

156 FERC ¶ 61,182  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Norman C. Bay, Chairman;  
Cheryl A. LaFleur, Tony Clark,  
and Colette D. Honorable.

California Independent System Operator Corporation      Docket Nos. ER16-1483-000  
ER16-1483-001

ORDER ON PROPOSED TARIFF REVISIONS

(Issued September 16, 2016)

1. On April 21, 2016, the California Independent System Operator Corporation (CAISO) filed, pursuant to section 205 of the Federal Power Act (FPA),<sup>1</sup> proposed revisions to certain sections of its tariff addressing CAISO's compliance with North American Electric Reliability Corporation (NERC) Reliability Standard BAL-003-1.1 – Frequency Response and Frequency Bias Setting (BAL-003-1.1). In this order, we accept CAISO's filing, subject to condition, effective August 15, 2016, as requested.

**I. Background**

2. On January 16, 2014, the Commission issued Order No. 794 approving NERC Reliability Standard BAL-003-1 (BAL-003-1),<sup>2</sup> which assigns certain primary frequency response responsibilities to balancing authorities and to Frequency Response Sharing

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<sup>1</sup> 16 U.S.C. § 824d (2012).

<sup>2</sup> *Frequency Response and Frequency Bias Setting Reliability Standard*, Order No. 794, 146 FERC ¶ 61,024 (2014) (Order No 794). On November 13, 2015, the Commission issued a delegated letter order approving an errata filing, BAL-003-1.1, to correct certain errors in NERC's original BAL-003-1 petition.

Groups.<sup>3</sup> BAL-003.1.1 has the stated purpose “[t]o require sufficient Frequency Response from the Balancing Authority (BA) to maintain Interconnection Frequency within predefined bounds by arresting frequency deviations and supporting frequency until the frequency is restored to its scheduled value.” BAL-003.1.1 assigns a Frequency Response Obligation to each BA by apportioning the Interconnection’s obligation on a *pro-rata* basis based on each BA’s load and generation.

3. CAISO states that it has proposed tariff revisions to help it comply with the new frequency response requirements of BAL-003-1.1, which will become enforceable on December 1, 2016.<sup>4</sup> CAISO states that, in 2015, it assessed its frequency response capabilities from 2012-2015 and determined that it was at risk of not meeting its future compliance obligation under BAL-003-1.1. CAISO states that in recent years it has experienced deteriorating frequency response performance and its assessment revealed that had the standard previously been in effect it would have been out of compliance. CAISO states that it attributes the decline in performance to the increased proportion of renewable resources operating in its balancing authority area and to the manner in which some non-renewable generators have configured their governor settings or plant controls.<sup>5</sup>

4. CAISO states that it has divided its compliance process with BAL-003-1.1 into two stages: (1) Phase One, which addresses near-term compliance; and (2) Phase Two, which will address long-term compliance through market mechanisms. In the instant filing, CAISO proposes several measures that it states will help it meet its near-term compliance obligations starting December 1, 2016. CAISO explains that, among other things, the proposed tariff revisions seek to clarify and enhance market rules regarding the primary frequency response capabilities of generators with governor controls. The proposal would also authorize CAISO to procure transferred frequency response from other BAs in the Western Interconnection and allocate the cost of that procurement to load on the CAISO system.

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<sup>3</sup> NERC defines a Frequency Response Sharing Group as a “group whose members consist of two or more Balancing Authorities that collectively maintain, allocate, and supply operating resources required to jointly meet the sum of the Frequency Response obligations of its members.”

<sup>4</sup> CAISO Transmittal Letter at 1.

<sup>5</sup> *Id.* at 4.

5. Specifically, in this filing, CAISO proposes to revise its tariff to: (1) clarify requirements for participating generators with governor controls; (2) establish its authority to procure transferred frequency response; (3) allocate the cost of transferred frequency response to CAISO load; (4) clarify CAISO's practice of designating operating reserves procured day-ahead as contingency reserves in real-time; and (5) clarify which entities generally issue voltage schedules.

## **II. Notice of Filings, Responsive Pleadings, and Deficiency Letter**

6. Notice of CAISO's filing was published in the *Federal Register*, 81 Fed. Reg. 25664 (2016) with interventions and protests due on or before May 12, 2016. NERC, NRG Power Marketing LLC and GenOn Energy Management, Southern California Edison (SoCal Edison), Northern California Power Agency, Pacific Gas & Electric Company (PG&E), the City of Santa Clara, the Cogeneration Association of California & Energy Producers and Users Coalition, Modesto Irrigation District, and NextEra Energy Resources filed motions to intervene. The California Department of Water Resources State Water Project (CDWR) filed a motion to intervene and comments that did not oppose the filing. Powerex Corp. (Powerex) filed a motion to intervene and comments in support. Protests were filed by the NRG Companies (NRG), the Western Power Trading Forum (WPTF), and the Cities of Anaheim, Azusa, Banning, Colton, Pasadena and Riverside (Six Cities). On May 19, 2016, CAISO filed an answer to comments and protests.

7. On June 17, 2016, Commission staff issued a deficiency letter requesting additional information regarding CAISO's proposal. On July 18, 2016, CAISO filed supplemental information in response to the deficiency letter (July 18 Supplemental Filing).<sup>6</sup> Notice of CAISO's July 18 Supplemental Filing was published in the *Federal Register*, 81 Fed. Reg. 48784 (2016) with interventions and protests due on or before August 8, 2016. Powerex filed timely comments on the July 18 Supplemental Filing. WPTF filed a timely protest. On August 10, 2016, CAISO filed an answer to WPTF's protest.

## **III. Discussion**

### **A. Procedural Issues**

8. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2) (2016), prohibits an answer to a protest or answer unless otherwise ordered by the decisional authority. We will accept CAISO's May 19 and August 10 answers because they provided information that assisted us in our decision-making process.

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<sup>6</sup> The tariff records filed on April 21, 2016 in Docket No. ER16-1483-000 are moot.

**B. Substantive Issues**

9. We accept CAISO's proposed tariff revisions, subject to condition, as discussed below.<sup>7</sup>

**1. Requirements for Generators with Governor Controls****a. CAISO Proposal**

10. CAISO's tariff currently requires participating generators to meet all applicable reliability criteria, including reliability standards established by NERC and the regional Western Electricity Coordinating Council (WECC) criteria. Currently, WECC criterion PRC-001-WECC-CRT-1.2 requires generator owners with units that have governor controls to set the governor droop for each unit from three to five percent.<sup>8</sup> CAISO states that the purpose of this criterion is to help facilitate the provision of primary frequency response in the Western Interconnection. CAISO further states that given its deteriorating performance during frequency disturbance events, it proposes that participating generators with governor controls be required to: (1) set the governor droop for each generating unit with governor controls no higher than four percent droop for combustion turbines and five percent droop for other technology types; (2) use a deadband no larger than  $\pm 0.036$  Hz; and (3) not inhibit primary frequency response except under certain operational constraints such as ambient temperature limitations, outages of mechanical equipment, or regulatory considerations.<sup>9</sup> CAISO expects that these combined requirements will result in greater frequency response from existing resources as compared to the existing WECC droop criterion.

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<sup>7</sup> The Commission can revise a proposal filed under section 205 of the FPA as long as the filing utility accepts the change. See *City of Winnfield v. FERC*, 744 F.2d 871, 875-77 (D.C. Cir. 1984). The filing utility is free to indicate that it is unwilling to accede to the Commission's conditions by withdrawing its filing.

<sup>8</sup> CAISO Transmittal Letter at 7 (citing WECC Criterion PRC-001-WECC-CRT-1.2 – Governor Droop Setting, <https://www.wecc.biz/Reliability/PRC-001-WECC-CRT-1.2.pdf>.)

<sup>9</sup> *Id.* at 7 and 9.

11. CAISO states that its proposed governor droop settings are consistent with the Primary Frequency Control Guideline<sup>10</sup> published by NERC's Operating Committee.<sup>11</sup> CAISO also states that NERC's guideline specifically states that many combustion turbines have a four percent droop setting, and therefore CAISO believes that this is an appropriate rule to include in its tariff.<sup>12</sup> CAISO notes that it is not precluding the use of a range of droop settings, but is merely establishing a maximum droop setting, and that resources can configure their droop setting at a lower level within the range allowed by WECC's criterion, i.e., down to three percent. CAISO states that having more resources that can respond to frequency deviations will enhance its ability to arrest frequency declines.<sup>13</sup>

12. Under CAISO's proposal, participating generators with governor controls must also set their governors to be fully responsive to frequency deviations exceeding  $\pm 0.036$  Hz. CAISO states that NERC's guideline recommends governor deadband maximums of  $\pm 0.036$  Hz for the Eastern, Western, and ERCOT Interconnections, and therefore the Commission should accept this tariff revision as just and reasonable.<sup>14</sup>

13. As noted above, CAISO proposes to clarify that participating generators may not inhibit primary frequency response except under certain operational constraints.<sup>15</sup> CAISO

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<sup>10</sup> On February 5, 2015, NERC issued an Industry Advisory on the subject of generator governor frequency response. NERC Advisories are designed to improve reliability by disseminating critical reliability information and are made available by NERC pursuant to Rule 810 of NERC's Rules of Procedure. NERC, *Industry Advisory: Generator Governor Frequency Response* (February 2015), <http://www.nerc.com/pa/rrm/bpsa/Alerts%20DL/2015%20Alerts/NERC%20Alert%20A-2015-02-05-01%20Generator%20Governor%20Frequency%20Response.pdf>.

<sup>11</sup> CAISO Transmittal Letter at 8.

<sup>12</sup> *Id.*

<sup>13</sup> *Id.*

<sup>14</sup> *Id.* at 9.

<sup>15</sup> Section 4.6.5.1 of the CAISO tariff currently states, "Participating Generators shall...meet all Applicable Reliability Criteria, including any standards regarding governor response capabilities, use of power system stabilizers, voltage control capabilities and hourly Energy delivery."

states that blocking the governor of a generator unit can result in system instability because fewer units will be capable of reacting to system frequency deviations and may impede restoring system frequency following a disturbance. CAISO argues that this proposal is consistent with NERC's guideline that prime mover governor, plant controls, and remote plant controls are coordinated, and that this tariff rule will strengthen the system's capability to respond to frequency deviations.<sup>16</sup>

14. In addition to the existing tariff provision that generators must provide information regarding the capacity and operating characteristics of their generating units,<sup>17</sup> CAISO proposes to require participating generators to submit their physical parameters for frequency response capability to CAISO. Specifically, CAISO proposes to require participating generators to provide it with information on their governor settings and certify that they have not inhibited the real power response of any unit by any means that would override the governor response except as necessary to address physical operational constraints. In the event that there is a need to inhibit the real power response of any unit, CAISO proposes to require participating generators to provide a written description of this limitation with its certification.<sup>18</sup>

**b. Deficiency Letter**

15. The June 17 Deficiency Letter asked that CAISO explain why the proposed tariff revisions only applied to resources with governor controls rather than all participating generators equipped to provide primary frequency response, including non-synchronous resources.

**c. July 18 Supplemental Filing**

16. In its July 18 response to the Deficiency Letter, CAISO states the clarifying droop setting requirements for generators with governor controls as a tariff obligation will help facilitate compliance with BAL-003-1.1.<sup>19</sup> CAISO also states that in the stakeholder process it did not explore requirements for resources with frequency control devices other

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<sup>16</sup> CAISO Transmittal Letter at 9.

<sup>17</sup> CAISO tariff section 4.6.4.

<sup>18</sup> CAISO Transmittal Letter at 10 (citing proposed tariff section 4.6.4).

<sup>19</sup> July 18 Supplemental Filing at 3.

than governors as part of its short-term strategy for compliance with BAL-003-1.1.<sup>20</sup> CAISO adds that it will examine these requirements for Phase Two of its initiative as part of a long-term compliance strategy. CAISO notes that under its existing Commission-approved tariff, a resource with a frequency responsive device other than a governor that seeks to provide spinning reserve in the CAISO markets must be frequency responsive and meet specific criteria.<sup>21</sup> CAISO further notes that it is working with a non-synchronous resource to test its capability to provide primary frequency response after a disturbance event and will use the results of this test during its Phase Two initiative in which it will examine, among other things, minimum requirements for non-synchronous generators with the necessary capability to provide primary frequency response.<sup>22</sup>

**d. Commission Determination**

17. We find that the proposed tariff revisions regarding requirements for generators with governor controls are a just and reasonable condition of participation in CAISO's markets. Just as load serving entities "benefit from the reliable supply of energy at just and reasonable prices,"<sup>23</sup> generators benefit from the confidence customers gain in CAISO's markets by the provision of uninterrupted service. As stated in its supplemental filing, CAISO has observed a decrease in the performance by resources on its system in response to frequency disturbance events in recent years. Therefore, it is not unreasonable to require participating generators to accept, as a condition of participation, an obligation that helps CAISO "maintain a reliable [provision of service] at just and reasonable prices."<sup>24</sup> Furthermore, as CAISO indicates, the droop and deadband requirements for generators with governor controls are consistent with currently effective tariff language regarding

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<sup>20</sup> *Id.* at 4.

<sup>21</sup> *Id.* at 4-5.

<sup>22</sup> *Id.* at 5.

<sup>23</sup> *Cal. Indep. Sys. Operator Corp.*, 116 FERC ¶ 61,274, at P 1116 (2006), *order on reh'g*, 119 FERC ¶ 61,076 (2007), *order on reh'g and denying motion to reopen record*, 120 FERC ¶ 61,271 (2007).

<sup>24</sup> *Id.* Given that CAISO indicates in its supplemental filing that it is still testing potential minimum requirement for participating generators with frequency responsive devices other than governor controls, we find that limiting this requirement to generators with governor controls to be reasonable.

governor response capabilities.<sup>25</sup> Additionally, the requirements are consistent with NERC and WECC guidelines, as noted by CAISO and described above, and will improve system responsiveness to frequency deviations. We also find that the proposed requirements for participating generators to provide CAISO with information about their governor settings are consistent with the practices recommended by NERC. Therefore, we accept CAISO's proposed changes to sections 4.6.4, 4.6.5.1, and Appendix K of its tariff regarding requirements for participating generators, effective August 15, 2016, as requested.

## 2. Authority to Procure Transferred Frequency Response

### a. CAISO Proposal

18. CAISO proposes to revise its tariff in order to procure transferred frequency response from other BAs. CAISO explains that transferred frequency response is a compliance instrument and does not involve the provision or exchange of physical services. CAISO states that a BA selling transferred frequency response would decrease the frequency response performance it reports on NERC compliance forms while a BA that procures transferred frequency response would increase its reported performance by the procured amount.<sup>26</sup> To capture these elements, CAISO proposes to include a definition of transferred frequency response in Appendix A of its tariff. CAISO proposes to define transferred frequency response as:

A frequency response performance obligation under Applicable Reliability Criteria expressed in MW/0.1 Hz that a receiving Balancing Authority may acquire under an arrangement whereby another Balancing Authority increases its performance obligation by the same amount, or that a delivering Balancing Authority may provide under an arrangement whereby another Balancing Authority reduces its performance obligation by the same amount. Transferred Frequency Response is a compliance instrument and there is no exchange of physical services between Balancing Authorities.

Transferred Frequency Response is reported on applicable NERC/WECC forms, and applied consistently to each reported frequency disturbance event. On these forms, the delivering Balancing Authority increases its

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<sup>25</sup> See CAISO tariff section 4.6.5.1.

<sup>26</sup> CAISO Transmittal Letter at 10-11 (citing proposed Appendix A).



performance obligation and the receiving Balancing Authority decreases its performance obligation by the same amount.<sup>27</sup>

19. CAISO states that it will procure transferred frequency response in advance of a compliance year and that the right to adjust its reported performance would apply to all reportable frequency response events that occur during the compliance year.<sup>28</sup> CAISO supports its proposal by noting that NERC's standard drafting team recognized contractual arrangements as a means for a BA to meet its frequency response obligation, and that NERC's proposed reporting forms associated with BAL-003-1.1 contemplate a contractual arrangement reporting for transferred frequency response between entities.<sup>29</sup>

20. Under its proposal, CAISO states that it would be permitted, but not required, to procure transferred frequency response. CAISO argues that transferred frequency response will act as an insurance policy and will allow CAISO to avoid using inefficient manual out-of-market interventions such as exceptional dispatch so that CAISO will be able to comply with BAL-003-1.1 in an efficient, cost-effective manner.<sup>30</sup> CAISO states that if it were to rely on exceptional dispatches to secure frequency response capabilities, it might be necessary at times to commit non-resource adequacy resources and provide those resources with a 30-day capacity procurement mechanism designation. In addition, CAISO states that at times of low load and high renewable output, it may need to curtail renewable output to commit a frequency responsive unit, requiring CAISO to make additional out-of-market payments.<sup>31</sup> CAISO asserts that it will be able to implement its transferred frequency response proposal to ensure compliance with BAL-003-1.1 by December 1, 2016 and explains that it would not have sufficient time to develop and implement a market mechanism by this date.

21. CAISO proposes to secure transferred frequency response through a competitive solicitation. CAISO states that it has modeled its proposed solicitation process on existing tariff provisions that authorize it to undertake competitive solicitations to ensure it has

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<sup>27</sup> CAISO proposed Appendix A.

<sup>28</sup> CAISO Transmittal Letter at 11.

<sup>29</sup> *Id.*

<sup>30</sup> *Id.* at 12-13.

<sup>31</sup> *Id.* at 13.

adequate resources to meet operating and planning reserve criteria.<sup>32</sup> CAISO states that it expects to use the competitive solicitation process for a limited time. In its competitive solicitation, CAISO states, it will request annual commitments from bidders and will specify that transferred frequency response will be reported consistently for all frequency response events selected by NERC during the compliance year.<sup>33</sup>

22. CAISO proposes to evaluate offers based on an estimate of costs the market might incur by committing additional generation and ensuring that resources have enough headroom to secure frequency response capability. CAISO also explains that under its proposal CAISO will select the lowest cost bid consistent with a seller's demonstrated ability to provide transferred frequency response, but that it may also choose not to select a winning bidder. If CAISO does not select a winning bidder, it states that it will rely on manual commitments as necessary to meet the requirements of BAL-003-1.1. Once the solicitation is completed, CAISO states that it will file any contract with a winning bidder with the Commission for approval, at which time CAISO will justify any costs by comparing the contract with potential costs associated with using out-of-market mechanisms such as exceptional dispatch to commit resources and constrain their output.<sup>34</sup>

23. CAISO asserts that its proposed solicitation is consistent with guidance that the Commission has provided to ensure that affiliates do not receive undue preference.<sup>35</sup> CAISO states that the competitive solicitation is transparent because it is open to all BAs in the Western Interconnection, or their authorized sellers, that can provide transferred frequency response. CAISO also states that it is proposing to define transferred frequency response as the product subject to the solicitation and that, as an independent entity, it will administer the competitive solicitation and evaluate bids based on the lowest cost and the bidder's ability to provide transferred frequency response.<sup>36</sup>

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<sup>32</sup> *Id.*

<sup>33</sup> *Id.* at 14.

<sup>34</sup> *Id.*

<sup>35</sup> *Id.* at 14 (citing *Allegheny Energy Supply Co., LLC*, 108 FERC ¶ 61,082, at P 22 (2004)).

<sup>36</sup> *Id.* at 15.

**b. Comments**

24. Powerex supports CAISO's proposed Phase One proposals, stating, in particular, that the competitive solicitation process will ensure that CAISO meets its obligations under BAL-003-1.1 during the initial compliance year, as well as initiate frequency response service on a least-cost basis. Following the initial compliance year, Powerex encourages CAISO to establish long-term measures that can ensure its primary frequency response obligation is met using the most efficient combination of internal resources and contractual arrangements.<sup>37</sup>

25. In their protests, WPTF and NRG argue that CAISO's representation that it is transferring an obligation to another BA is misleading because CAISO is meeting a portion of its frequency response obligation by relying on a physical service provided by generating units within another BA. NRG explains that, while CAISO asserts it is procuring a compliance instrument, the frequency response performance cannot be obtained merely by writing down a number on a compliance form. Rather, NRG asserts, it requires committing actual physical resources.<sup>38</sup>

26. WPTF and NRG aver that CAISO's proposed competitive solicitation process is not open and fair because the generating units within CAISO's balancing authority area are not eligible to participate in the solicitation. The parties argue that CAISO's proposal to pay BAs for helping to meet CAISO's frequency response obligation discriminates against both the generators in CAISO's balancing authority area and the generators within the other balancing authority area by denying them compensation.<sup>39</sup> Further, WPTF and NRG contend that there is no evidence that CAISO needs to procure additional frequency response from other BAs because CAISO's proposal addressing CAISO generator compliance may itself fulfill the frequency response obligation. Additionally, the parties argue that CAISO could obtain additional frequency response by committing additional generators within its balancing authority area through exceptional dispatch.<sup>40</sup>

27. WPTF requests that the Commission reject CAISO's proposal to conduct a competitive solicitation to transfer part of CAISO's frequency response obligation to

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<sup>37</sup> Powerex May 12 Comments at 7.

<sup>38</sup> NRG Protest at 4-5.

<sup>39</sup> WPTF May 12 Protest at 3-4, NRG Protest at 2-4.

<sup>40</sup> WPTF May 12 Protest at 4, NRG Protest at 7.

another BA and instead direct CAISO to conduct an expedited stakeholder process to develop an administratively determined level of compensation for the generators within CAISO's balancing authority area.<sup>41</sup>

28. NRG contends that CAISO's proposal to transfer part of its frequency response obligation to another BA in exchange for compensation is unduly discriminatory. NRG asserts that Commission precedent dictates that independent system operators cannot provide different compensation for the same service. For example, NRG states that the Commission rejected as unduly discriminatory Midwest Independent Transmission System Operator's proposal to compensate independent power producers under one rate schedule and other parties under a different rate schedule for the provision of reactive power.<sup>42</sup> Further, NRG explains, the Commission has rejected tariffs that have excluded some entities from participating in a program but allow others based on alleged differences between the resources.<sup>43</sup> NRG requests that the Commission reject CAISO's proposal. In the event the Commission is inclined to accept CAISO's proposal, NRG requests that the Commission require CAISO to create a new frequency response product by the fall of 2017.

**c. CAISO's Answer**

29. According to CAISO, transferred frequency response does not involve the provision of an energy or capacity product from a specific resource but rather is a value agreed upon between BAs. Referencing Powerex's comments, CAISO notes that transferred frequency response is factored into the calculation of a BA's frequency response measure (on the NERC compliance document) and will not adjust a BA's NERC-designated frequency response obligation.<sup>44</sup>

30. In response to WPTF's and NRG's protests that CAISO's proposal to procure transferred frequency response is unduly discriminatory toward generators, CAISO argues that it is proposing to procure a compliance instrument rather than primary frequency

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<sup>41</sup> WPTF May 12 Protest at 4-5.

<sup>42</sup> NRG Protest at 3 (citing *Midwest Indep. Trans. Sys. Operator, Inc.*, 109 FERC ¶ 61,005 (2004)).

<sup>43</sup> NRG Protest at 3 (citing *New York Indep. System Operator, Inc.*, 145 FERC ¶ 61,162 (2013)).

<sup>44</sup> CAISO May 19 Answer at 2-3.

response service. CAISO maintains that under a contract for transferred frequency response, CAISO's payment would not be at the time that frequency response service would be supplied nor would the payment be based on the performance of any specific resource or group of resources. CAISO explains that there would be no delivery obligations for frequency response service. Rather, CAISO states the contract will represent reporting adjustments on NERC compliance forms. Therefore, according to CAISO, only BAs within the Western Interconnection with compliance obligations under BAL-003-1.1 are eligible to provide this compliance instrument.<sup>45</sup>

31. Regarding the claim that its proposal is not open, CAISO argues that the protestors are attempting to expand the scope of the proceeding. CAISO contends that its proposal is not to compensate one set of resources for frequency response service and exclude another set of resources for providing the same service. CAISO reiterates that it is proposing to procure a reporting adjustment for the purpose of complying with BAL-003-1.1. However, CAISO states that it plans to undertake a stakeholder initiative to examine how to compensate resources capable of providing frequency response service.<sup>46</sup>

**d. Deficiency Letter**

32. The June 17 Deficiency Letter requested additional information regarding several aspects of CAISO's proposal to procure transferred frequency response and asked CAISO to: (1) provide a detailed discussion of any conversations between CAISO and NERC and/or WECC regarding transferred frequency response;<sup>47</sup> (2) explain the timing of CAISO's procurement of transferred frequency response and to provide a description of the process by which CAISO will adjust frequency response values on NERC Frequency Response Forms 1 and 2;<sup>48</sup> (3) clarify whether CAISO proposes to place a claim on the

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<sup>45</sup> *Id.* at 5-6.

<sup>46</sup> *Id.* at 8.

<sup>47</sup> This request asked CAISO to include any feedback from NERC or WECC regarding the potential implications of CAISO's proposal on NERC's analysis and risk assessment supporting the allocation of frequency response obligations to all BAs and the potential adverse effect on Western Interconnection frequency response. Deficiency Letter at 2.

<sup>48</sup> If CAISO proposes to procure transfer frequency response after the relevant compliance year, the Deficiency Letter requested that CAISO explain the anticipated impact of an after-the-fact adjustment on frequency response performance during the year. *Id.* at 2.

frequency response performance of another BA or BAs, or whether CAISO seeks to transfer all or a portion of its initially allocated Frequency Response Obligation under BAL-003-1.1;<sup>49</sup> (4) explain what, if any, analysis CAISO had performed to assess the potential impact of the proposed adjustments to its Frequency Response Obligation on the Western Interconnection's overall frequency response requirement;<sup>50</sup> and (5) explain how it intends to estimate the cost of using exceptional dispatch to meet its frequency response obligation when evaluating bids to provide transferred frequency response during its competitive solicitation process.<sup>51</sup>

e. **July 18 Supplemental Filing**

33. In its response to the first request, CAISO states that during Phase One of its frequency response initiative, CAISO conducted outreach to representatives of WECC and NERC to explain the planned tariff filing, including the proposal to procure transferred frequency response as a short-term strategy to comply with BAL-003-1.1.<sup>52</sup> CAISO states that it sought WECC's interpretation of the meaning, purpose, and appropriate use of the transferred frequency response entry in the NERC Frequency Response Standard Forms 1 and 2 reports. CAISO adds that WECC's representative committed to undertake additional research and follow-up with CAISO. CAISO states that WECC's representative provided informal guidance on how WECC may approach an audit of BAL-003-1.1, including its review of agreements for transferred frequency response. CAISO adds that WECC's representative did not discuss the effect of CAISO's proposal on NERC's analysis and risk assessment supporting its initial allocations of frequency response obligations to all BAs, and did not express any compliance concerns over CAISO's use of transferred frequency

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<sup>49</sup> *Id.*

<sup>50</sup> *Id.*

<sup>51</sup> This request also asked CAISO to explain any other short-term compliance methods that it considered, as well as to explain what efforts it made to evaluate if resources within its balancing area are providing frequency response. *Id.* at 3.

<sup>52</sup> On December 16, 2015 and on February 8, 2016, CAISO states, it held a telephone conference with a WECC representative to discuss how WECC would conduct a compliance audit under BAL-003-1.1, including how WECC would view transferred frequency response in any such audit. CAISO states that it provided a description of its frequency response draft final proposal issued on February 4, 2016. July 18 Supplemental Filing at 5-6.

response to meet the requirements of BAL-003-1.1 or any concerns with reliability impacts to the Western Interconnection.<sup>53</sup>

34. CAISO states that, on March 18, 2016, it held a telephone conference with representatives of NERC and WECC to provide an overview of CAISO's frequency response proposal.<sup>54</sup> CAISO states that NERC and WECC's representatives did not discuss the effect of the proposal on NERC's analysis and risk assessment supporting its initial allocations of frequency response obligations to all BAs. CAISO adds it explained that it would seek to enter into a contract for transferred frequency response in advance of the applicable BAL-003-1.1 compliance period and that any contract would need to provide for transferred frequency response for all disturbance events identified by NERC for reporting purposes under BAL-003-1.1. CAISO notes that NERC and WECC's representatives did not express any compliance concerns over CAISO's use of transferred frequency response to meet the requirements of BAL-003-1.1 or any concerns with reliability impacts to the Western Interconnection.

35. In response to the second request, CAISO states that it plans to enter into a contract or contracts for transferred frequency response ahead of the compliance period under BAL-003-1.1 that begins on December 1, 2016. CAISO adds that any contract for transferred frequency response would apply to all disturbance events identified by NERC as reportable events during the reporting year of December 1, 2016 through November 30, 2017.<sup>55</sup> CAISO states that in reporting transferred frequency response on NERC Forms 1 and 2, it would increase the amount of its performance for each disturbance event by the amount of transferred frequency response procured from another BA, and the counterparty BA would decrease the performance that it reports for each event by the same amount.<sup>56</sup>

36. In response to the third request, CAISO states that it is proposing to contract for the right to adjust its frequency response performance upward for reportable disturbance events under BAL-003-1.1.<sup>57</sup> CAISO further states that any BA providing transferred frequency response would adjust its frequency response performance downward for each

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<sup>53</sup> *Id.*

<sup>54</sup> *Id.*

<sup>55</sup> *Id.* at 8.

<sup>56</sup> *Id.*

<sup>57</sup> *Id.* at 9.

reportable disturbance event under BAL-003-1.1 by the amount of transferred frequency response it provides to CAISO. CAISO adds that the contract for transferred frequency response would not change the BAs' frequency response obligations as defined by NERC, rather, it would allow primary frequency response capability from one BA to meet the performance obligation of another BA.

37. In response to the fourth request, CAISO states that it has not performed any specific studies to quantify the impact of transferred frequency response on the Western Interconnection's overall frequency response requirement. However, CAISO adds that transferred frequency response will not change the overall frequency response obligation of the Western Interconnection, the actual frequency response provided in response to a disturbance event, or the frequency response capabilities of resources in the Western Interconnection.<sup>58</sup> CAISO asserts that transferred frequency response will allow one BA to receive compensation from another BA for supplying more frequency response than it is required to under BAL-003-1.1. Furthermore, CAISO notes that it has performed three studies on the Western Interconnection's overall frequency response capability to show that there is a surplus of frequency response capability.<sup>59</sup>

38. In response to the fifth request, CAISO states that it proposed requirements for participating generators with governor controls as well as the authority to procure transferred frequency response from other BAs as an insurance mechanism for short-term compliance with BAL-003-1.1.<sup>60</sup> CAISO also states that based on a subsequent review it has determined that its current tariff may not allow CAISO to use and settle exceptional dispatch for the purpose of frequency response. CAISO therefore proposes to compare bids to provide transferred frequency response with the cost of procuring additional regulation up service.<sup>61</sup> CAISO states that it will develop a procurement target for transferred frequency response based on its actual frequency response performance during the two years prior to the compliance period, and include any shortfall between its actual performance and its Frequency Response Obligation in its target, plus account for year over year performance deterioration. It will then translate the procurement target into an hourly regulation capacity requirement.

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<sup>58</sup> *Id.* at 10.

<sup>59</sup> *Id.*

<sup>60</sup> *Id.* at 12.

<sup>61</sup> *Id.* at 13.



39. Specifically, CAISO states that it will use a two-part approach to estimate the costs of procuring this additional capacity.<sup>62</sup> CAISO explains that the first step is to build a statistical model that estimates annual increased market costs based on the increased hourly procurement requirements for regulation up and additional contributing variables such as seasonality and natural gas prices. CAISO adds that the second step is to validate the model through day-ahead market reruns. CAISO states that the results should provide a range of outcomes that will permit it to assess the cost effectiveness of bids for transferred frequency response.<sup>63</sup> If CAISO enters into a contract for transferred frequency response, CAISO further states that it will justify any contract-related costs it proposes to allocate to scheduling coordinators by comparing them to the potential costs of procuring additional regulation up capacity to meet the requirements of BAL-003-1.1.

40. CAISO also states that it is undertaking other efforts to evaluate whether resources within its BA are providing any frequency response, and has recently reached out to scheduling coordinators for generating units with governor controls to inquire whether these generating units can comply with the CAISO's proposed tariff revisions.<sup>64</sup> CAISO adds that it plans to send a request to scheduling coordinators to confirm, in writing, either that they can comply or will identify physical operational constraints that require the generator owner to inhibit the governor response of the unit.

**f. Additional Comments**

41. Powerex agrees with CAISO's explanation that transferred frequency response will not adversely affect reliability or primary frequency response capabilities across the Western Interconnection.<sup>65</sup> Powerex asserts that transferred frequency response will result in a BA supplying more frequency response during disturbance events than it would otherwise be obligated to provide under BAL-003-1.1, with a defined portion of this performance counted towards meeting CAISO's obligations under the standard. As a result, Powerex states, CAISO's procurement of transferred frequency response will not limit the total frequency response provided to disturbance events or change the total primary frequency response capabilities of BAs within the Western Interconnection. Powerex also supports CAISO's proposal to evaluate bids to supply transferred frequency

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<sup>62</sup> *Id.*

<sup>63</sup> *Id.*

<sup>64</sup> *Id.* at 14.

<sup>65</sup> Powerex August 8 Comments at 4.

response against the cost of procuring additional regulation up service to maintain reliability.<sup>66</sup> Powerex states that evaluating bids against the cost of procuring additional regulation up capability will help ensure that an offer to provide transferred frequency response will only be selected if it represents a lower-cost solution for CAISO to meet its primary frequency response needs.

42. WPTF states that nothing in CAISO's response reverses the inescapable conclusion that CAISO is proposing to discriminate among entities providing the exact same physical service.<sup>67</sup> WPTF asserts that CAISO's proposal discriminates by offering to compensate other BAs for the frequency response provided by generators within their balancing authority area and not offering to compensate generators within CAISO's own balancing authority area for providing the very same service. For this reason, WPTF reiterates its request that the Commission reject CAISO's proposal to conduct a competitive solicitation for transferring part of CAISO's frequency response obligation and instead direct CAISO to provide compensation to all entities, whether generators within CAISO's balancing authority area or other balancing authority areas, for providing frequency response that helps CAISO meet its frequency response obligation.

43. Further, WPTF states that CAISO's assertion that there is a surplus of frequency response capability in the Western Interconnection does not eliminate CAISO's need to meet its balancing authority area-specific frequency response obligation.<sup>68</sup> WPTF adds that it does not agree with CAISO's reference to entities transferring "frequency response capability." WPTF asserts that BAL-003-1.1 requires balancing authority areas to provide a certain amount of actual frequency response measured annually, not a certain amount of frequency response capability. WPTF argues that the fact that CAISO is now pointing to regulation service as the way to benchmark the costs of acquiring the right to count frequency response from another balancing authority area against its frequency response obligation reinforces the true nature of CAISO's proposal, which discriminates among providers of the same physical service.

**g. Commission Determination**

44. We accept, subject to condition, CAISO's proposed revisions to Appendix A and sections 42.2.1 and 42.2.2 of its tariff that define and establish authority to procure

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<sup>66</sup> *Id.* at 5.

<sup>67</sup> WPTF August 8 Protest at 2.

<sup>68</sup> *Id.* at 3.

transferred frequency response. As stated in Order No. 794, BAs have flexibility in meeting their frequency response obligations,<sup>69</sup> and we find that CAISO's proposal to procure transferred frequency response is a just and reasonable means to comply with BAL-003-1.1 and will help ensure that CAISO meets its frequency response obligations under this standard.<sup>70</sup> Moreover, we find that this proposal could provide CAISO with a lower-cost option<sup>71</sup> for meeting its frequency response obligation than procuring additional regulation service or exceptionally dispatching generators when a frequency deviation occurs. For these reasons, we find that CAISO's proposed tariff revisions, subject to the conditions discussed below, are just and reasonable.

45. We are persuaded by CAISO's explanation that it will document any procured transferred frequency response on NERC Frequency Response Forms 1 and 2, but we believe that transferred frequency response represents more than "merely...an adjustment on a NERC compliance form."<sup>72</sup> We interpret CAISO's interim proposal as committing the counterparty BAs to provide frequency response service, and not simply an arrangement for the counterparties to transfer a regulatory obligation by means of bookkeeping entries. Specifically, although CAISO states in the instant filing that it does not propose to transact with a specific resource or at specific point of delivery, there remains an expectation that a counterparty BA will have available frequency response in excess of its NERC-designated frequency obligation to offset a portion of CAISO's NERC-designated frequency response obligation, consistent with its agreement with

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<sup>69</sup> Order No. 794, 146 FERC ¶ 61,024 at P 59.

<sup>70</sup> See *Third-Party Provision of Primary Frequency Response Service*, Order No. 819, FERC Stats. & Regs. ¶ 31,375 at P 13 (2015) (Cross-Referenced) 153 FERC ¶ 61,220 at P 13 (2015). In Order No. 819, the Commission issued a final rule permitting voluntary sales of primary frequency response service at market-based rates for entities granted market-based rate authority for sales of energy and capacity. The Commission also emphasized that "the Final Rule does not place any limits on the types of transactions available to procure primary frequency response service; they may be cost-based or market-based, bundled with other services or unbundled as discussed further below, and inside or outside of organized markets." *Id.*

<sup>71</sup> CAISO states that it will select the lowest cost bid(s) for transferred frequency response, not to exceed the cost of additional procurement of regulation up. CAISO proposed tariff section 42.2.1.

<sup>72</sup> CAISO Transmittal Letter at 10.

CAISO. This is because, as CAISO noted, neither CAISO's nor the counterparty BA's NERC-designated frequency response obligation will change.<sup>73</sup>

46. Moreover, the enforceable BAL-003-1.1 obligation for both BAs to meet their frequency response measures requires that primary frequency response service underpin the compliance representations to NERC. If a BA provides less frequency response service during the compliance year's reportable disturbance events than required by both its own BAL-003-1.1 obligation and by any agreement to provide transferred frequency response to CAISO, we interpret CAISO's proposal as including, for compliance purposes, the right to report, for example, the entirety of the amount of transferred frequency response acquired, up to the counterparty BA's total actual performance.<sup>74</sup> Thus a counterparty BA has a necessary incentive to provide sufficient primary frequency response to cover its own obligation and whatever compliance obligation it has committed to CAISO in the form of potential NERC penalties for underperformance as a result of failing to meet its own compliance obligation. As CAISO states in its transmittal, transferred frequency response will act as an insurance policy for purposes of compliance with BAL-003-1. Accordingly, we accept the explanation in CAISO's July 18 Supplemental Filing that transferred frequency response would "allow primary frequency response capability from one balancing authority area to meet the obligation of another."<sup>75</sup>

47. However, we are not persuaded by WPTF's and NRG's claim that CAISO's proposed competitive solicitation is unduly discriminatory because generators are ineligible to participate. CAISO's proposal involves the sale of compliance reporting rights associated with a BA's overall frequency response performance. As the only entities subject to BAL-003-1.1 compliance, BAs possess reporting rights and responsibilities associated with their compliance obligation that generators do not possess.<sup>76</sup> Therefore, we

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<sup>73</sup> CAISO July 18 Supplemental Filing at 9.

<sup>74</sup> We note that a counterparty BA may choose to offer reporting rights up to entirety of the amount of primary frequency response that it is proposing to sell when submitting bids in CAISO's open solicitation, and that CAISO must decide what transferred frequency response offers are most cost-effective. *See supra* P 39.

<sup>75</sup> *Id.*

<sup>76</sup> As currently effective, balancing authorities and frequency response sharing groups are the only entities with compliance obligations under BAL-003-1.1. *See* Order No. 794, 146 FERC ¶ 61,024 at P 61 ("NERC and its stakeholders had, and still have, the option to propose a Reliability Standard imposing obligations directly on resources, if they find it appropriate.")

conclude that CAISO's proposal is not unduly discriminatory because, contrary to the assertions of WPTF and NRG, generators would not provide the same service as BAs.

48. We direct CAISO to revise the language in Appendix A, consistent with this understanding in its compliance filing. We find that the proposed language in Appendix A that states that CAISO and counterparties would adjust their performance "obligation" is unclear and may be confused with NERC-designated frequency response obligations under BAL-003-1.1. Therefore, we direct CAISO to submit a compliance filing within 30 days of the date of this order to revise the language in Appendix A to clarify that procured transferred frequency response does not change or transfer the NERC-designated frequency response obligations of any entity.

49. CAISO states that it will not procure transferred frequency response on a daily or as-needed basis, but instead will purchase this compliance instrument upfront for all reportable frequency events that occur during the compliance year.<sup>77</sup> Moreover, CAISO states that it proposes to apply the procured amount of transferred frequency response to its frequency response performance for each event during a compliance year.<sup>78</sup> This suggests that CAISO is proposing to receive a fixed transferred frequency response credit for all events during the compliance year, without regard to how the counterparty BA has performed for a given event. However, as noted above, our understanding is that transferred frequency response is not merely a bookkeeping arrangement, but rather includes the provision of actual physical frequency response. Accordingly, consistent with our interpretation of transferred frequency response, we direct CAISO to state in Appendix A that it cannot claim on a compliance form that it has received, or that the counterparty has transferred, more frequency response performance than the counterparty has produced.

50. Furthermore, in response to commenters' concerns about the need to compensate individual generators, we note that CAISO has committed to consider a market based payment mechanism for frequency response when it initiates its Phase Two initiative.<sup>79</sup> Given that the Phase Two initiative will commence in the fall of this year, we expect that any proposed solution will be filed for consideration by the Commission in the first half of

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<sup>77</sup> CAISO Transmittal Letter at 11.

<sup>78</sup> CAISO July 18 Supplemental Filing at 8.

<sup>79</sup> In its August 10 Answer, CAISO states that later this year, it plans a stakeholder initiative to examine mechanisms for market based payments for frequency response. CAISO August 10 Answer at 2.

2017. Accordingly, we direct CAISO to submit an informational report on the status of the Phase Two initiative in six months.

51. In summary, we direct CAISO to submit, within 30 days of the date of this order, a compliance filing to revise the definition of transferred frequency response in Appendix A such that it cannot be interpreted as a means to modify NERC-designated obligations. Furthermore, consistent with this understanding, we direct CAISO to state in Appendix A that it cannot claim on a compliance form that it has received, or that the counterparty has transferred, more than the counterparty has produced. Additionally, we direct CAISO to submit an informational report on the status of the Phase Two initiative in six months.

**3. Allocating the Cost of Transferred Frequency Response to CAISO Metered Demand**

**a. CAISO Proposal**

52. CAISO proposes tariff revisions that would allocate any payments for transferred frequency response to scheduling coordinators' NERC/WECC metered demand. CAISO states that this would allocate the cost of transferred frequency response to load, similar to the way in which ancillary services costs are allocated in CAISO's markets. CAISO states that it would invoice scheduling coordinators for the costs of any procured transferred frequency response for December 1, 2016 through November 30, 2017 based on scheduling coordinators' NERC/WECC metered demand for 2015.<sup>80</sup> CAISO adds that it currently uses this calculation for purposes of allocating fees associated with NERC/WECC operations as well as reliability coordinator charges.<sup>81</sup>

53. CAISO argues that NERC/WECC metered demand is a reasonable proxy for purposes of allocating the cost of transferred frequency response to load because NERC uses historical data to allocate each BA its share of the interconnection frequency response obligation.<sup>82</sup> Furthermore, CAISO states that both reliability coordinator charges and NERC/WECC charges for the current year are allocated to scheduling coordinators based on their NERC/WECC demand for two years prior.

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<sup>80</sup> CAISO Transmittal Letter at 17.

<sup>81</sup> *Id.* (citing CAISO tariff section 11.20).

<sup>82</sup> *Id.*

54. CAISO also proposes a set of invoicing rules to explain how it will calculate and assess a charge for transferred frequency response. CAISO states that these rules and validation requirements are substantially the same as the process for calculating and assessing reliability coordinator charges and NERC/WECC charges.<sup>83</sup> CAISO adds that the rules explain the schedule for the invoicing process, the responsibility of scheduling coordinators to pay charges, and the opportunity to validate and dispute those charges. Specifically, CAISO proposes to limit the grounds for dispute of an invoice to typographical or other ministerial errors by CAISO, which CAISO states is consistent with its tariff authority regarding the allocation of reliability coordinator and NERC/WECC demand charges. CAISO asserts that this is a reasonable limitation because the total costs of transferred frequency response will be subject to review in a separate section 205 filing when CAISO presents any contract to the Commission.<sup>84</sup>

55. CAISO also proposes to include an adjustment for the scheduling coordinator's allocated share of the charge for transferred frequency response in its calculation of a scheduling coordinator's collateral requirements. CAISO explains that estimated aggregated liability is a calculation of a market participant's estimated total financial liability at any given point in time, and that by including the costs of transferred frequency response in this calculation, CAISO will adjust market participants' financial security obligation upwards.<sup>85</sup> Because the transferred frequency response charge will likely be a one-time annual charge, CAISO adds, it does not believe that it is appropriate to extrapolate amounts of this charge for purposes of determining a scheduling coordinator's estimated aggregate liability.

56. CAISO proposes tariff revisions to provide that if a scheduling coordinator defaults on all or part of an invoice for transferred frequency response charges, CAISO will follow existing tariff authority applicable to payment defaults. In the event of a default, CAISO states that it may exercise its rights under section 11.29.13.3 to enforce the financial security provided by the defaulting scheduling coordinator, or take action under sections 11.29.12 or 11.29.13 to obtain payment from the defaulting scheduling coordinator.<sup>86</sup>

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<sup>83</sup> *Id.* at 18 (citing tariff section 11.20.9).

<sup>84</sup> *Id.* at 18-19.

<sup>85</sup> *Id.* at 19.

<sup>86</sup> *Id.*

**b. Comments and Protests**

57. Six Cities contends that CAISO's proposed tariff language fails to include an objective measure for determining whether a bid is reasonable or excessive. Six Cities explains that CAISO's proposed tariff language in section 42.2.1 stipulates that "[t]he CAISO shall select the bids that permit the CAISO to satisfy Applicable Reliability Criteria at lowest cost consistent with the seller's capability to provide Transferred Frequency Response." Six Cities argues that the proposed language will enable CAISO to procure transferred frequency response at a higher cost than the estimated cost of using exceptional dispatch for meeting the frequency response obligation. Six Cities requests that the Commission direct CAISO to revise section 42.2.1 of its tariff to add a clause stating that CAISO will not accept bids that exceed the estimated cost of satisfying CAISO's frequency response obligation through use of internal resources.<sup>87</sup>

58. CDWR asserts that CAISO's proposed allocation for the costs of transferred frequency response fails to track the principles of cost causation. CDWR's understanding is that the need to procure frequency response arises due to generators that currently lack the capability to provide frequency response or that have chosen to configure their equipment in ways that override or limit their ability to provide frequency response service.<sup>88</sup> CDWR contends that CAISO's proposal to allocate costs entirely to load (and not to generation) is inappropriate because load has little ability to manage the problem. However, CDWR does not object to CAISO's proposed Phase One measures because they have been described as an interim solution.

**c. CAISO's Answer**

59. In its May 19 Answer, CAISO states that it is willing to modify section 42.2.1 its tariff on compliance, if the Commission so directs, to include the language proposed by Six Cities.

**d. Commission Determination**

60. We accept, subject to condition, CAISO's proposed revisions in sections 11.34, 42.2.1, and 42.2.2 to allocate the cost of transferred frequency response to CAISO demand and find such allocation to be just and reasonable. The proposed set of invoicing rules will provide clarity to scheduling coordinators as well as outline the process through which

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<sup>87</sup> Six Cities Protest at 4.

<sup>88</sup> CDWR Comments at 5 (citing CAISO Transmittal Letter at 4).



charges will be allocated and disputes can be addressed. However, we direct CAISO to submit a compliance filing, within 30 days of the date of this order, to revise tariff section 42.2.1 to reflect that the cost of transferred frequency response should not exceed the estimated cost of procuring additional regulation up, consistent with the provisions CAISO described in its May 19 Answer and July 18 Supplemental Filing.

#### 4. Operating Reserves

##### a. CAISO Proposal

61. CAISO proposes to modify section 34.10 of its tariff to indicate that, during normal operations, CAISO may designate operating reserves procured through its day-ahead market as contingency-only in real-time. CAISO states that this measure will help preserve frequency response headroom on resources providing spinning reserve and preserves contingency reserve capability by not making that portion of a resource's capacity available for energy dispatch in real-time.<sup>89</sup>

62. CAISO explains that it currently satisfies all of its forecasted ancillary services requirements through the day-ahead market. For spinning reserve, scheduling coordinators may designate their offers as contingency-only, meaning that the service is only available for dispatch in the event of contingency or system emergency.<sup>90</sup> CAISO procures any incremental ancillary services in real-time and states that spinning reserve procured through the real time market is always contingency-only.<sup>91</sup>

63. Under its current tariff, CAISO explains, it has the authority to designate as contingency-only reserves any reserve not previously identified as such, but only as necessary to maintain NERC and WECC reliability standards. CAISO states that it seeks to modify its tariff to clarify that it may elect to designate operating reserves procured in the day-ahead as contingency-only in real-time during day-to-day operations, which, according to CAISO, it already does in practice.<sup>92</sup>

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<sup>89</sup> CAISO Transmittal Letter at 21.

<sup>90</sup> See CAISO tariff section 30.5.2.7.2.

<sup>91</sup> CAISO Transmittal Letter at 20.

<sup>92</sup> *Id.*

**b. Commission Determination**

64. We find that the proposed changes regarding operating reserves are just and reasonable and will help preserve frequency response headroom and contingency reserve capability. We agree with CAISO that opportunity costs of resources providing energy or ancillary services in the day-ahead are captured in the marginal energy or ancillary services prices that resources receive. Similarly, real-time opportunity costs are captured in the real-time market. We are persuaded by CAISO's assessment that scheduling coordinators that have been compensated for providing ancillary services capacity in the day-ahead market are neither guaranteed nor entitled to receive additional revenue by selling energy in the real-time market. The day-ahead market has already compensated the resource for forgoing energy sales.<sup>93</sup> While the opportunity for resources to pursue additional revenue may be a useful benefit of market participation, this potential opportunity should not preclude CAISO from utilizing accepted market mechanisms to promote system reliability. Thus, we accept CAISO's proposed changes to section 34.10 of its tariff, effective August 15, 2016.

**5. Voltage Schedules**

**a. CAISO Proposal**

65. CAISO proposes to modify tariff sections 4.6.5.1 and 8.2.3.3 to clarify that participating transmission owners and CAISO may issue voltage schedules. CAISO states that this modification reflects an existing practice that CAISO's participating transmission owners are generally responsible for issuing voltage schedules to resources interconnected to their systems. While CAISO retains authority to issue voltage schedules, its proposed tariff changes reflect that participating transmission owners are the entities that do so on a more regular basis.<sup>94</sup>

**b. Commission Determination**

66. We find that the proposed changes regarding voltage schedules are just and reasonable because they more accurately reflect existing practices and the responsibilities of transmission owners. Thus, we accept CAISO's proposed changes to sections 4.6.5.1 and 8.2.3.3 of its tariff, effective August 15, 2016, as requested.

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<sup>93</sup> *Id.* at 21.

<sup>94</sup> *Id.* at 22.

The Commission orders:

(A) CAISO's revisions to its tariff are hereby accepted, subject to condition, effective August 15, 2016, as discussed in the body of this order.

(B) CAISO is hereby directed to submit a compliance filing within 30 days of the date of issuance of this order, as discussed in the body of this order.

(C) CAISO is hereby directed to submit an informational report in six months on the status of the Phase Two initiative.

By the Commission.

( S E A L )

Nathaniel J. Davis, Sr.,  
Deputy Secretary.

Document Content(s)

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