30.4.1.1.6.1 Registration and Validation Process

A Scheduling Coordinator seeking to obtain Use-Limited Resource status for resource(s) will follow the registration and validation process set forth in this CAISO Tariff and the Business Practice Manual. The

registration and validation process requires each Scheduling Coordinator to demonstrate on an annual basis that the resources has one or more limits that meet the Use-Limited Resource criteria as set forth in Section 30.4.1.1.6.1.1 and the Business Practice Manual, and allows each Scheduling Coordinator to seek to recover Opportunity Costs for Use-Limited Resources by making the demonstration set forth in Section 30.4.1.1.6.1.2.

#### **30.4.1.1.6.1.1 Use-Limited Resource Criteria**

In order for a resource to be considered a Use-Limited Resource, a Scheduling Coordinator must provide sufficient documentation demonstrating that the resource has one or more limit that meets all three of the following criteria:

- (1) The resource has one or more limitations affecting its number of starts, its number of run-hours, or its Energy output due to (a) design considerations, (b) environmental restrictions, or (c) qualifying contractual limitations;
- (2) The CAISO Market Process used to dispatch the resource cannot recognize the resource's limitation(s); and
- (3) The resource's ability to select hours of operation is not dependent on an energy source outside of the resource's control being available during such hours but the resource's usage needs to be rationed.

Design considerations that satisfy the requirements of this Section are those resulting from physical equipment limitations. A non-exhaustive list of such physical equipment limitations includes restrictions documented in original equipment manufacturer recommendations or bulletins, or limiting equipment such as storage capability for hydroelectric generating resources. Other design considerations that satisfy the requirements of this Section are those resulting from performance criteria for Demand Response Resources established pursuant to programs or contracts approved by Local Regulatory Authorities. Environmental restrictions that satisfy the requirements of this Section are those imposed by regulatory bodies, legislation, or courts. A non-exhaustive list of such environmental restrictions includes limits on emissions, water use restrictions, run-hour limitations in operating permits or other environmental limits that directly or indirectly limit starts, run hours, or MWh limits, but excludes restrictions with soft caps that allow the resource to increase production above the soft caps through the purchase of additional

compliance instruments. Qualifying contractual limitations that satisfy the requirements of this Section are those contained in long-term contracts that: (i) were reviewed and approved by a Local Regulatory Authority on or before January 1, 2015, or were pending approval by a Local Regulatory Authority on or before January 1, 2015 and were later approved; and (ii) were evaluated by the Local Regulatory Authority for the overall cost-benefit of those contracts taking into consideration the overall benefits and burdens, including the limitations on such resources' numbers of starts, numbers of run-hours, or Energy output. Contracts limits that provide for higher payments when start-up, run-hour, or Energy output thresholds are exceeded are not qualifying contractual limitations. Effective ~~November 1, 2024~~ April 1, 2022, no contractual limitations will constitute qualifying contractual limitations that satisfy the requirements of this Section.

Pursuant to a process set forth in the Business Practice Manual, the CAISO will review the limits and the supporting documentation provided by the Scheduling Coordinator as well as any translation of indirect limits to determine whether the Scheduling Coordinator has made the required showing under this Section. Any dispute regarding the CAISO's determination will be subject to the generally applicable CAISO ADR Procedures set forth in Section 13, which apply except where a CAISO Tariff provision expressly provides for a different means of resolving disputes.

The following types of resources are not eligible to register as Use-Limited Resources: Reliability Demand Response Resources, Regulatory Must-Take Generation, where 100% of the capacity is regulatory must-take, Combined Heat and Power Resources where 100% of the capacity is dedicated to a host industrial process, and Variable Energy Resources.

#### **30.4.1.1.6.1.2 Establishing Opportunity Cost Adders**

A Scheduling Coordinator for a Use-Limited Resource that elects the Proxy Cost methodology may seek to establish Opportunity Cost adders for any limitation(s) that meet all three (3) of the following criteria:

- (1) Satisfy the requirements of Section 30.4.1.1.6.1.1;
- (2) Apply for period(s) longer than the time horizon considered in the applicable Day-Ahead Market process; and
- (3) Can be reflected in a monthly, annual, and/or rolling twelve (12) month period.

The CAISO will review the documentation provided by the Scheduling Coordinator and determine

whether the CAISO can calculate an Opportunity Cost pursuant to the methodology set forth in Section 30.4.1.1.6.2 using the Opportunity Cost calculator, or whether the Opportunity Cost for the limitation must instead be established pursuant to the negotiation process set forth in Section 30.4.1.1.6.3. Resources with limits that can be modelled using the Opportunity Cost calculator, are not eligible for a negotiated Opportunity Cost. Any Opportunity Cost formula rate resulting from either through the calculated or negotiated process, will remain in place unless and until the formula rate is modified or terminated by the CAISO. Opportunity Costs determined pursuant to a formula rate will remain in place until updated pursuant to Section 30.4.1.1.6.2.1 or Section 30.4.1.1.6.3 to reflect any changes in input values to the formula rate. Any Opportunity Cost bid adder will not be available until the first day of the month following the effective date of this tariff section.

A Scheduling Coordinator may submit documentation, either to establish a new limitation or to modify an existing limitation, in which case the Scheduling Coordinator can request reconsideration that may result in a new formula rate. In addition, Scheduling Coordinators must demonstrate on an annual basis that the resource has one or more limits that meet the Use-Limited Resource criteria as required pursuant to Section 30.4.1.1.6.1. In accordance with Section 39.7.1.3.2.2, the CAISO will make informational filings with FERC of any new, modified, or terminated Opportunity Cost formula rate developed pursuant to Section 30.4.1.1.6.2 or negotiated pursuant to Section 30.4.1.1.6.3.

~~The following types of Use-Limited Resource capacity are not eligible for an Opportunity Cost adder: the capacity of a Condition 2 RMR Unit, a Reliability Demand Response Resources, Regulatory Must Take capacity and any other type of A Use-Limited Resource to the extent it has a limitation that satisfies the requirements of Section 30.4.1.1.6.1 but applies for a period less than or equal to the time horizon considered in the Day-Ahead Market, is not eligible for an Opportunity Cost for any limitation.~~

### **30.4.1.1.6.2 Calculation of Opportunity Cost Adders**

#### **30.4.1.1.6.2.1 Calculation Schedule**

The CAISO will calculate, and will update the most recent calculations of, Start-Up Opportunity Costs for each validated limitation on a Use-Limited Resource's number of starts, Minimum Load Opportunity Costs for each validated limitation on a Use-Limited Resource's number of run-hours, and Variable Energy Opportunity Costs for each validated limitation on a Use-Limited Resource's Energy output for which the

Scheduling Coordinator has made the required showing under Section 30.4.1.1.6.1.2. Such calculations or updated calculations will actually be used to set the adder for each validated limitation that can be reflected in a monthly or a rolling twelve (12) month period and will be advisory for each validated limitation that can be reflected in an annual period. The CAISO plans to perform the calculations and updated calculations once a month. It is possible that circumstances may prevent the CAISO from performing the calculations on a monthly basis, in which case the CAISO will prioritize the workload based on Opportunity Costs most likely to need updating. ~~Similarly, circumstances may suggest there is a basis to update calculations more frequently, in which case the CAISO will also prioritize the workload based on Opportunity Costs most likely to need updating.~~—The CAISO will provide the results of the calculations or updated calculations for a Use-Limited Resource to its Scheduling Coordinator. In the event that the CAISO is unable to perform such calculations or updated calculations for all Use-Limited Resources, the CAISO will give priority to performing such calculations or updated calculations for those Use-Limited Resources that are currently on pace to reach their maximum allowed numbers of starts, maximum allowed numbers of run-hours, or maximum allowed Energy output more quickly than the most recent calculations of Opportunity Costs indicated. To the extent that the CAISO is unable to perform such calculations or updated calculations for a Use-Limited Resource, the CAISO will utilize the most recently calculated or updated Opportunity Costs that have been set or are advisory for the Use-Limited Resource.

\* \* \* \* \*

### **39.7.1.3 Negotiated Rate Option**

#### **39.7.1.3.1 Submission Process**

Scheduling Coordinators that elect the Negotiated Rate Option for the Default Energy Bid shall submit a proposed Default Energy Bid along with supporting information and documentation as described in a BPM. Within ten (10) Business Days of receipt, the CAISO or an Independent Entity selected by the CAISO will provide a written response. If the CAISO or Independent Entity accepts the proposed Default Energy Bid, it will generally become effective within eleven (11) Business Days from the date of

acceptance by the CAISO and remain in effect until: (1) the Default Energy Bid is modified by FERC; (2) the Default Energy Bid is modified by mutual agreement of the CAISO and the Scheduling Coordinator; or (3) the Default Energy Bid expires, is terminated or is modified pursuant to any agreed upon term or condition or pertinent FERC order.

If the CAISO or Independent Entity selected by the CAISO does not accept the proposed Default Energy Bid, the CAISO or Independent Entity selected by the CAISO and the Scheduling Coordinator shall enter a period of good faith negotiations that terminates sixty (60) days following the date of submission of a proposed Default Energy Bid by a Scheduling Coordinator. If at any time during this period, the CAISO or Independent Entity selected by the CAISO and the Scheduling Coordinator agree upon the Default Energy Bid, it will generally become effective within eleven (11) Business Days of the date of agreement and remain in effect until: (1) the Default Energy Bid is modified by FERC; (2) the Default Energy Bid is modified by mutual agreement of the CAISO and the Scheduling Coordinator; or (3) the Default Energy Bid expires, is terminated or is modified pursuant to any agreed upon term or condition or pertinent FERC order.

If by the end of the sixty (60)-day period the CAISO or Independent Entity selected by the CAISO and the Scheduling Coordinator fail to agree on the Default Energy Bid to be used under the Negotiated Rate Option, the Scheduling Coordinator has the right to file a proposed Default Energy Bid with FERC pursuant to Section 205 of the Federal Power Act.

During the sixty (60)-day period following the submission of a proposed negotiated Default Energy Bid by a Scheduling Coordinator, and pending FERC's acceptance in cases where the CAISO or Independent Entity selected by the CAISO fail to agree on the Default Energy Bid for use under the Negotiated Rate Option and the Scheduling Coordinator filed a proposed Default Energy Bid with FERC pursuant to Section 205 of the Federal Power Act, the Scheduling Coordinator has the option of electing to use any of the other options available pursuant to Section 39.7. If the Scheduling Coordinator does not elect to use any of the other options available pursuant to Section 39.7, or if sufficient data do not exist to calculate a Default Energy Bid using any of these options, the CAISO may establish a temporary Default Energy Bid as specified in Section 39.7.1.5.

[Any negotiated Default Energy Bid for a resource that includes an opportunity cost component as of April](#)



1, 2019, will remain in effect, subject to the CAISO's renegotiation rights pursuant to Section 39.7.1.3.2.1, unless the Scheduling Coordinator pursues an Opportunity Cost pursuant to Section 30.4.1.1.6.1.2. If a Scheduling Coordinator pursues an Opportunity Cost pursuant to Section 30.4.1.1.6.1.2, the Scheduling Coordinator must either elect the Variable Cost Default Energy Bid or the CAISO will renegotiate the negotiated Default Energy Bid to, at a minimum, utilize the Variable Energy Opportunity Cost as a component of the negotiated Default Energy Bid in place of any previously negotiated Opportunity Cost value.

\* \* \* \* \*

#### **40.6.1 Day-Ahead Availability**

Except as otherwise provided in Sections 40.6.1.1 and 40.6.4, Scheduling Coordinators supplying Resource Adequacy Capacity shall make ~~the-such~~ Resource Adequacy Capacity, available Day-Ahead to the CAISO, ~~except as provided in Section 40.6.1.1 for specific resource types, and Section 40.6.4 for Use-Limited Resources,~~ as follows:

- (1) Resource Adequacy Resources physically capable of operating must submit: (a) Economic Bids for Energy and/or Self-Schedules for all their Resource Adequacy Capacity and (b) Economic Bids for Ancillary Services and/or a Submission to Self-Provide Ancillary Services in the IFM for all of their Resource Adequacy Capacity that is certified to provide Ancillary Services. For Resource Adequacy Capacity that is certified to provide Ancillary Services and is not covered by a Submission to Self-Provide Ancillary Services, the resource must submit Economic Bids for each Ancillary Service for which the resource is certified. For Resource Adequacy Capacity subject to this requirement for which no Economic Energy Bid or Self-Schedule has been submitted, the CAISO shall insert a Generated Bid in accordance with Section 40.6.8. For Resource Adequacy Capacity subject to this requirement for which no Economic Bids for Ancillary Services or Submissions to Self-Provide Ancillary Services have been submitted, the CAISO shall insert a Generated Bid in accordance with Section 40.6.8 for each Ancillary Service the

resource is certified to provide.

- (2) Resource Adequacy Resources must be available except for limitations specified in the Master File, legal or regulatory prohibitions or as otherwise required by this CAISO Tariff or by Good Utility Practice.
- (3) Through the IFM co-optimization process, the CAISO will utilize available Resource Adequacy Capacity to provide Energy or Ancillary Services in the most efficient manner to clear the Energy market, manage congestion and procure required Ancillary Services. In so doing, the IFM will honor submitted Energy Self-Schedules of Resource Adequacy Capacity unless the CAISO is unable to satisfy one hundred percent (100%) of the Ancillary Services requirements. In such cases, the CAISO may curtail all or a portion of a submitted Energy Self-Schedule to allow Ancillary Service-certified Resource Adequacy Capacity to be used to meet the Ancillary Service requirements. The CAISO will not curtail for the purpose of meeting Ancillary Service requirements a Self-Schedule of a resource internal to a Metered Subsystem that was submitted by the Scheduling Coordinator for that Metered Subsystem. If the IFM reduces the Energy Self-Schedule of Resource Adequacy Capacity to provide an Ancillary Service, the Ancillary Service Marginal Price for that Ancillary Service will be calculated in accordance with Section 27.1.2 using the Ancillary Service Bids submitted by the Scheduling Coordinator for the Resource Adequacy Resource or inserted by the CAISO pursuant to this Section 40.6.1, and using the resource's Generated Energy Bid to determine the Resource Adequacy Resource's opportunity cost of Energy. If the Scheduling Coordinator for the Resource Adequacy Resource believes that the opportunity cost of Energy based on the Resource Adequacy Resource's Generated Energy Bid is insufficient to compensate for the resource's actual opportunity cost, the Scheduling Coordinator may submit evidence justifying the increased amount to the CAISO and to the FERC no later than seven (7) days after the end of the month in which the submitted Energy Self-Schedule was reduced by the CAISO to provide an Ancillary Service.  
  
The CAISO will treat such information as confidential and will apply the procedures in

Section 20.4 of this CAISO Tariff with regard to requests for disclosure of such information. The CAISO shall pay any higher opportunity costs approved by FERC.

- (4) A Resource Adequacy Resources must participate in the RUC to the extent that the resource has available Resource Adequacy Capacity that is not reflected in an IFM Schedule. Resource Adequacy Capacity participating in RUC will be optimized using a zero dollar (\$0/MW-hour) RUC Availability Bid.
- (5) Capacity from Resource Adequacy Resources selected in RUC will not be eligible to receive a RUC Availability Payment.

#### 40.6.1.1 Day-Ahead Availability -- Specific RA Resource Types

##### (a) Distributed Generation Facilities =

~~(1) Distributed Generation Facilities that are not Use-Limited Resources under Section 40.6.4.1 shall comply with the IFM and RUC bidding requirements that apply to the same technology type of a resource connected to the CAISO Controlled Grid.~~

~~(2) Distributed Generation Facilities that are Use-Limited Resources under Section 40.6.4.1 shall comply with the applicable IFM and RUC bidding requirements for Use-Limited Resources under Section 40.6.4.3.~~

##### (b) Non-Generator Resources

(1) Non-Generator Resources that do not use Regulation Energy Management ~~and are not Use-Limited Resources under Section 40.4.6.1~~ shall submit –

(A) Economic Bids or Self-Schedules into the IFM for all RA Capacity for all hours of the month the resource is physically capable of operating; and

(B) \$0/MW RUC Availability Bids for all RA Capacity for all hours of the month the resource is physically capable of operating,

(2) Non-Generator Resources using Regulation Energy Management ~~that are not Use-Limited Resources under Section 40.4.6.1~~ shall submit -

~~(A) Economic Bids or Self-Schedules into the IFM for all RA Capacity for Regulation for all hours of the month the resource is physically capable~~

of operating; ~~and~~

~~(B) — \$0/MW RUC Availability Bids for all RA Capacity for all hours of the month the resource is physically capable of operating;~~

~~(3) — Non-Generator Resources that are Use Limited Resources under Section 40.6.4.1 shall comply with the applicable IFM and RUC bidding requirements for Use Limited Resources under Section 40.6.4.3.~~

- (c) **Extremely Long-Start Resources.** Extremely Long-Start Resources that are Resource Adequacy Resources must make themselves available to the CAISO by complying with -
- (1) the Extremely Long-Start Commitment Process under Section 31.7 or otherwise committing the ELS Resource upon instruction from the CAISO, if physically capable; and
  - (2) the applicable provisions of Section 40.6.1 regarding Day-Ahead availability for the Trading Days for which it was committed.

#### 40.6.2 Real-Time Availability

- (a) **General Requirement.** Resource Adequacy Resources that have received an IFM Schedule for Energy or Ancillary Services or a RUC Schedule for all or part of their Resource Adequacy Capacity must remain available to the CAISO through Real-Time for Trading Hours for which they receive an IFM or RUC Schedule, including any Resource Adequacy Capacity of such resources that is not included in an IFM Schedule or RUC Schedule, except for Resource Adequacy Capacity that is subject to Section 40.6.4.
- (b) **Short Start Units or Medium ~~Long~~ Start Units.** Short Start Units or ~~Long~~ Medium Start Units that are Resource Adequacy Resources that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour ~~must may be required to~~ be available to the CAISO through Real-Time ~~as specified in Sections 40.6.3 and 40.6.7.~~ Resource Adequacy Resources with Resource Adequacy Capacity that is required to be available to the CAISO through Real-Time and does not have an IFM Schedule or a RUC Schedule for a given Trading Hour must submit to the RTM for that Trading hour: (a) Energy Bids and Self-Schedules for the full amount of the

available Resource Adequacy Capacity, including capacity for which it has submitted Ancillary Services Bids or Submissions to Self-Provide Ancillary Services; and (b) Ancillary Services Bids and Submissions to Self-Provide Ancillary Services for the full amount of the available Ancillary Service-certified Resource Adequacy Capacity and for each Ancillary Service for which the resource is certified, including capacity for which it has submitted Energy Bids and Self-Schedules. The CAISO may waive these availability obligations for a resource that is not a Long Start Unit or an Extremely Long-Start Resource that does not have an IFM Schedule or a RUC Schedule based on a procedure to be published on the CAISO Website. The CAISO will insert Generated Bids in accordance with Section 40.6.8 for any Resource Adequacy Capacity subject to the above requirements for which the resource has failed to submit the appropriate bids to the RTM.

- (c) **Long Start Units.** Long Start Units not committed in the Day-Ahead Market will be released from any further obligation to submit Self-Schedules or Bids for the relevant Operating Day. Scheduling Coordinators for Long Start Units are not precluded from self-committing the unit after the Day-Ahead Market and submitting a Self-Schedule or Wheeling-Out in the RTM, unless precluded by terms of their contracts.
- (d) **Extremely Long-Start Resources.** Once an Extremely Long-Start Resource providing Resource Adequacy Capacity is committed by the CAISO, it shall comply, for the Trading Days for it was committed, with the Real-Time availability provisions in sub-sections (a) and (b) of this Section 40.6.2, including those provisions that otherwise apply only to Short Start Units or Medium Start Units.
- (e) **Self-Schedules.** The CAISO will honor submitted Energy Self-Schedules of Resource Adequacy Capacity unless the CAISO is unable to satisfy one hundred (100) percent of its Ancillary Services requirements. In such cases, the CAISO may curtail all or a portion of a submitted Energy Self-Schedule to allow Ancillary Service-certified Resource Adequacy Capacity to be used to meet the Ancillary Service requirements, as long as such curtailment does not lead to a real-time shortfall in energy supply. If the CAISO

reduces a submitted Real-Time Energy Self-Schedule for Resource Adequacy Capacity when that capacity is needed to meet an Ancillary Services requirement, the Ancillary Service Marginal Price for that capacity will be calculated in accordance with Sections 27.1.2 and 40.6.1.

**(fd) Distributed Generation Facilities.**

~~(1) Distributed Generation Facilities that are not Use-Limited Resources under Section 40.6.4.1~~ shall comply with the RTM bidding requirements that apply to the same technology type of resource connected to the CAISO Controlled Grid.

~~(2) Distributed Generation Facilities that are Use-Limited Resources under Section 40.6.4.1 shall comply with the applicable RTM bidding requirements for Use-Limited Resources under Section 40.6.4.3.~~

**(ge) Non-Generator Resources**

(1) Non-Generator Resources that do not use Regulation Energy Management ~~and are not Use-Limited Resources under Section 40.4.6.1~~ shall submit –

(A) Economic Bids or Self-Schedules into the RTM for any remaining RA Capacity scheduled in the IFM or RUC; and

(B) Economic Bids or Self-Schedules into the RTM for all RA Capacity not scheduled in the IFM.

(2) Non-Generator Resources using Regulation Energy Management that are not Use-Limited Resources under Section 40.4.6.1 shall submit –

~~(A) Economic Bids or Self-Schedules into the RTM for any remaining RA Capacity from resource scheduled in IFM or RUC; and~~

~~(B) Economic Bids or Self-Schedules into the RTM for all RA Capacity not scheduled in IFM,~~

~~(3) Non-Generator Resources that are Use-Limited Resources under Section 40.6.4.1 shall comply with the applicable RTM bidding requirements for Use-Limited Resources under Section 40.6.4.3.~~

~~(f) Extremely Long-Start Resources. Once an Extremely Long-Start Resource~~

~~providing Resource Adequacy Capacity is committed by the CAISO, it shall comply with the applicable provisions of Section 40.6.2 regarding Real-Time availability for the Trading Days for which it was committed.~~

**40.6.3 ~~[Not Used] Additional Availability Requirements or Resources that Are Not Long Start Units or Extremely Long Start Resources~~**

~~A resource that is not a Long Start Unit or an Extremely Long Start Resource that is a Resource Adequacy Resource and that does not have an IFM Schedule or a RUC Schedule for any of its capacity for a given Trading Hour is required to participate in the Real Time Market in accordance with Section 40.6.2. Such a resource that is also a Use Limited Resource subject to Section 40.6.4 is required, consistent with their applicable use plan, to submit Economic Bids or Self Schedules for Resource Adequacy Capacity into the Real Time Market.~~

~~The CAISO may waive these availability obligations for a resource that is not a Long Start Unit or an Extremely Long Start Resource that does not have an IFM Schedule or a RUC Schedule based on the procedure to be published on the CAISO Website.~~

**40.6.4 ~~Use Limited Resources~~ Additional Availability Requirements for Resources with Operational Limitations that are not Qualified Use-Limits**

**40.6.4.1 ~~[Not Used]~~**

**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 provide the information described in the Business Practice Manual. 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, and any updates to those use plans, in accordance with the schedule set forth in the Business Practice Manual. 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~~

###### ~~(a) Must Offer Obligation. Must Offer Obligation in DAM and RTM~~

~~(1) Any Hydroelectric Generating Units, Pumping Load, and Non-Dispatchable Use-Limited Resources, or Conditionally Available Resource that provides Resource Adequacy Capacity but not Reliability Demand Response Resources, shall must submit Self-Schedules or Bids in the Day-Ahead Market for their expected available Energy or their expected as-available Energy, as applicable, in the Day-Ahead Market and RTM up to the quantity of Resource Adequacy Capacity the resource is providing. Such resources shall also revise their Self-Schedules or submit additional Bids in RTM based on the most current information available regarding Expected Energy deliveries.~~

~~An Eligible Intermittent Resource providing Resource Adequacy Capacity may, but is not required to, submit Bids in the Day-Ahead Market.~~

##### ~~40.6.4.2 RUC Availability Bids~~

~~(2) The following resource types providing Resource Adequacy Capacity are not required to submit RUC Availability Bids for that capacity, but any such bids they do submit must be \$0/MW RUC Availability Bids: Hydroelectric Generating Units, Pumping Load, Reliability Demand Response Resources,~~



~~Combined Heat and Power Resources, Regulatory Must-Take Generation, Non-Dispatchable Use-Limited Resources, Non-Generator Resources using Regulation Energy Management, Conditionally Available Resources, and Eligible Intermittent Resources Adequacy Resources providing Regulatory Must-Take Capacity are not required to submit RUC Availability Bids for that capacity, but any such bids they do submit must be \$0/MW RUC Availability Bids.~~

#### **40.6.4.3 Ancillary Services Bids from Participating Loads that is Pumping Load**

~~(3)~~ Participating Load that is Pumping Load shall submit Non-Spin Ancillary Services Bids and/or a Submission to Self-Provide Non-Spin Ancillary Services in the Day-Ahead Market for its Resource Adequacy Capacity that is certified to provide Non-Spinning Reserve Ancillary Service, and Economic Bids for Energy in the Real-Time Market for its Non-Spinning Reserve Capacity that receives an Ancillary Service Award in the Day-Ahead Market.

~~(b) Determination of Non-Dispatchable Status. 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.~~

#### **40.6.4.3.3 Availability of Use-Limited Resources During System Emergencies**

~~All Use-Limited Resources remain subject to Section 7.7.2.3 regarding System Emergencies to the extent the Use-Limited Resource is owned or controlled by a Participating Generator.~~

#### **40.6.4.3.4 Availability of Intermittent Resources**

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

#### **40.6.4.4.5 Proxy Demand Resources**

- (a) Short Start and Medium Start Proxy Demand Resources that provide Resource Adequacy Capacity shall submit \$0/MW RUC Availability Bids for all of their Resource Adequacy Capacity for all hours of the month the resource is physically available; however, any RUC schedule for these resources will not be binding.
- (b) Long Start Proxy Demand Resources are not required to submit Bids or Self Schedules in the RUC for their Resource Adequacy Capacity.

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#### **40.6.5.1 Additional Availability Requirements for Dynamic and Non-Dynamic Resource-Specific System Resources**

A Dynamic or Non-Dynamic Resource-Specific System Resource that supplies Resource Adequacy Capacity, and is not otherwise a Use-Limited Resource ~~under Section 40.6.4~~, will be subject to the requirements of Sections 40.6.1 and, 40.6.2 ~~and either Section 40.6.3 as a Short Start Unit or Section 40.6.7 as a Long Start Unit based upon the Dynamic Resource-Specific System Resource's registered physical operating characteristics~~.

\* \* \* \* \*

#### **40.6.7 ~~[Not Used] Release of Long Start Units~~**

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

#### **40.6.8 Use of Generated Bids**

- (a) **Day-Ahead Market.** Prior to completion of the Day-Ahead Market, the CAISO will determine if Resource Adequacy Capacity subject to the requirements of Section 40.6.1 and for which the CAISO has not received notification of an Outage has not been reflected in a Bid and will insert a Generated Bid for such capacity into the CAISO Day-Ahead Market.
- (b) **Real-Time Market.** Prior to running the Real-Time Market, the CAISO will determine if Resource Adequacy Capacity subject to the requirements of Section 40.6.2 and for which the CAISO has not received notification of an Outage has not been reflected in a Bid and will insert a Generated Bid for such capacity into the Real-Time Market.

- (c) **Partial Bids for RA Capacity.** If a Scheduling Coordinator for an RA Resource submits a partial bid for the resource's RA Capacity, the CAISO will insert a Generated Bid only for the remaining RA Capacity. In addition, the CAISO will determine if all dispatchable Resource Adequacy Capacity from Short Start Units, not otherwise selected in the IFM or RUC, is reflected in a Bid into the Real-Time Market and will insert a Generated Bid for any remaining dispatchable Resource Adequacy Capacity for which the CAISO has not received notification of an Outage.
- (d) **Calculation of Generated Bids.** A Generated Bid for Energy will be calculated pursuant to Sections 30.7.3.4 and 30.7.3.5. A Generated Bid for Ancillary Services will equal zero dollars (\$0/MW-hour).
- (e) **Exemptions.** Notwithstanding any of the provisions of Section 40.6.8, for the following resources types providing Resource Adequacy Capacity, the CAISO only will not insert any Bid in the Day-Ahead Market or Real-Time Market required under this Section 40 for Resource Adequacy Capacity of a where the generally applicable bidding rules in Section 30 call for bid insertion: Use-Limited Resource, Non-Generator Resource, ~~Variable Energy Resource~~ Eligible Intermittent Resource, Hydroelectric Generating Unit, Proxy Demand Resource, Reliability Demand Response Resource, Participating Load, including Pumping Load, Combined Heat and Power Resource, Conditionally Available Resource, Non-Dispatchable Resource, and or ~~resources~~ providing Regulatory Must-Take Generation ~~unless the resource submits an Energy Bid and fails to submit an Ancillary Service Bid or unless the generally applicable bidding rules in Section 30 apply.~~
- (f) **NRS-RA Resources.** The CAISO will submit a Generated Bid in the Day-Ahead Market or Real-Time Market for a non-Resource Specific System Resource in each RAIM assessment hour, to the extent that the resource provides Resource Adequacy Capacity subject to the requirements of Sections 40.6.1 or 40.6.2 and does not submit an outage request or Bid for the entire amount of that Resource Adequacy Capacity.

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#### 40.8.1.6 Wind and Solar

As used in this Section, wind units are those wind Generating Units without backup sources of Generation and solar units are those solar Generating Units without backup sources of Generation. Wind and solar units, other than Qualifying Facilities with Existing QF Contracts, must be Participating Intermittent Resources or subject to availability provisions of Section 40.6.4.~~3.4.~~

The Qualifying Capacity of all wind or solar units, including Qualifying Facilities, for each month will be based on their monthly historic performance during that same month during the hours of noon to 6:00 p.m., using a three-year rolling average. For wind or solar units with less than three years operating history, all months for which there is no historic performance data will utilize the monthly average production factor of all units (wind or solar, as applicable) within the TAC Area, or other production data from another area determined by the CAISO to be appropriate if the unit is not within

\* \* \* \* \*

#### 40.9.2 Exemptions

- (a) **Capacity Exempt from RAAIM – All Provisions.** The entire capacity of a resource in any of the following categories is exempt from the RAAIM provisions in Section 40.9 --
- (1) Resources with a PMax less than 1.0 MW;
  - (2) Non-specified resources that provide Resource Adequacy Capacity under contracts for Energy delivered within the CAISO Balancing Authority Area;
  - (3) Participating Load ~~including that is also~~ Pumping Load; and
  - (4) RMR Units.
- (b) **Capacity Exempt from RAAIM – Local/System**
- (1) The entire capacity of a resource in any of the following categories is exempt from the RAAIM provisions in Section 40.9 applicable to local and system Resource Adequacy Capacity –
    - (A) ~~Participating Intermittent Resources~~Variable Energy Resources; and
    - (B) Eligible Intermittent Resources in the process of qualifying to become a

Participating Intermittent Resource; and

(C) Combined Heat and Power Resources.

\* \* \* \* \*

**40.10.6 Flexible RA Capacity Must-Offer Obligation**

**40.10.6.1 Day-Ahead and Real-Time Availability**

\* \* \* \* \*

**(f) Short, Medium or Long Start Units.**

- (1) Short Start Units or Medium Start Units providing Flexible RA Capacity that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour are required to participate in the Real-Time Market consistent with the provisions in Section 40.6.~~23~~ that apply to Short Start Units providing RA Capacity.
- (2) Long Start Units providing Flexible RA Capacity that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour are required to participate in the Real-Time Market consistent with the provisions in Section 40.6.~~27~~ that apply to Long Start Units providing RA Capacity.
- (3) If availability is required under Section 40.6.~~23~~ or 40.6.7, the Scheduling Coordinator for the resource must submit to the RTM for that Trading hour for which the resource is capable of responding to Dispatch Instructions: (i) Energy Bids for the full amount of the available Flexible RA Capacity, including capacity for which it has submitted Ancillary Services Bids; and (ii) Ancillary Services Bids for the full amount of its Flexible RA Capacity that is certified to provide Ancillary Services, and for each Ancillary Service for which the resource is certified, including capacity for which it has submitted Energy Bids.

\* \* \* \* \*

**43A.5.1 Availability Obligations**

CPM Capacity shall be subject to all of the availability, dispatch, testing, reporting, verification and any other applicable requirements imposed under Section 40.6 or Section 40.10.6 as applicable to Resource Adequacy Resources identified in Resource Adequacy Plans and Flexible RA Capacity resources identified in Resource Flexible RA Capacity Plans. In accordance with those requirements, CPM Capacity designated under the CPM shall meet the Day-Ahead availability requirements specified in Section 40.6.1 and the Real-Time availability requirements of Section 40.6.2, and Flexible Capacity CPM shall meet the Day-Ahead and Real-Time availability requirements specified in Section 40.10.6.1. ~~Also in accordance with those requirements, Generating Units designated under the CPM that meet the definition of Short Start Units shall have the obligation to meet the additional availability requirements of Section 40.6.3, and Generating Units designated under the CPM that meet the definition of Long Start Units will have the rights and obligations specified in Section 40.6.7.1.~~

If the CAISO has not received an Economic Bid or a Self-Schedule for CPM Capacity, the CAISO shall utilize a Generated Bid in accordance with the procedures specified in Section 40.6.8. In addition to Energy Bids, resources designated under the CPM shall submit Ancillary Service Bids for their CPM Capacity to the extent that the resource is certified to provide the Ancillary Service.

\* \* \* \* \*

**Appendix A**

**Master Definition Supplement**

\* \* \* \* \*

**- Conditionally Available Resource**

A resource that has one or more regulatory or operational limits that are not eligible Use Limits pursuant to Section 30.4.1.1.6.1.2 and that faces frequent and recurring periods of unavailability because of those limitations. A resource can be both a Conditionally Available Resource and a Use-Limited Resource if it has eligible Use Limits and also meets the definition of a Conditionally Available Resource.

\* \* \* \* \*

**- Non-Dispatchable ~~Use-Limited~~ Resource**

A ~~Use-Limited R~~esource that cannot be increased or curtailed at the direction of the CAISO in the Real-Time Dispatch ~~of the CAISO Balancing Authority Area~~ to Supply or consume Energy, such as certain Qualifying Facilities.

\* \* \* \* \*

**- Opportunity Costs**

Start-Up Opportunity Costs, Minimum Load Opportunity Costs, or Variable Energy Opportunity Costs.

**Attachment C – Key Stakeholder Dates**

**Commitment Cost Enhancements and Reliability Services Initiative Clarifications**

**California Independent System Operator Corporation**



### **List of Key Dates in the Stakeholder Process for this Tariff Amendment**

<b>Date</b>	<b>Event/Due Date</b>
June 26, 2018	CAISO hosts CCE3 implementation meeting that includes presentation entitled "Use Limit Registration Process"
August 16	CAISO hosts CCE3 implementation workshop that includes presentation entitled "Use Limit Registration Clarifications"
September 10	CAISO hosts CCE3 implementation meeting that includes presentation entitled "Commitment Cost Enhancements Phase 3 Pre-Market Simulation Training"
October 19	CAISO issues draft tariff language to implement CCE3 clarifications
November 2	Due date for written stakeholder comments on draft tariff language issued on October 19
November 9	CAISO hosts CCE3 implementation workshop that includes presentation entitled "CCE3 Draft Tariff and BPM Language"
November 15	CAISO issues document entitled "Response to Stakeholder Comments on Draft Tariff and BPM Language CCE3 Implementation"
December 7	CAISO issues revised draft tariff language to implement CCE3 clarifications
December 14	Due date for written stakeholder comments on revised draft tariff language issued on December 7
December 18	CAISO hosts CCE3 implementation workshop that includes discussion of revised draft tariff language issued on December 7
January 24, 2019	CAISO issues second revised draft tariff language to implement CCE3 clarifications