

172 FERC ¶ 61,298  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Neil Chatterjee, Chairman;  
Richard Glick and James P. Danly.

California Independent System  
Operator Corporation

Docket No. ER20-2443-000

ORDER ACCEPTING TARIFF REVISIONS

(Issued September 30, 2020)

1. On July 16, 2020, the California Independent System Operator Corporation (CAISO) filed, pursuant to section 205 of the Federal Power Act (FPA),<sup>1</sup> tariff revisions to enhance demand response participation in the CAISO markets by allowing separate load curtailment measures for electric vehicle supply equipment (EVSE) and optimizing behind-the-meter energy storage charging and discharging. In this order, as discussed below, we accept CAISO's proposed revisions, effective October 1, 2020, as requested.

**I. Background**

2. Under CAISO's current tariff, load, storage, and generation resources can participate in the CAISO markets as demand response resources by providing load curtailment. CAISO states that it pays demand response resources when they curtail their demand pursuant to CAISO dispatch instructions, based on the difference between a pre-determined baseline, or what the demand response resource's demand would have been absent CAISO dispatch, and its actual performance. CAISO notes that a large and growing share of demand response resources now include onsite load, generating capacity, and batteries. In particular, CAISO explains that an emerging trend is providing electric vehicle charging at large load centers like grocery stores, movie theaters, and offices. According to CAISO, EVSE frequently operates under the same retail meter and account as their host facility. Thus, the entire facility must participate as a single metered resource even though the EVSE and onsite host load may have very different load profiles.<sup>2</sup> CAISO asserts that, by failing to capture the unique load profile of the EVSE,

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<sup>1</sup> 16 U.S.C. § 824d.

<sup>2</sup> For example, CAISO states that an office building may have high demand during work hours, but the EVSE demand generally peaks immediately after morning commutes. Transmittal at 5.

it may send the wrong price signals to EVSE owners, thereby failing to provide incentives to curtail load during peak conditions.<sup>3</sup>

3. CAISO also states that energy storage resources and demand response can play key roles in managing peak demand, particularly during the evening ramp. However, CAISO states that its current tariff rules only capture the value of reducing demand compared to typical use. Thus, CAISO states that the current tariff does not incentivize storage resources to increase demand during oversupply conditions, which CAISO explains would help maintain reliability, avoid curtailment, and stabilize prices.<sup>4</sup>

## II. CAISO Proposal

4. To enhance demand response participation in its markets, CAISO proposes two sets of tariff revisions, with a requested effective date of October 1, 2020.<sup>5</sup> First, CAISO proposes to allow EVSE to be treated as a separate load curtailment measure when providing demand response at facilities with onsite load. CAISO notes that it will not require such resources to separate their EVSE from the rest of their load but, where demand response resources elect to measure EVSE performance separately, CAISO states that the resource must sub-meter the EVSE to avoid co-mingling the EVSE load and the onsite host load's performance. However, CAISO explains that the EVSE and onsite host load will still continue to operate under a single Resource ID<sup>6</sup> and will bid and meet CAISO schedules together as a single resource, but will be settled separately based on their individual baselines. Additionally, CAISO states that a proxy demand resource can consist entirely of one or more EVSE resources, with no onsite load, and nothing requires the demand response provider to include onsite load in a proxy demand resource consisting entirely of EVSE.<sup>7</sup> CAISO asserts that these proposed revisions will provide

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<sup>3</sup> *Id.* at 4-5.

<sup>4</sup> *Id.* at 7-8.

<sup>5</sup> CAISO notes that each set of revisions is separate and not dependent on the other. *Id.* at 2.

<sup>6</sup> A Resource ID is the main identification character CAISO assigns to various participants, including Generating Units, Loads, Proxy Demand Resources, among others, and is used as the basic unit for purposes of bidding and settlement. *See* CAISO Tariff, Appendix A.

<sup>7</sup> Transmittal at 6.

transparency and more accurate price signals for EVSE and onsite load that participate in demand response programs.<sup>8</sup>

5. Second, CAISO proposes to create a demand response participation model to facilitate load-shifting capabilities of behind-the-meter energy storage resources to better account for when such resources charge or discharge at optimal times. Specifically, CAISO proposes tariff revisions to establish two separate Resource IDs: (1) a consumption Resource ID to account for the energy storage charging; and (2) a curtailment Resource ID to account for the energy storage discharging to increase onsite load curtailment. CAISO states that each Resource ID will have its own baseline and demand response energy measurement to establish typical use, using methodologies nearly identical to CAISO's existing metering generator output methodology. However, CAISO explains that, in order to measure the battery's performance against both the charging and discharging functions, the consumption (i.e., charging) Resource ID would only use meter data at or below 0 MWh, and the curtailment (i.e., discharging) Resource ID would only use meter data at or above 0 MWh. CAISO states that if it treated the entire demand response resource as a single Resource ID instead of two, the resource's load baseline would effectively net its charging and discharging, and thereby fail to fully capture the value of each distinct function. Similar to the proposed revisions pertaining to EVSE, CAISO states that resources using this load-shift methodology must sub-meter the storage device independently of the onsite load or other onsite generation sources.<sup>9</sup>

6. CAISO proposes that the scheduling coordinator would be required to submit separate economic bids for the consumption and curtailment Resource IDs; bids for the consumption Resource ID would be below \$0/MWh, and bids for the curtailment Resource ID would be above the market clearing price.<sup>10</sup> CAISO states that it will settle each Resource ID based on the difference between each baseline and actual response to dispatch, the same way CAISO settles all demand response resources. CAISO asserts that this bifurcation would incentivize both curtailment and charging at the right times, such that behind-the-meter energy storage resources will consume energy during

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<sup>8</sup> *Id.* at 5-6.

<sup>9</sup> *Id.* at 8-9.

<sup>10</sup> CAISO explains that requiring the consumption Resource ID to bid below \$0/MWh ensures it can only be dispatched to provide demand response during oversupply conditions. CAISO also states that the curtailment Resource ID follows similar rules applicable to other proxy demand resources. *Id.* at 8.

oversupply conditions and return that energy to the system during times of need, whereas the current methodology can only incentivize load curtailment.<sup>11</sup>

### **III. Notice of Filing and Responsive Pleadings**

7. Notice of CAISO's filing was published in the *Federal Register*, 85 Fed. Reg. 44,297 (July 16, 2020), with interventions and protests due on or before August 6, 2020. Timely motions to intervene were filed by: Calpine Corporation; NRG Power Marketing LLC; the City of Santa Clara, California; CAISO Department of Market Monitoring (DMM); and Northern California Power Agency. California Energy Storage Alliance (CESA), California Efficiency + Demand Management Council (Council), Southern California Edison Company (SoCal Edison), and Pacific Gas and Electric Company (PG&E) filed timely motions to intervene and comments. Enel X North America, Inc. (Enel) and Olivine, Inc. (Olivine) submitted comments. On August 21, 2020, CAISO submitted an answer.

#### **A. Comments**

8. CESA, Council, Enel, and Olivine support CAISO's proposed revisions as just and reasonable measures that will provide additional opportunities and enhance incentives to participate in demand response programs.

9. SoCal Edison also supports CAISO's proposed revisions, but contends that without proper monitoring the new tariff provisions may be susceptible to gaming. Specifically, SoCal Edison argues that sub-metering EVSE creates a risk that the demand response provider could benefit financially without providing benefits to the grid. SCE explains that the current tariff provisions related to sub-metering behind-the-meter generation are predicated on the notion that the load and generation devices cannot change their location between the master and sub-meter. SoCal Edison argues that electric vehicles can switch from charging through the sub-metered EVSE to charging through the master meter. Thus, SoCal Edison argues that if CAISO dispatches the sub-metered EVSE as demand response, an electric vehicle currently charging behind the sub-metered EVSE can disconnect from the sub-metered EVSE, and switch to charging through the master meter, and the EVSE would still be paid for providing demand response but CAISO would not get the decline in load at the master meter it expected. Thus, SoCal Edison requests that the Commission direct CAISO to monitor and report data demonstrating that load curtailments at sub-meters are not offset by increases in the master meter load.<sup>12</sup>

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<sup>11</sup> *Id.* at 8-10.

<sup>12</sup> SCE Comments at 3-4.

10. PG&E supports CAISO's proposal, but expresses concern that it cannot be implemented for PG&E customers until the California Public Utilities Commission (CPUC) develops complementary rules for sub-metered EVSE to participate separately from the retail premise as demand response and enable the load shift resource. PG&E contends that complementary state and federal policies are needed, and that retail systems need to be in place before it can implement CAISO's proposal. PG&E notes that CAISO's proposal relies on a metering generation output performance methodology that does not have corresponding baselines, rules, and systems that have been approved by CPUC.<sup>13</sup> Further, PG&E contends that CAISO's proposal to sub-meter EVSE may conflict with CPUC's Rule 24, which governs certain aspects of demand response. PG&E interprets Rule 24 as prohibiting EVSE that are sub-metered from participating through a separate demand response provider. PG&E also points out potential conflicts with CAISO's proposal wherein EVSE could only participate if the premise elects not to participate in demand response, or where EVSE would not be able to participate as a sub-metered resource if the premise was already participating in a demand response program through a different demand response provider.<sup>14</sup>

11. In addition, PG&E requests that the Commission direct CAISO to revise its tariff to introduce a two-hour buffer period into the calculation of baselines before and after event windows to reduce bias in baseline calculations of the load-shift resource product. PG&E contends that, because a discharge is only possible if the battery has previously been charged, and vice versa, the load of one interval may be affected by the load of its adjacent intervals. Thus, according to PG&E, a bias can be introduced if adjacent intervals are not considered. PG&E further requests that the Commission direct DMM to commit to monitoring for bias in baseline calculations. Finally, PG&E asserts that, in order for customers to use the load-shift product, the CPUC must first approve the metering generation output methodology to calculate performance, approve the load shift resource use case of metering generation output, approve metering rules, and fund systems to accommodate such changes.<sup>15</sup>

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<sup>13</sup> PG&E Comments at 3.

<sup>14</sup> *Id.* at 3-5.

<sup>15</sup> *Id.* at 5-7.

**B. CAISO Answer**

12. CAISO acknowledges that policies designed to incorporate new technologies require monitoring and refinement, but argues that its proposal is just and reasonable. CAISO states that it will continue to monitor resources and refine policies as needed.<sup>16</sup>

13. In response to SoCal Edison's comments, CAISO contends that a requirement to submit reports on EVSE performance is unwarranted. CAISO responds to SoCal Edison's example of a resource switching from charging at the sub-meter to charging at the master meter by explaining that the EVSE and host load are a single resource at all times, and that CAISO would not dispatch the sub-meter on a separate schedule from the host. CAISO further states that the demand response provider's compensation is based on a summation of the EVSE response and host load response. CAISO contends that there is no evidentiary basis for SoCal Edison's assertion that electric vehicles might attempt to game demand response and suggests that SoCal Edison is well situated to monitor demand response providers for gaming. CAISO reiterates that it works with DMM and the Commission's Office of Enforcement to protect against market manipulation.<sup>17</sup>

14. CAISO dismisses PG&E's concerns about its ability to implement the proposed EVSE revisions. CAISO argues that there are no conflicts with CPUC's Rule 24 because its proposal would not allow EVSE to participate for a different demand response provider than its host load. CAISO clarifies that the proposal allows the demand response provider to measure the EVSE performance separately from onsite load, but the EVSE resource does not participate separately for bidding or scheduling. CAISO disagrees with PG&E's assertion that Rule 24 may only allow EVSE to participate as sub-metered demand response if the premise elects not to participate as a demand response resource. CAISO states that its proposal does not require the demand response provider to include onsite load in the proxy demand resource. CAISO states that it will continue to work with PG&E, CPUC, and stakeholders to close any necessary gaps with CPUC rules regarding demand response, EVSE, and sub-metering. However, CAISO asserts that any such gaps are not relevant to the justness and reasonableness of this proposal.<sup>18</sup>

15. CAISO also responds to PG&E's suggested buffer period for calculating baselines for the load shift resource product. First, CAISO asserts that a buffer would introduce, rather than reduce, bias, noting that baselines are supposed to represent typical use, and

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<sup>16</sup> CAISO Answer at 2.

<sup>17</sup> *Id.* at 5-6.

<sup>18</sup> *Id.* at 3-4.

that a baseline would be unlikely to represent typical use if large portions of the day were excluded for any event.<sup>19</sup> Second, CAISO points out that PG&E's premise is overly simplistic, and explains that behind-the-meter energy storage resources might not necessarily charge immediately before or following discharge; rather, they primarily charge based on time of day in order to take advantage of excess energy from solar installations.<sup>20</sup> Finally, CAISO contends that energy storage resources are more dynamic than typical loads, and thus it elected not to include a buffer period, and to prohibit storage resources that use the load-shift methodology from electing to be dispatched in longer hourly blocks. CAISO states that establishing the load shift methodology will allow CAISO and DMM to observe how behind-the-meter energy storage resources charge and discharge, and to refine the methodology if needed. Further, CAISO contends that, because it has demonstrated that its proposed revisions are just and reasonable, the Commission does not need to consider the justness and reasonableness of alternative rate designs.<sup>21</sup>

#### **IV. Discussion**

##### **A. Procedural Matters**

16. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2020), the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding.

17. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2) (2020), prohibits an answer to a protest unless otherwise ordered by the decisional authority. We accept CAISO's answer because it has provided information that assisted us in our decision-making process.

##### **B. Commission Determination**

18. As discussed below, we accept CAISO's proposed tariff revisions, effective October 1, 2020, as requested. We find that the proposed tariff revisions are just and reasonable measures to enhance demand response participation in the CAISO markets. As CAISO explains, EVSE and behind-the-meter energy storage resources are increasing throughout the CAISO footprint at a rapid pace, and the goal of the proposed tariff

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<sup>19</sup> *Id.* at 7.

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

<sup>21</sup> *Id.* at 7-9.

revisions is for CAISO's policies to keep pace with these technological advancements.<sup>22</sup> We find that allowing CAISO to implement these provisions will provide EVSE and behind-the-meter energy storage resources with access to CAISO's wholesale markets under just and reasonable rules that will also capture their unique characteristics and benefits.

19. First, regarding CAISO's EVSE sub-metering proposal, we find that the proposed tariff revisions help better incorporate EVSE into CAISO's demand response framework by assessing them based on their distinct physical and operational characteristics. The existing CAISO tariff provisions mandate that EVSE with onsite load must participate as a single demand response resource under a single performance methodology; but, as CAISO points out, EVSE might have very different load profiles from their onsite host load, and therefore might have very different responses to CAISO dispatch.<sup>23</sup> We therefore agree with CAISO that the proposed revisions will better capture EVSE's distinct characteristics, provide more accurate price signals to EVSE owners, and create incentives for them to participate in demand response programs. We also note that CAISO's proposal provides flexibility to market participants by providing them with options to elect to distinguish EVSE from onsite load, include EVSE with onsite load, or establish a demand response resource that consists entirely of one or more EVSE resources with no onsite load.

20. We find no need to impose a formal requirement for CAISO to monitor and report on EVSE sub-metering as requested by SoCal Edison. As CAISO points out in its Answer, it would not dispatch the sub-metered EVSE in the manner that SoCal Edison describes because the EVSE and host load are always a single resource, and neither receives its own individual dispatch schedule.<sup>24</sup> As such, we find that the EVSE methodology allows the demand response provider to capture and settle the EVSE response and host load response separately, and that market manipulation of the type contemplated by SoCal Edison is unlikely. Moreover, CAISO actively works with its DMM to monitor demand response providers, and states that it will continue to do so for EVSE, making refinements where necessary.<sup>25</sup> We encourage CAISO to continue to actively monitor its market parameters and transactions, but we do not find that imposing a monitoring and reporting requirement is necessary to render the proposal just and reasonable.

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<sup>22</sup> *Id.* at 2.

<sup>23</sup> Transmittal at 5.

<sup>24</sup> CAISO Answer at 5-6.

<sup>25</sup> *Id.* at 6.

21. We are not persuaded by PG&E's concerns about potential regulatory gaps or conflicts. As noted by CAISO, PG&E's assertion regarding possible conflicts with CPUC's Rule 24 appear to be based on a misunderstanding of CAISO's proposal because, under CAISO's proposal, there is only ever a single demand response provider, whether that resource consists of an onsite host load with separately sub-metered EVSE or EVSE with no onsite load.<sup>26</sup> Thus, we find that CAISO's proposal addresses the potential conflicts raised by PG&E. Regarding any other potential regulatory gaps, we encourage CAISO, CPUC, and stakeholders to coordinate and ensure consistency between the CAISO tariff and CPUC rules regarding demand response, EVSE, and sub-metering matters. We agree that it is important to develop a comprehensive regulatory framework to support the development and implementation of these nascent technologies, but find that PG&E has not demonstrated that the need for continuing enhancement of these rules renders the instant proposal unjust, unreasonable, or unduly discriminatory or preferential.

22. We find that CAISO's proposal to facilitate the load-shifting capabilities of behind-the-meter energy storage resources by creating distinct consumption and curtailment Resource IDs is just and reasonable, and therefore accept it. We acknowledge both the reliability and economic challenges associated with managing CAISO's ramping needs and recognize the benefit of behind-the-meter energy storage resources in mitigating these challenges by charging and discharging during specific conditions. Given that CAISO's current framework only recognizes the load curtailment feature and is not designed to capture a storage device's charging capability during oversupply conditions, we find that CAISO's proposed tariff revisions will better account for both services. Doing so should provide incentives for behind-the-meter energy storage resources to consume energy during oversupply conditions and supply energy during periods of high demand. Thus, we find that enabling CAISO to use both distinct functions of behind-the-meter energy storage resources should enhance reliability and market efficiency and may increase participation in demand response programs.

23. We will not adopt PG&E's request to require CAISO to utilize a two-hour buffer period for calculating baselines for its load-shift methodology, as we find that it is beyond the scope of this proceeding. Under FPA section 205, "the Commission limits its evaluation of a utility's proposed tariff revisions to an inquiry into 'whether the rates proposed by a utility are reasonable – and not to extend to determining whether a proposed rate schedule is more or less reasonable to alternative rate designs.'"<sup>27</sup> As discussed above, we find that CAISO's load-shifting proposal is just and reasonable and therefore we do not need to further consider PG&E's alternative proposal. Nevertheless,

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<sup>26</sup> *Id.* at 3-4.

<sup>27</sup> *Cal. Indep. Sys. Operator Corp.*, 141 FERC ¶ 61,135, at P 44 n.43 (2012) (quoting *City of Bethany v. FERC*, 727 F.2d 1131, 1136 (D.C. Cir. 1984)).

we agree with CAISO's assertion that there is no basis in the instant record for concluding that energy storage resources necessarily charge immediately before or after discharge and therefore cannot conclude that PG&E's suggested two-hour buffer is either necessary or appropriate. We also decline to impose a formal monitoring or reporting requirement for the same reasons as stated above with reference to the EVSE tariff provisions. However, because these tariff revisions apply to emerging and evolving technologies, we encourage CAISO to assess the impact of the load-shifting product, including the baseline calculation methodologies, and work with its stakeholders to develop any refinements that may be necessary.

The Commission orders:

CAISO's proposed revisions are hereby accepted, effective October 1, 2020, as requested, as discussed in the body of this order.

By the Commission.

( S E A L )

Nathaniel J. Davis, Sr.,  
Deputy Secretary.