

156 FERC ¶ 61,110  
FEDERAL ENERGY REGULATORY COMMISSION  
WASHINGTON, DC 20426

August 16, 2016

In Reply Refer To:  
California Independent System  
Operator Corporation  
Docket No. ER16-1735-000

California Independent System  
Operator Corporation  
250 Outcropping Way  
Folsom, CA 95630

Attention: William H. Weaver, Esq.

Dear Mr. Weaver:

1. On May 18, 2016, the California Independent System Operator Corporation (CAISO) filed proposed tariff revisions to: (1) allow non-generator resources,<sup>1</sup> which may include energy storage resources, to submit their state-of-charge as a bid parameter in the day-ahead market and self-manage their state-of-charge and energy limits; and (2) establish three performance methodologies to accommodate sub-metering and allow CAISO to ascertain demand response performance based upon the gross load independent of behind-the-meter generation, the behind-the-meter generator output itself, or both.<sup>2</sup> As discussed below, we accept CAISO's tariff revisions, effective October 1, 2016, as requested.

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<sup>1</sup> Non-generator resources have the capability to generate energy, consume energy, and/or curtail the consumption of energy, and can be dispatched to any operating level within their entire capacity range. CAISO, CAISO Fifth Replacement Electronic Tariff, app. A (Definitions) (CAISO Tariff).

<sup>2</sup> CAISO Transmittal at 2-3.

2. CAISO explains that its non-generator resource model is the principal means by which energy storage resources<sup>3</sup> currently participate in its markets.<sup>4</sup> CAISO states that this model allows batteries to operate continuously across an operating range that includes both negative and positive generation (i.e., charging and discharging). According to CAISO, a storage resource's available energy is a function of that resource's state-of-charge, which is currently provided to CAISO through telemetry. CAISO explains that although this approach works well in real-time, it does not provide scheduling coordinators with a usable bid parameter in the day-ahead market. Specifically, CAISO states that when a scheduling coordinator places bids in the day-ahead market on behalf of a non-generator resource, CAISO assumes that the initial state-of-charge is the ending value from the previous day's day-ahead awards. CAISO states that where there are no day-ahead awards, it assumes the initial state-of-charge to be 50 percent of the resource's MWh limit, which non-generator resources provide to CAISO's master file.<sup>5</sup>

3. CAISO proposes tariff provisions allowing scheduling coordinators for non-generator resources to submit state-of-charge as a bid parameter in the day-ahead market and to have the option to self-manage their energy limits and states-of-charge. CAISO asserts that replacing its current use of assumed state-of-charge values with actual state-of-charge bids will provide it with more accurate market information regarding the resource, and allow resource bids to better reflect actual conditions. CAISO contends that non-generator resources choosing to self-manage their energy limits and state-of-charge will be able to maintain their states-of-charge at an optimal level through their bidding strategies, enabling resources to better account for dynamic needs in real-time and avoid uninstructed imbalance energy settlements.

4. In addition, CAISO states that, presently, energy storage resources may participate in its markets as demand response resources by providing load curtailment. CAISO states that it currently measures demand response performance (i.e., demand reductions) using relevant historical load meter data to establish a customer baseline and comparing this baseline to actual load meter data to calculate the customer's demand reduction. CAISO states that this approach has limitations for demand response resources that incorporate energy storage resources or behind-the-meter generation to offset energy

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<sup>3</sup> CAISO states that energy storage resources include batteries, flywheels, compressed air, and other emerging technologies, but not pumped-storage hydro units, which operate under separate rules. *Id.* at 1 n.1, 6.

<sup>4</sup> *Id.* at 2.

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

drawn from the grid because, without separate metering of behind-the-meter generation, CAISO cannot distinguish the cause of demand response behind-the-meter.<sup>6</sup>

5. CAISO proposes to revise its tariff to implement metering generator output methodologies developed by the North American Energy Standards Board (NAESB) to acquire accurate meter data on demand response performance.<sup>7</sup> CAISO states that the metering generator output methodologies require a second meter, or sub-meter, to isolate the output from any behind-the-meter generation. CAISO states that under this configuration, the overall demand response at the location can be separated into load curtailment and behind-the-meter generation in one of three new ways. First, CAISO states that, under the Customer Load Baseline Methodology, a demand response resource may establish its baseline and actual output by, at all times, providing CAISO with meter data reflecting total gross consumption, independent of any behind-the-meter generation.<sup>8</sup> Second, under the proposed Metering Generator Output Methodology, a demand response resource may calculate its baseline and actual output based upon the load curtailment provided by the behind-the-meter generation alone. CAISO explains that the demand response resource would then be awarded in the market for load curtailment provided by the behind-the-meter generator in excess of what it generally provides to curtail facility load, namely, its generating baseline.<sup>9</sup> Third, CAISO states that a demand response resource could use both of the proposed methodologies described above simultaneously. Under this approach, the demand response resource would have separate baseline and actual demand curtailment values—one load-based and one generation-based—and CAISO would then settle the resource using the sum of these two baselines.<sup>10</sup> CAISO concludes that its proposed metering generator output methodologies will enable greater and more accurate participation in the CAISO markets by energy storage, load-curtailling, and behind-the-meter generation resources.

6. Notice of CAISO's filing was published in the *Federal Register*, 81 Fed. Reg. 33,528-02 (2016), with comments and interventions due on or before June 8, 2016.

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<sup>6</sup> *Id.* at 8-9.

<sup>7</sup> *See* North American Electric Standards Board Inc., WEQ-015, Section 015-1.28 (Sept. 30, 2015).

<sup>8</sup> CAISO Transmittal at 9-10 (citing proposed CAISO Tariff §§ 4.13.4.1, 11.6.1).

<sup>9</sup> *Id.* at 10-11.

<sup>10</sup> *Id.* at 12 (citing proposed CAISO Tariff § 11.6.3).

Six Cities;<sup>11</sup> the Alliance for Retail Energy Markets; Northern California Power Agency; California Department of Water Resources State Water Project; Modesto Irrigation District; M-S-R Public Power Agency and the City of Santa Clara, California; NRG Power Marketing LLC and GenOn Energy Management, LLC; Pacific Gas and Electric Company; and Southern California Edison Company filed timely motions to intervene. The California Energy Storage Alliance (CESA) and SolarCity Corporation (SolarCity) timely filed motions to intervene and comments in support of CAISO's filing.

7. SolarCity supports the current tariff filing and encourages the Commission to accept the filing in a timely manner. SolarCity maintains that the proposed tariff changes do not address all barriers to behind-the-meter energy storage, including barriers posed to such resources that are classified as demand response. However, SolarCity states that such issues can be addressed in future proceedings and should not affect the Commission's acceptance of the current filing.<sup>12</sup>

8. CESA, like SolarCity, supports CAISO's filing. CESA notes that it expressed concerns with the proposed Metering Generator Output Methodology during the stakeholder process because CESA believed it calculated baselines in a conservative manner that could strand demand response capacity. However, although CESA continues to believe these problems exist, CESA endorses the Metering Generator Output Methodology at this time, noting that CAISO has committed to review other new baseline enhancements in the stakeholder process.<sup>13</sup>

9. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2015), the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding.

10. We find that CAISO's tariff revisions are just and reasonable and not unduly discriminatory. CAISO's proposal to allow non-generator resources to provide their initial state-of-charge as a bid parameter in the day-ahead market will allow resource bids to better reflect operational conditions accurately, which will help CAISO more precisely manage the resources participating in its markets. CAISO's proposal to allow non-generator resources to self-manage their energy limits and state-of-charge in real-time will better align the non-generator resource model with the traditional generation models and give non-generator resources more flexibility to optimize their physical

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<sup>11</sup> Six Cities consist of the Cities of Anaheim, Azusa, Banning, Colton, Pasadena, and Riverside, California.

<sup>12</sup> SolarCity Comments at 2-4.

<sup>13</sup> CESA Comments at 3-5.

capabilities in real time. In addition, CAISO's adoption of the NAESB metering generator output methodologies for calculating demand response performance will allow for greater participation by, and more accurate measurement of, energy storage and behind-the-meter resources participating in CAISO's markets, thereby promoting enhanced competition in the wholesale markets. Therefore, we accept CAISO's tariff amendments to implement energy storage enhancements, effective October 1, 2016, as requested.

By direction of the Commission.

Kimberly D. Bose,  
Secretary.