181 FERC ¶ 61,146
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Richard Glick, Chairman;
James P. Danly, Allison Clements,
Mark C. Christie, and Willie L. Phillips.

California Independent System Operator Corporation Docket No. ER22-2881-000

ORDER ACCEPTING TARIFF REVISIONS

(Issued November 18, 2022)

1. On September 19, 2022, the California Independent System Operator Corporation (CAISO) filed, pursuant to section 205 of the Federal Power Act,[1] proposed revisions to its Open Access Transmission Tariff (Tariff) designed to prevent electric storage resources from receiving real-time market bid cost recovery for real-time market intervals in which the Ancillary Service State of Charge (AS SOC) constraint requires such a resource to charge or discharge. As discussed below, we accept the proposed Tariff revisions, effective September 20, 2022, as requested.

I. Background

2. In its filing, CAISO explains that electric storage resources can provide both energy and ancillary services in the CAISO market. CAISO states that all resources providing ancillary services must be dispatchable to ensure that resources with ancillary service awards can provide the procured level of ancillary service on a continuous basis for at least 30 minutes in the real-time market.[2] CAISO further explains that its software enforces an AS SOC constraint to ensure that electric storage resources that are scheduled to provide ancillary services have a sufficient state of charge to actually provide those services in real-time for at least 30 minutes.[3]

3. According to CAISO, the CAISO Department of Market Monitoring (DMM) observed earlier this year that, under certain circumstances, electric storage resources that have multiple schedules with regulation down awards—whether the resource bid or self-scheduled to provide regulation down—receive "unusually large and unwarranted bid

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[1] 16 U.S.C. § 824d.

[2] Transmittal at 3.

[3] *Id*. at 2-3.

cost recovery payments."[4] Specifically, CAISO alleges that such payments are the result of a combination of high energy bids from the electric storage resources and the application of the AS SOC constraint, which will dispatch these resources to discharge energy when there is insufficient headroom below their maximum state of charge to ensure their ability to continue providing regulation down as scheduled. CAISO further states that when prevailing LMPs are below the electric storage resource's energy bid during the real-time market interval in which it is dispatched, the electric storage resource is eligible to receive bid cost recovery payments, which CAISO asserts will be "abnormally high" when an electric storage resource's energy bid is at or near the bid cap. CAISO further explains that it and DMM agree that these excess bid cost recovery payments undermine market efficiency and cannot be justified by the principles underlying bid cost recovery.[5]

4. CAISO asserts that these excessive real-time market bid cost recovery payments have caused customers to bear significant and unjustified uplift costs, with individual electric storage resources receiving real-time market bid cost recovery payments ranging from $100,000 to $240,000 in a single day in March 2022. According to CAISO, these excessive real-time market bid cost recovery payments have amounted to about $7 million in uplift payments and account for more than half of all real-time market bid cost recovery payments to electric storage resources to date in 2022.[6]

II. Filing

5. CAISO argues that immediate action is necessary to prevent future excessively high real-time market bid cost recovery payments to electric storage resources. CAISO therefore proposes to revise its Tariff to make electric storage resources ineligible to receive bid cost recovery payments in real-time market intervals when the AS SOC constraint applies. Additionally, CAISO proposes to make the AS SOC constraint

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[4] *Id.* at 3. CAISO states that although its market optimizes the start-up and minimum load costs for the least-cost commitment or dispatch of all resources, only the resource's energy bid is used to set the locational marginal price (LMP) for a given market interval. CAISO explains that bid cost recovery payments, a form of uplift, are intended to address the risk that the difference between the LMP and the resource's energy bid will provide insufficient revenue to compensate that resource for its start-up and minimum load costs and intertemporal constraints. *Id.* at 5.

[5] *Id.* at 3-4.

[6] *Id.* at 4.

explicit in its Tariff, so that all scheduling coordinators and resource owners fully understand it.[7]

6. CAISO explains that its filing addresses what DMM identified as the cause of the excessively high real-time market bid cost recovery payments to electric storage resources at issue here. CAISO states that when an electric storage resource bids or self-schedules to provide regulation down, and then receives multiple schedules with regulation down awards, the resource may charge repeatedly to meet the regulation down schedules, resulting in a high state of charge. CAISO explains that an electric storage resource must hold sufficient headroom below its maximum or above its minimum state of charge to ensure its ability to provide the regulation service consistent with its schedule for the subsequent 30 minutes. For example, CAISO indicates that when an electric storage resource is charged above the state of charge needed to comply with its regulation down award such that it retains insufficient headroom, the AS SOC constraint will dispatch the resource to discharge energy in order to maintain sufficient headroom to meet this requirement. CAISO states that when the AS SOC constraint is enforced, electric storage resources that discharge are compensated at the prevailing real-time LMP plus real-time market bid cost recovery payments in some instances.[8]

7. CAISO states that, earlier this year, DMM discovered that regulation down awards to electric storage resources or self-provisions by electric storage resources[9] for long periods, when paired with high energy bids from those resources, resulted in some electric storage resources receiving unusually large and unwarranted real-time market bid cost recovery payments.[10] CAISO explains that DMM observed situations in which the AS SOC constraint caused CAISO's optimization software to issue dispatch instructions that were uneconomic because the prevailing LMPs were below the electric storage resources' energy bids. As a result, these resources were eligible to receive real-time market bid cost recovery payments equal to the difference between the electric storage resource's energy bid and the prevailing real-time LMP. Because the electric storage resources' energy bids were at or near the bid cap for energy offers, CAISO states that

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[7] *Id*. at 13.

[8] *Id*. at 3-4.

[9] CAISO's Tariff allows market participants to provide their own ancillary services. CAISO, CAISO eTariff, § 8.6 (Obligations For and Self-Provision of Ancillary Servs.), § 8.6.2 (Right to Self Provide) (4.0.0).

[10] Transmittal at 3. CAISO states that neither it nor DMM thinks the relatively high bid cost recovery payments resulted from attempts to exploit or manipulate existing rules, but both agree these bid cost recovery payments are unwarranted.

the real-time market bid cost recovery payments were abnormally high.[11] CAISO speculates that, rather than submitting energy bids based on the actual costs of providing energy, scheduling coordinators for electric storage resources are submitting energy bids based on opportunity costs or the desire to avoid being dispatched to provide energy.[12] CAISO argues that it is inappropriate for these resources to reflect opportunity costs through their energy bids and that they should instead reflect these costs through their ancillary services bids.[13]

8. In the instant filing, CAISO proposes several Tariff revisions to address this issue. First, CAISO proposes to revise its Tariff to specify that electric storage resources are ineligible to receive real-time market bid cost recovery payments for real-time market intervals in which the AS SOC constraint applies.[14] CAISO explains that, in those real-time market intervals in which the market optimization software dispatches the resource to ensure it has sufficient state of charge to meet its ancillary service schedule and associated requirements, under its proposal the electric storage resource would be ineligible to receive bid cost recovery payments for real-time market bid cost shortfalls, which represent the difference between a resource's real-time bid and its market revenue. CAISO notes that electric storage resources are governed by similar provisions when they submit self-schedules or use CAISO's end-of-hour state of charge bid parameter to prioritize a particular state of charge over their bid curve.[15]

9. CAISO argues that this revision is just and reasonable because it will prevent the recurrence of excessively high, unjustified real-time market bid cost recovery payments to electric storage resources.[16] CAISO also asserts that making electric storage resources ineligible for real-time market bid cost recovery in the limited circumstances proposed here is consistent with existing principles underlying bid cost recovery in CAISO. According to CAISO, electric storage resources face no appreciable start-up or minimum load costs, and their fast-ramping capabilities limit the sort of inter-temporal constraints that could lead a resource to be infra-marginal in one interval and then held online when it becomes supra-marginal because of inter-temporal constraints. Therefore, CAISO

[11] *Id*. at 4.

[12] *Id*. at 12.

[13] *Id*. at 12 n.23.

[14] CAISO, CAISO eTariff, § 11.6 (PDRs, RDRRs, DERA, Non-Generator Res.), § 11.6.6 (Settlements of Non-Generator Resources) (2.0.0).

[15] Transmittal at 13-14.

[16] *Id*. at 13.

argues, although electric storage resources may receive legitimate bid cost recovery payments in some cases, reducing real-time market bid cost recovery as proposed when the AS SOC constraint applies "would not create incentives for storage resources to internalize new costs within their existing [ancillary services] bids."[17]

10. Second, CAISO proposes to make the AS SOC constraint explicit in its Tariff so resource owners and scheduling coordinators understand the market optimization will enforce the requirement if they do not meet it on their own. Specifically, CAISO proposes to revise its Tariff to state that, when an electric storage resource will not have sufficient state of charge to meet its ancillary services schedule, CAISO will dispatch the electric storage resource to have sufficient state of charge to meet its ancillary service schedule.[18] CAISO notes that its Tariff already describes the 30-minute continuous ancillary service capability requirement, but explains that the AS SOC constraint is only currently reflected in its business practice manual for market operations as an implementation detail. CAISO argues that making the AS SOC constraint more transparent by including it in the Tariff is warranted.[19]

11. CAISO also states that it did not undertake a stakeholder initiative before making this filing because doing so could have had the perverse effect of informing scheduling coordinators for electric storage resources how to exploit this situation. Therefore, CAISO states that it sought and received approval for this Tariff amendment from its Board of Governors and the Western Energy Imbalance Market Governing Body on an expeditious basis without conducting a stakeholder process.[20] However, CAISO notes that it is immediately initiating a process to discuss with stakeholders what, if any, other longer-term enhancements might be made to the Tariff to address this issue and states that it will submit any Tariff revisions resulting from the upcoming stakeholder process for Commission acceptance.[21]

12. CAISO requests waiver of the Commission's 60-day prior notice requirement in order for the proposed AS SOC constraint Tariff revisions to become effective September 20, 2022, one day after the date of the filing. CAISO states that there is good cause to

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[17] *Id*. at 14.

[18] CAISO, CAISO eTariff, § 8.4 (Technical Requirements for Providing Ancillary Servs.) § 8.4.1.1 (Regulation) (20.0.0) *see id*. 8.4.3 (Ancillary Service Capability Standards) (3.0.0).

[19] Transmittal at 14.

[20] *Id*. at 12-13.

[21] *Id*. at 13.

grant waiver because permitting the Tariff revisions to go into effect on September 20, 2022 will expeditiously address the issue of electric storage resources' unwarranted high real-time market bid cost recovery payments and immediately prevent resources from taking advantage of the existing rules.[22]

III. Notice and Responsive Pleadings

13. Notice of CAISO's filing was published in the *Federal Register*, 87 Fed. Reg. 58,080 (Sept. 23, 2022), with interventions and protests due on or before October 11, 2022. Timely motions to intervene were filed by the Northern California Power Agency; Public Citizen, Inc.; Boston Energy Trading and Marketing LLC (Boston Energy); the Cities of Anaheim, Azusa, Banning, Colton, Pasadena, and Riverside, California; and the City of Santa Clara, California. Southern California Edison Company (SoCal Edison) filed a motion to intervene out-of-time. DMM filed a timely motion to intervene and comments. Pacific Gas and Electric Company (PG&E) filed a timely motion to intervene and protest. CAISO and Boston Energy filed answers to PG&E's comments.

A. DMM Comments

14. DMM states that it supports CAISO's proposal to exclude from an electric storage resource's real-time market bid cost recovery calculations any market intervals when that resource is dispatched to manage its state of charge in order to preserve an ancillary services award.[23] DMM estimates that, from January 2022 through August 2022, electric storage resources received approximately $13.8 million in real-time market bid cost recovery payments, of which $8 million (or 58%) resulted from uneconomic real-time dispatches issued by the market software to manage state of charge related to ancillary services awards.[24] In this scenario of uneconomic real-time dispatch for electric storage resources, DMM states that elevated energy bids, potentially submitted for legitimate business reasons, may further exacerbate real-time market bid cost recovery payments and may create additional challenges in the effectiveness of behavioral monitoring as a sustainable means to address this issue.[25]

15. DMM also states that it supports CAISO's proposed Tariff changes because they theoretically correct CAISO's market design. DMM states that the bid cost recovery payment is designed to provide an incentive for traditional generators to properly allocate

[22] *Id.* at 15.

[23] DMM Comments at 1-2.

[24] *Id.* at 3-4.

[25] *Id.* at 4-5.

costs across the three-part bid components of start-up, minimum load, and energy.[26] DMM states that the cost of real-time charging and discharging to maintain state of charge capability is a cost to electric storage resources of providing regulation service. According to DMM, this cost is similar in nature to the expected cost of automatic generation control movements by all resources providing regulation.[27] Therefore, DMM does not view it as appropriate for electric storage resources to receive real-time market bid cost recovery associated with maintaining state of charge to support a regulation award. DMM further argues that electric storage resources should instead reflect the expected cost of charging and discharging to maintain a regulation award in day-ahead ancillary services bids to provide regulation service.[28]

16. DMM notes that CAISO's proposed Tariff changes do not address other known issues with electric storage resource bid cost recovery design, such as the potential for bid cost recovery resulting from differences between real-time and day-ahead state of charge.[29] DMM notes that CAISO's existing bid cost recovery rules were designed for traditional generators and do not contemplate the unique characteristics of electric storage resources. Therefore, DMM states that it has also encouraged CAISO to conduct a complete review of bid cost recovery design for electric storage resources in the near future.[30]

17. Finally, DMM supports CAISO's decision to file revisions to its Tariff without a stakeholder process because of the concern of revealing a market issue that could be exploited before it could be addressed.[31] DMM supports CAISO's plan to conduct a stakeholder process after this filing to assess all potential solutions to the identified electric storage bid cost recovery issue.[32]

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[26] *Id.* at 5.

[27] *Id.* at 6.

[28] *Id.* at 7.

[29] *Id.* at 6-7.

[30] *Id.* at 7.

[31] *Id.* at 9.

[32] *Id.*

B. PG&E Protest

18. PG&E requests that the Commission accept in part and modify in part CAISO's proposed Tariff revisions. PG&E states that it shares the concern about the potential for strategic bidding behavior by electric storage resources in the circumstances identified by CAISO, but it argues that the proposal does not adequately or fairly address the underlying issue and would allow CAISO to dispatch these resources without cost-based compensation.[33] PG&E posits that the problem CAISO and DMM have identified stems from the fact that CAISO's market optimization does not currently account for regulation energy (i.e., the energy lost or gained by electric storage resources while providing regulation service). PG&E asserts that the inability of the market to account for regulation energy means electric storage resources' regulation awards do not consider the state of charge impact of delivering the awarded regulation service and can trigger the AS SOC constraint.[34]

19. PG&E argues that CAISO's dispatch of an electric storage resource could, at times, be both an economic dispatch and a dispatch to satisfy an AS SOC constraint. PG&E asserts that under CAISO's proposal, the entire dispatched quantity would be ineligible for real-time market bid cost recovery. PG&E takes issue with CAISO's argument that an electric storage resource can include opportunity costs in its regulation service bids to avoid triggering its AS SOC constraint. According to PG&E, this is impractical because regulation service by its nature is unpredictable and the scheduling coordinator for an electric storage resource does not have visibility or control over when its resource may trigger the AS SOC constraint.[35]

20. PG&E asserts that CAISO's proposal to disallow real-time market bid cost recovery when the AS SOC constraint is triggered is overly broad; therefore, PG&E proposes an alternative to CAISO's proposal. Rather than disallowing real-time market bid cost recovery when the AS SOC constraint binds, PG&E proposes that CAISO use an electric storage resource's default energy bids in calculating real-time market bid cost recovery. PG&E argues that this approach is a natural extension of how the default energy bid is used in real-time market bid cost recovery calculations when a resource is subject to market power mitigation and would provide for recovery of reasonable, cost-based charging and discharging costs of an electric storage resource when the AS SOC

[33] PG&E Protest at 3.

[34] *Id*. at 4-5.

[35] *Id*. at 5-6.

constraint is triggered while foreclosing the possibility of excessive real-time market bid cost recovery payments.[36]

C. Boston Energy Answer

21. Boston Energy supports CAISO's effort to eliminate electric storge resources from receiving excessive real-time market bid cost recovery payments, but shares the concerns expressed by PG&E that real-time market bid cost recovery in the narrowly defined scenario identified by CAISO should be based on a cost-based calculation rather than entirely eliminated. Boston Energy states that given that there is no way for an electric storage resource that is providing regulation up or regulation down service to manage its state of charge when providing the specified service, simply eliminating any and all cost recovery payments seems unfair to electric storage assets acting in good faith and offering their full capability to CAISO markets. Boston Energy states that accepting PG&E's alternative proposal to use an electric storage resource's real-time default energy bid as the basis for real-time market bid cost recovery under this narrowly defined scenario would allow these resources to be fairly compensated based on reasonable charging and discharging costs.[37]

D. CAISO Answer

22. CAISO first argues that PG&E's alternative proposal is outside of the Commission's scope of review and that CAISO will consider alternative proposals in its stakeholder initiative. CAISO asserts that PG&E does not argue that CAISO's proposed Tariff revisions are unjust, unreasonable, or unduly discriminatory and that PG&E merely offers that its proposal is more reasonable. CAISO explains that PG&E's proposal is not a minor deviation from its proposal, but a new rate design. CAISO asserts that the Commission cannot require such a change on compliance.[38]

23. CAISO states that PG&E mischaracterizes CAISO's market optimization. Specifically, CAISO asserts that PG&E's claim that CAISO's optimization does not account for energy lost or gained by an electric storage resource providing regulation is inaccurate. CAISO explains that if its optimization did not consider an electric storage resource's state of charge and ancillary service schedules, CAISO would not have the AS SOC constraint, which predicts when electric storage resources will likely have insufficient headroom to provide the regulation energy likely needed in the next interval.

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[36] *Id.* at 6-7.

[37] Boston Energy Answer at 1-3.

[38] CAISO Answer at 2-3 (citing *NRG Power Mktg., LLC v FERC*, 862 F.3d 108, 115 (D.C. Cir. 2017)).

CAISO states that the AS SOC constraint is necessary because the day-ahead market must make some prediction of the next day's conditions and a resource's state of charge in a given real-time interval may differ from forecasts. CAISO adds that while it plans to explore optimization solutions to help align the day-ahead and real-time markets, the optimization issues PG&E describes are immaterial as to whether electric storage resources should receive real-time market bid cost recovery payments in addition to energy payments when they have an insufficient state of charge to meet the ancillary service schedules they bid to provide.[39]

24. CAISO also refutes PG&E's assertion that it is not possible for a scheduling coordinator to maintain its resource's state of charge to avoid the AS SOC constraint because regulation schedules are unpredictable. CAISO explains that if PG&E's statement were true, every electric storage resource providing regulation would trigger the AS SOC constraint, which is not the case. CAISO states that scheduling coordinators for electric storage resources control how much of their capacity they want to make available to provide regulation and over what duration.[40]

25. CAISO also disagrees with PG&E's assertion that including opportunity costs within its ancillary services bids is not viable because scheduling coordinators cannot predict the exact amount of regulation energy the electric storage resource may be scheduled to provide. CAISO claims this argument is misleading and explains that imperfect foreknowledge of market and regulation dispatches is inherent to modern markets but that this does not mean scheduling coordinators lack the ability to account for plausible results based on their own ancillary services bids. CAISO explains that, as DMM noted, electric storage resource scheduling coordinators should "reflect the expected cost of charging and discharging to maintain a regulation award in day-ahead bids to provide regulation service."[41]

26. CAISO states that PG&E fails to explain why electric storage resources warrant real-time market bid cost recovery payments or why default energy bids should inform bid cost recovery. CAISO explains that when the AS SOC constraint compels an electric storage resource to charge or discharge, CAISO settles that imbalance energy at the LMP just like typical charging and discharging. CAISO reiterates that electric storage resources generally do not have the start-up and ramping constraints that bid cost recovery payments are meant to address. CAISO states that it considered using the default energy bid as an alternative when formulating its proposal but concluded it was inappropriate. CAISO asserts that neither bid cost recovery nor the default energy bid

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[39] *Id*. at 3-4.

[40] *Id*. at 4-5.

[41] *Id*. at 5 (citing DMM Comments at 7).

was designed to pay electric storage resources beyond the LMP for energy supplied when they cannot meet ancillary service schedules they bid to provide.[42]

IV. Discussion

A. Procedural Matters

27. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2021), the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding.

28. Pursuant to Rule 214(d) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214(d), we grant SoCal Edison's late-filed motion to intervene given its interest in the proceeding, the early stage of the proceeding, and the absence of undue prejudice or delay.

29. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2) (2021), prohibits an answer to a protest unless otherwise ordered by the decisional authority. We accept CAISO's and Boston Energy's answers because they have provided information that assisted us in our decision-making process.

B. Substantive Matters

30. We find CAISO's proposed Tariff revisions are just and reasonable and not unduly discriminatory or preferential, and we therefore accept them effective September 20, 2022, as requested.[43] Specifically, as discussed further below, we find that the revisions are just and reasonable measures that will prevent future occurrences of the excessively high, unjustified real-time market bid cost recovery payments to electric storage resources identified by CAISO and DMM.

31. As a threshold matter, the Commission need only decide whether CAISO's proposal to eliminate real-time market bid cost recovery payments to electric storage resources when the AS SOC constraint binds is just and reasonable and not unduly discriminatory or preferential. CAISO does not need to demonstrate that its proposal is

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[42] *Id*. at 6-7.

[43] We agree with CAISO that permitting the Tariff revisions to go into effect the day after filing will expeditiously address the issues that CAISO identifies in its filing and prevent resources from taking advantage of the existing rules before the proposed Tariff revisions go into effect. We therefore grant CAISO's request for waiver of the 60-day prior notice requirement for good cause shown. *See Cent. Hudson Gas & Elec. Corp.*, 60 FERC ¶ 61,106, *reh'g denied*, 61 FERC ¶ 61,089 (1992).

the *most* just and reasonable approach, and the Commission need not consider whether alternative proposals are superior.[44] Although PG&E requests that the Commission partially accept CAISO's proposal and require CAISO to implement an alternative proposal using the default energy bid in calculating real-time market bid cost recovery payments, 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."[45] Therefore, we do not consider PG&E's alternative proposal here.

32. CAISO proposes to make electric storage resources ineligible for real-time market bid cost recovery payments in a narrowly-defined circumstance. Specifically, when an electric storage resource bids into the market, it may submit both ancillary services bids and energy bids. When an electric storage resource receives an ancillary service award for a market interval, the resource may be subject to charge or discharge instructions from CAISO in previous intervals to create headroom below its maximum or above its minimum state of charge to ensure it is able to provide the ancillary service.[46] Under the existing Tariff, the electric storage resource receives the real-time LMP for the energy generated to provide the awarded ancillary service, plus real-time market bid cost recovery payments when the AS SOC constraint is triggered, the resource is scheduled to discharge, and its energy bid is higher than the real-time LMP.[47] According to CAISO and DMM, this practice has resulted in excessively high and unwarranted payments to electric storage resources when the AS SOC constraint applies. CAISO's proposal would avoid this result.

33. We find that CAISO's proposed Tariff revisions are just and reasonable and consistent with CAISO's existing principles underlying bid cost recovery, which is primarily intended to provide uplift payments to a resource when energy market revenues are not sufficient to cover its operating costs, often due to intertemporal constraints, allowing it to recover start-up, minimum load, energy bid costs, and other operating

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[44] *See, e.g.*, *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,231, at P 222 (2014) (citing *Cal. Indep. Sys. Operator Corp.*, 128 FERC ¶ 61,265, at P 21 (2009); *Cities of Bethany v. FERC*, 727 F.2d 1131, 1136 (D.C. Cir. 1984)).

[45] *Cal. Indep. Sys. Operator Corp.*, 141 FERC ¶ 61,135, at P 44 n.43 (2012) (quoting *Cities of Bethany v. FERC*, 727 F.2d at 1136).

[46] CAISO, *Business Practice Manual: Market Operations*, § 7.8.2.5 Stored Energy Management for Non Generator Resources in Real-Time (2022); CAISO, CAISO eTariff, § 8.4 (Technical Requirements for Providing Ancillary Servs.), § 8.4.1.1 (Regulation) (20.0.0), *see id.* § 8.4.3 (Ancillary Service Capability Standards) (3.0.0).

[47] Transmittal at 5.

costs.[48] We agree with CAISO and DMM that electric storage resources do not generally experience these types of operating constraints or operating costs.[49] As such, we find that it is just and reasonable to limit the eligibility of electric storage resources to receive real-time bid cost recovery payments in the narrow circumstances proposed by CAISO.

34. In addition, we agree with CAISO that in these narrowly-defined circumstances, it is just and reasonable to compensate electric storage resources at the real-time LMP for energy supplied when dispatch is required to ensure they can physically provide the ancillary service schedules they bid to provide and were awarded.[50] The Commission recently recognized that limitations on bid cost recovery for electric storage resources will avoid over-recovery and gaming, and that a resource should bear the cost of an uneconomic dispatch if it arises from CAISO respecting that resource's preferred end-of-hour state of charge target.[51] In the instant filing, CAISO and DMM have explained how CAISO's bid cost recovery mechanism causes unwarranted real-time market bid cost recovery payments in certain circumstances and that the mechanism could be exploited. Because CAISO's proposed Tariff revisions are a targeted solution to resolve the issue of certain resources receiving excessive and undue uplift payments, we find that they are just and reasonable and not unduly discriminatory or preferential.

35. PG&E claims that CAISO's proposal does not adequately or fairly address the underlying issue and would allow CAISO to dispatch storage resources without cost-based compensation. We disagree. As CAISO explains, when an AS SOC constraint compels an electric storage resource to charge or discharge, CAISO settles the resulting energy as imbalance energy, and the resource receives compensation equal to the real-time LMP during that market interval.[52] Moreover, we agree with CAISO that scheduling coordinators have the ability to account for plausible results based on experience with their own ancillary services bids. Under CAISO's proposal, scheduling coordinators have the opportunity to reflect the expected costs of charging and

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[48] Transmittal at 3; DMM Comments at 5.

[49] Transmittal at 9; DMM Comments at 6-7.

[50] CAISO Answer at 7.

[51] *Cal. Indep. Sys. Operator Corp.*, 177 FERC ¶ 61,051, at P 28 (2021). In that proceeding, the Commission accepted CAISO's Tariff revisions that proposed to make electric storage resources ineligible for bid cost recovery of real-time market revenue shortfalls in the hour the resource submits an end-of-hour state of charge bid parameter, the hour preceding an end-of-hour state of charge bid, and the hour preceding a self-schedule. *Id.*

[52] CAISO Answer at 6.

discharging to maintain a regulation award in their day-ahead regulation service bids. To the extent that an electric storage resource anticipates costs associated with charging or discharging due to the AS SOC constraint to provide the regulation it offers to the CAISO market, it may include those costs in its market bid for regulation.

36. While we find the instant proposal just and reasonable for the reasons described herein, we nonetheless note that CAISO has offered to monitor the impacts of the bid cost recovery provisions to electric storage resource settlements and continue to engage with stakeholders to examine whether any other longer-term enhancements might be made to the Tariff to address this issue.

<u>The Commission orders</u>:

CAISO's proposed Tariff revisions are hereby accepted, effective September 20, 2022, as requested, as discussed in the body of this order.

By the Commission.

(S E A L)

Debbie-Anne A. Reese,
Deputy Secretary.