

175 FERC ¶ 61,168
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

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

California Independent System
Operator Corporation

Docket No. ER21-1551-000

ORDER ACCEPTING TARIFF REVISIONS

(Issued May 28, 2021)

1. On March 29, 2021, 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) to enhance its resource adequacy rules. In this order, we accept the proposed Tariff revisions pertaining to the minimum state of charge tool to be effective no later than June 15, 2021, as requested, subject to CAISO notifying the Commission of the actual effective date of the Tariff revisions within five business days of their implementation. We accept the proposed Tariff revisions other than those pertaining to the minimum state of charge tool to be effective June 1, 2021, as requested.

I. Background

2. In CAISO's balancing authority area, most capacity is procured pursuant to California Public Utilities Commission (CPUC) administered programs, including the resource adequacy program. The CPUC and other local regulatory authorities set requirements for system resource adequacy for their jurisdictional load serving entities (LSEs). The CPUC also allocates to its jurisdictional LSEs requirements for local and flexible capacity that are set by CAISO based on its technical studies. LSEs are then obliged to procure capacity pursuant to these requirements.

3. Under CAISO's Tariff, LSEs must make annual and monthly showings to CAISO to confirm that they have procured the required amounts of resource adequacy capacity. The annual filing must, at a minimum, set forth the local capacity area resources, if any, procured by the LSE. The monthly filings must identify all resources the LSE will rely upon to satisfy its resource adequacy obligations. The monthly filings are due 45 days

¹ 16 U.S.C. § 824d.

before the start of the applicable month, followed by a 15-day cure period during which LSEs and suppliers may amend their monthly resource adequacy plans.² To the extent LSEs are short on any requirements, CAISO will inform the applicable local regulatory authority and may procure backstop capacity through its Capacity Procurement Mechanism (CPM).³ Resources shown on the LSEs' resource adequacy supply plans are considered resource adequacy resources and have obligations in CAISO's market associated with that status, including a must-offer obligation, which requires the resources to bid into CAISO's market or alternatively have a bid inserted on their behalf.⁴

4. Resources designated for resource adequacy may take forced outages to the extent any portion of their capacity is not available, but this non-availability will count against them when they are assessed by CAISO's monthly Resource Adequacy Availability Incentive Mechanism (RAAIM).⁵ The RAAIM looks at the percentage of availability assessment hours⁶ for which a resource was available over the course of the month and assesses incentive payments and non-availability charges based on how far a resource exceeded or fell short of a 96.5% availability standard.⁷

5. Resources may avoid non-availability charges for going on outage by receiving, in advance, an approved maintenance outage. The Tariff requires resource adequacy resources going on a maintenance outage to provide substitute capacity of a similar type to the resource going on outage. However, under CAISO's currently effective Tariff, a resource may be allowed to go on a maintenance outage without providing substitute capacity to the extent CAISO determines that the substitute capacity is not needed.⁸

6. CAISO states that conditions in its balancing authority area are rapidly transforming into a paradigm where: (1) power needs are being served by a cleaner but more variable resource fleet; and (2) a proliferation of smaller and more diverse

² CAISO Tariff, § 40.2.2.4.

³ *Id.*, § 43A.

⁴ *Id.*, § 40.6.

⁵ *Id.*, § 40.9.3.6.

⁶ Availability assessment hours are the hours of the month specified in accordance with section 40.9.3 of the CAISO Tariff, which CAISO uses to apply the RAAIM availability standards.

⁷ CAISO Tariff, §§ 40.9.3.1, 40.9.5.

⁸ *See id.*, § 40.9.3.6.

LSEs are playing a larger role in resource adequacy procurement. CAISO states that these factors led it to open a stakeholder initiative in 2018 to re-examine and update all aspects of its resource adequacy-related Tariff provisions.⁹

7. In addition, during August 2020, California experienced extreme heat conditions that resulted in CAISO instituting rolling electricity outages on August 14 and 15 and declaring system emergencies on several other days. Following these events, CAISO, the CPUC, and the California Energy Commission (CEC) undertook a root cause analysis to determine the factors contributing to the outages. The Final Root Cause Analysis¹⁰ recognized that demand during the heat events exceeded resource adequacy procurement targets and observed that CAISO was undertaking stakeholder processes to enhance its resource adequacy rules by summer 2021 to better prepare CAISO to address potential extreme heat events without having to resort to load shedding.¹¹

II. CAISO Proposal

8. CAISO proposes the following four sets of Tariff revisions: (1) adopting a minimum state of charge requirement for storage resources that provide resource adequacy capacity; (2) requiring substitute capacity for all maintenance outages of resource adequacy resources; (3) clarifying that extending the scope or duration of an existing outage requires a new outage request; and (4) updating the local capacity technical study criteria and permitting CAISO to designate capacity under the backstop CPM if there are deficiencies relative to the revised criteria. CAISO asserts that these revisions, which constitute the first phase of its larger resource adequacy enhancement initiative, will ensure that resource adequacy resources fulfill their obligation to provide capacity when and where it is needed to maintain system reliability. CAISO also states that implementing these Tariff revisions in a timely manner is vital to ensure that resource adequacy capacity is available during the summer of 2021. CAISO states that these four sets of revisions are separate and discrete from each other and, as such, requests that the Commission evaluate the justness and reasonableness of each set of revisions separately.¹²

⁹ CAISO Transmittal at 2.

¹⁰ CAISO, CPUC, and CEC, *Final Root Cause Analysis Mid-August 2020 Extreme Heat Wave* (Jan. 13, 2021), <http://www.aiso.com/Documents/Final-Root-Cause-Analysis-Mid-August-2020-Extreme-Heat-Wave.pdf>.

¹¹ CAISO Transmittal at 2-3.

¹² *Id.* at 4-6.

9. CAISO requests that the Commission issue an order by May 28, 2021 with an effective date of June 1, 2021 for the Tariff revisions other than those pertaining to the minimum state of charge tool. CAISO requests an effective date for the Tariff provisions pertaining to the minimum state of charge tool of no later than June 15, 2021. Further, CAISO requests authorization to notify market participants of the effective date of the minimum state of charge provisions at least five days before implementation of the Tariff provisions pertaining to the minimum state of charge tool.¹³

III. Notice of Filing and Responsive Pleadings

10. Notice of CAISO's filing was published in the *Federal Register*, 86 Fed. Reg. 17,378 (April 2, 2021), with interventions and protests due on or before April 19, 2021. Timely motions to intervene were filed by Calpine Corporation; Boston Energy Trading and Marketing LLC (Boston Energy); the City of Santa Clara, California; Brookfield Renewable Trading and Marketing LP; Alliance for Retail Energy Markets; EDF Trading North America, LLC; California Municipal Utilities Association; Arizona Public Service Company; Powerex Corp.; Northern California Power Agency; and the California Department of Water Resources State Corporation Commission. CPUC filed a notice of intervention.

11. Timely motions to intervene and comments or protests were filed by San Diego Gas & Electric Company (SDG&E); Middle River Power, LLC (Middle River); the CAISO Department of Market Monitoring (DMM); Vistra Corp. and Dynegy Marketing and Trade, LLC (collectively, Vistra/Dynegy); California Energy Storage Alliance (CESA); the Cities of Anaheim, Azusa, Banning, Colton, Pasadena, and Riverside, California (Six Cities); Western Power Trading Forum (WPTF); and Pacific Gas and Electric Company (PG&E). On April 28, 2021, CAISO submitted an answer. On May 4, 2021, Boston Energy submitted an answer to CAISO's answer. Vistra/Dynegy submitted an answer to CAISO's answer on May 11, 2021. Six Cities submitted an answer to CAISO's answer on May 13, 2021.

IV. Discussion

A. Procedural Matters

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

13. 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

¹³ *Id.* at 2.

decisional authority. We will accept the answers of CAISO, Boston Trading, Vistra/Dynegy, and Six Cities because they have provided information that assisted us in our decision-making process.

B. Substantive Matters

14. For the reasons discussed below, we find that CAISO's proposed Tariff revisions are just and reasonable and not unduly discriminatory or preferential. We find that these revisions constitute improvements for each of the specified areas that can be reasonably implemented for summer 2021. Accordingly, we accept CAISO's proposed revisions other than those pertaining to the minimum state of charge tool to be effective June 1, 2021, as requested. We accept the Tariff revisions pertaining to the minimum state of charge tool to be effective no later than June 15, 2021, as requested, subject to CAISO notifying the Commission of the actual effective date of the Tariff revisions within five business days of their implementation.

1. Minimum State of Charge Requirement

a. CAISO Proposal

15. CAISO proposes to revise its Tariff¹⁴ to apply a minimum state of charge requirement to storage resources providing resource adequacy capacity so that, on what CAISO anticipates to be the critical hours of critical days, they will be sufficiently charged in the real-time market to meet their day-ahead schedules.¹⁵ CAISO states that it is experiencing significant growth in the number of storage resources on its grid, growing from approximately 200 MW in summer 2020 to an anticipated 1,800 MW available for dispatch by summer 2021. CAISO states that the need for storage to charge before discharging energy onto the grid, combined with the real-time market's horizon being too short to manage the typical charge/discharge cycle, poses challenges for CAISO operations. CAISO explains that its day-ahead market optimizes over 24-hours and can thus account for the charge/discharge cycle, but notes that the time horizon for the real-time market makes it difficult for CAISO to optimize the charge/discharge cycle to derive the greatest reliability benefits from resource adequacy storage resources.¹⁶

¹⁴ Proposed CAISO Tariff § 40.5.

¹⁵ CAISO Transmittal at 12-21.

¹⁶ For example, real-time prices during what are typically the lowest-priced hours of the day may be higher than prices in the day-ahead market, resulting in no charging of storage resources. Also, if high prices occur before peak net-load hours, the real-time

16. To address these challenges, CAISO proposes an interim mechanism that will constrain real-time market awards to storage resources, under specified conditions, in order to ensure that a resource adequacy storage resource will have sufficient charge to meet its discharge awards from the day-ahead market. CAISO proposes that this mechanism will only be triggered if there is an hour of the day for which its Residual Unit Commitment (RUC) process¹⁷ initially cannot find a feasible solution without adjusting the original constraints and will only do so for the most critical hours of that day. CAISO proposes to notify market participants approximately at the time day-ahead market results are posted of any RUC infeasibilities and which hours' day-ahead schedules are subject to the minimum state of charge tool. CAISO proposes to apply the minimum state of charge requirement on an interim basis, for two years, until it develops a more comprehensive approach to integrating storage resources into the grid and CAISO markets.¹⁸

b. Comments and Protests

17. DMM supports CAISO's proposal as an interim measure for managing storage resources in real-time that would be applied under very limited conditions. DMM notes that, absent this proposal, CAISO would have the opportunity to effectuate the exact same outcome through less transparent manual dispatches. Thus, DMM asserts that the proposal adds transparency to actions operators may take under tight operating conditions.¹⁹ CESA and PG&E also support the proposed minimum state of charge tool as an interim measure. However, CESA asserts that the Commission should condition acceptance of the minimum state of charge requirement on CAISO's continued collection and analysis of minimum state of charge data throughout summer 2021 to determine if the rule is still needed in summer 2022, and to develop an automated process that will drop the minimum state of charge restrictions if real-time conditions allow it.²⁰

market may discharge the limited energy available from the storage resource before the period of greatest need.

¹⁷ The RUC process is conducted by CAISO in the day-ahead market after the economic Integrated Forward Market has been executed to ensure sufficient supply is committed to meet the CAISO's forecast of its demand. *See* "Residual Unit Commitment" CAISO Tariff, app. A.

¹⁸ CAISO Transmittal at 14-18.

¹⁹ DMM Comments at 2-3.

²⁰ CESA Comments at 3-5.

18. Six Cities supports most aspects of CAISO's minimum state of charge proposal but expresses concern that it is unduly discriminatory against co-located resources. Six Cities explains that CAISO offers two models for participation by resources with mixed fuel sources, such as a solar resource combined with a storage resource. The first is the co-located model in which CAISO effectively treats the two (or more) components of the resource as separate resources, with separate resource identifications and individually applicable requirements to the underlying resource technologies. The second model is the hybrid option in which CAISO treats the separate technologies as a single resource. Six Cities argues that hybrid resources would be exempt from the minimum state of charge requirement under CAISO's proposal, while energy storage resources in co-located resources would be subject to the requirement. Six Cities contends that this differential treatment is unjust and unduly discriminatory. Six Cities also asserts that, from an operational perspective, the application of a minimum state of charge requirement for co-located resources can be problematic because many of those resources are financed under tax credits that severely limit grid charging.²¹

19. Vistra/Dynegy argue that CAISO's minimum state of charge proposal is inconsistent with Order No. 841.²² Vistra/Dynegy note that Order No. 841 states that Independent System Operators (ISOs) and Regional Transmission Organizations (RTOs) "must permit electric storage resources to manage their state of charge because it allows these resources to optimize their operations to provide all of the wholesale services that they are technically capable of providing."²³ Vistra/Dynegy assert that the Commission has ruled definitively that the appropriate way to ensure an energy storage resource is available to discharge, regardless of whether that storage resource sells capacity, is through market-based incentives and not through the ISO managing the resource's state of charge.²⁴

20. Further, Vistra/Dynegy argue that the proposal is not just and reasonable because the minimum state of charge requirement could prevent an energy resource from operating efficiently and supporting reliable operations. Vistra/Dynegy assert that CAISO's emphasis on preserving storage resources for net peak hours ignores the fact that the point of the two-settlement system is that it is economically efficient for the market solution to adjust a resource's day-ahead schedule when market conditions change in real-time. Vistra/Dynegy argue that the resource owner is in the best position to

²¹ Six Cities Protest at 10-11.

²² *Elec. Storage Participation in Mkts Operated by Reg'l Transmission Orgs. and Indep. Sys. Operators*, Order No. 841 162 FERC ¶ 61,127 (2018).

²³ Vistra/Dynegy Protest at 3 (citing Order No. 841, 162 FERC ¶ 61,127 at P 250).

²⁴ *Id.* at 3.

make a decision as to the opportunity cost of discharging before net peak load hours. Vistra/Dynegy contend that CAISO's proposal could undermine real-time reliability needs if the day-ahead solution is a poor approximation for real-time needs. Vistra/Dynegy state that, to the extent state of charge management is necessary in tight supply conditions, CAISO could manage storage resources using exceptional dispatch authority.²⁵

c. Answers

21. CAISO, in its answer, disagrees with protests that the proposed minimum state of charge requirement violates Order No. 841 because this tool does not involve issues explicitly addressed in that order. CAISO asserts that the minimum state of charge tool holds certain resource adequacy storage resources responsible for meeting their day-ahead schedule, which is based on the resource's own day-ahead market bids. Thus, CAISO contends that the storage resource, and not CAISO, controls how the minimum state of charge tool will affect it based on its own day-ahead bids. CAISO avers that this scenario differs from CAISO charging and discharging the storage resource and determining how to optimize operations on the resource's behalf. CAISO notes that exceptional dispatch, which it uses to accomplish this function currently, directly implicates CAISO control of a resource's state of charge and the minimum state of charge proposal will enable CAISO to avoid the direct management of storage that Order No. 841 sought to prevent.²⁶

22. CAISO contends that Vistra/Dynegy's arguments that this tool may undermine market efficiency and reliability are unfounded because these arguments overlook the possibility that the different optimization time horizons of the day-ahead and real-time market runs can lead to the real-time market discharging storage resources before the hours when they are most needed. CAISO asserts that this timing discontinuity is the reason why market incentives alone cannot address this issue. CAISO also disputes that relying on exceptional dispatch is an acceptable path forward because manual operator intervention is not a practical long-term solution given the growth in storage resources on the CAISO grid. CAISO acknowledges that, as observed by Vistra/Dynegy, market conditions in real-time can be different from the conditions forecast in the day-ahead market run. However, CAISO contends that, on days with a RUC infeasibility, the likelihood of real-time conditions changing so radically that the storage resource will be needed at a materially different time of day must be weighed against the problems caused

²⁵ *Id.* at 4-5.

²⁶ CAISO Answer at 2-5.

by the discontinuity between the day-ahead and real-time markets' respective time horizons. CAISO asserts that its proposal balances these risks appropriately.²⁷

23. In response to Six Cities, CAISO denies that its proposal to apply the minimum state of charge tool to co-located resources, but not hybrid resources, is unduly discriminatory. CAISO explains that it cannot apply the minimum state of charge tool to hybrid resources with a storage element because the market recognizes them as a single resource and, therefore, the storage component cannot have a distinct discharge schedule like a pure storage resource. Moreover, CAISO asserts that there is not a sound basis for applying the tool to hybrid resources. According to CAISO, a hybrid resource with a storage element has greater ability to control its availability to meet day-ahead schedules because both generation elements are under common control. On the other hand, CAISO explains that its market does not account for the interaction between the storage resource and the variable energy resource that constitute a co-located resource. As such, CAISO maintains that hybrids with a storage element are not similarly situated to storage resources that are co-located with wind or solar resources. CAISO also asserts that a co-located storage resource should have sufficient notice of whether the tool will apply in real-time should it need to avoid charging from the grid.²⁸

24. In its answer, Boston Energy argues that the proposed minimum state of charge tool is fundamentally inconsistent with Order No. 841, which requires RTOs/ISOs to “permit electric storage resources to manage their state of charge”²⁹ because it will allow CAISO to hold back energy storage resources with resource adequacy obligations during periods when these resources would otherwise be dispatched for energy. Boston Energy observes that non-storage resources providing resource adequacy will continue to have the option to adjust their schedules in response to real-time conditions. Boston Energy contends that energy storage resources are in the best position to determine how to manage their resources to meet applicable tariff and reliability obligations. Further, Boston Energy agrees with Vistra/Dynegy that the proposed minimum state of charge tool may exacerbate reliability challenges by preventing storage resources from responding to short- and long-term price signals. Boston Energy asserts that it is exactly when system conditions are tightest that energy storage resources be permitted to respond to real-time price signals.³⁰

²⁷ *Id.* at 5-9.

²⁸ *Id.* at 9-11.

²⁹ Boston Energy Answer at 4 (quoting Order No. 841, 162 FERC ¶ 61,127 at P 246).

³⁰ *Id.* at 3-5.

25. Boston Energy requests that, if the Commission approves the proposal, it should, at a minimum, require CAISO to provide energy storage resources with make whole payments. Boston Energy asserts that adopting such a mechanism would enable storage resources to take into account opportunity costs during periods when they are required to forego production. Moreover, Boston Energy contends that make whole payments are required by Order No. 841, which states that when an RTO or ISO is required to schedule a storage resource in a manner that is “inconsistent with [the resource’s] bids to buy and offers to sell energy,” the resource should be held harmless by receiving a make whole payment.³¹ Boston Energy argues that the proposed minimum state of charge tool is unduly discriminatory because it selectively limits the real-time participation of a single class of resources without demonstrating that the disparate treatment is justified by any differences between storage and non-storage resources. Boston Energy asserts that providing a make whole payment would help mitigate this discriminatory treatment by ensuring that energy storage resources are no worse off as a result of application of the minimum state of charge tool.³²

26. Boston Energy also requests that, to the extent the Commission believes it does not have the authority to require CAISO to implement this modification under FPA section 205, it should institute a section 206 proceeding to accomplish this objective or conduct a paper hearing to further consider the issue. Finally, Boston Energy requests that the Commission require CAISO to implement a market-based solution to this issue no later than two years from implementation of the minimum state of charge tool.³³

27. Vistra/Dynegy argue that CAISO has provided no evidence that the proposed minimum state of charge tool will improve reliability or economic efficiency. Vistra/Dynegy assert that CAISO has not demonstrated that the hours identified by a storage resource’s day-ahead schedule will be the hours they are most needed in real-time. Vistra/Dynegy reiterate their view that reliability and economic efficiency would be best served by giving the resource the ability to respond to real-time information, which may diverge from the day-ahead schedule.³⁴

28. Vistra/Dynegy also contend that CAISO has not refuted their argument that the proposal violates Order No. 841. In contrast to CAISO’s claim that the proposed minimum state of charge tool allows a storage resource to manage its state of charge through its day-ahead bids, Vistra/Dynegy assert that, under the proposal, CAISO would

³¹ *Id.* at 6 (quoting Order No. 841, 162 FERC ¶ 61,127 at P 176).

³² *Id.* at 6-9.

³³ *Id.* at 9-11.

³⁴ Vistra/Dynegy Answer at 2-4.

ignore a resource's real-time offers if it needs to take action to maintain its state of charge. Thus, Vistra/Dynegy argue that CAISO's proposal would effectively control both the resource's real-time state of charge and restrict a resource's participation in the real-time market. Vistra/Dynegy contend that CAISO offers no Commission precedent or policy that creates an exception for resource adequacy resources to the Order No. 841 rule that energy storage resource must be permitted to manage their own state of charge.³⁵

29. Vistra/Dynegy deny that they are advocating for CAISO to use exceptional dispatch as a long-term alternative to the minimum state of charge requirement. Rather, Vistra/Dynegy clarify that they are pointing out that CAISO does not fully understand the problem it is trying to address, and the proposal is not informed by meaningful operational experience. Thus, Vistra/Dynegy contend that CAISO should continue to use exceptional dispatch while it develops an alternate proposal that is consistent with Order No. 841 and does not reduce reliability and economic efficiency.³⁶

30. Six Cities argues that CAISO's characterizations of co-located and hybrid resources are misleading. Six Cities aver that hybrid resources with a storage element and storage resources co-located with a wind or solar resource are similarly situated. Six Cities argue that any differences between the two resource types are the result of CAISO's development of two different market participation models rather than any inherent technology-based distinctions. Thus, Six Cities contend that CAISO should be minimizing rule-based differences between participation models that are not driven by the underlying resource technologies.³⁷

d. Determination

31. We find CAISO's proposal to institute a minimum state of charge requirement under limited conditions to be just and reasonable and not unduly discriminatory or preferential. CAISO's proposal represents a reasonable measure that will allow CAISO under specified circumstances to ensure that resource adequacy energy storage resources have sufficient charge to support their day-ahead market awards on days when tight supply conditions are expected. This will help ensure that resource adequacy capacity from energy storage resources is available in real-time during the hours of highest net load. As CAISO notes, it expects to rely on 1,800 MW of energy storage resources in summer 2021. Given the short time horizon of CAISO's real-time market optimization, it is possible that some resource adequacy storage resources may not be fully available to support CAISO's capacity needs on especially tight supply days and hours because, for

³⁵ *Id.* at 5-6.

³⁶ *Id.* at 6-7.

³⁷ Six Cities Answer at 5.

example, storage resources could be discharged in response to a price spike in the hour(s) before CAISO's most critical capacity need.

32. Moreover, CAISO has taken steps to limit the impact of its proposal. Specifically, CAISO will only trigger the tool on days when the RUC process is infeasible in some hours, i.e., when there is not enough supply available in the day-ahead timeframe to meet CAISO's forecast load and, therefore, the capacity from all resources, including resource adequacy storage resources, is crucial to meet demand at net peak load. In addition, CAISO proposes to sunset these Tariff provisions in two years³⁸ and has committed to pursuing a solution to better optimize storage resources in its market.

33. We disagree with commenters that CAISO's proposal is inconsistent with Order No. 841. Order No. 841 requires ISOs and RTOs to allow electric storage resources to self-manage their state of charge in order for those resources to optimize their own operations as they participate in the market.³⁹ CAISO's proposal allows storage resources full control in bidding and participating in its markets to provide any wholesale service that storage resources are capable of providing. However, CAISO has observed that its real-time market may produce sub-optimal dispatches for energy storage resources compared to the day-ahead market, which is able to optimize across the entire day and take the opportunity cost of dispatching energy storage resources prior to the net load peak into account. To address this, CAISO has proposed a reasonable and targeted solution that limits the incremental dispatch of energy storage resources in the real-time market on days when such incremental dispatch may detrimentally affect system reliability.

34. We find that CAISO's proposal serves as an enhanced optimization of the real-time market on days with tight supply to take into account the inability of that market to optimize across an entire trading day. While it may be preferable for CAISO's real-time market to optimally dispatch resource adequacy storage resources such that this additional constraint was unnecessary, we find that CAISO's proposal represents a just and reasonable solution to address a specific, defined reliability need. This solution will address the approximately 1,800 MW of energy storage resources anticipated to be available this summer, and the likelihood that CAISO will need to rely on those resources during tight summer conditions.

35. We disagree with Vistra/Dynegy's arguments that the Commission should reject CAISO's minimum state of charge requirement and encourage CAISO to use exceptional dispatch to ensure storage resources are available during the net load peak. In particular,

³⁸ The minimum state of charge tool Tariff provisions will expire on June 1, 2023. CAISO Tariff; Proposed § 40.5.1.

³⁹ Order No. 841, 162 FERC ¶ 61,127 at PP 246-47.

we disagree that CAISO's proposal will undermine the reliability and efficiency of the market. While, in general, allowing resources to deviate from their day-ahead schedules in the real-time market enhances reliability and market efficiency, CAISO has identified a specific issue with respect to how its real-time market may dispatch energy storage resources when the system is particularly stressed. By remedying this issue, we believe that CAISO's proposal will improve reliability and market efficiency.

36. We also disagree with Vistra/Dynegy's assertion that CAISO can better address this need by relying on its exceptional dispatch authority. As CAISO notes, it would be cumbersome for operators to exceptionally dispatch energy storage resources in the manner necessary to meet potential reliability needs.⁴⁰ Moreover, compared to exceptional dispatch, CAISO's proposal would allow energy storage resources greater control over the management of their state of charge than proceeding into the summer without this rule in place. Under CAISO's proposal, energy storage resources would be free to bid into the day-ahead market as they deem appropriate with the understanding that on those limited days with a RUC infeasibility, they may be required to operate in real-time such that they meet the day-ahead schedules for which they bid. This allows energy storage resources to formulate bids in the day-ahead market that optimize the operation of their resources. If CAISO continued to instead rely on exceptional dispatch, these resources would face uncertainty about how they would be dispatched on days with tight supply because the dispatch would not be conducted according to market optimization using tariff defined rules but rather would be subject to operator discretion. Encouraging CAISO to rely on its exceptional dispatch authority would also run contrary to the Commission's previously stated desire to limit exceptional dispatches⁴¹ and would leave energy storage resources with less control over their resources.

37. We disagree with Boston Energy that additional provisions for make-whole payments are necessary or required at this time. CAISO's proposal would dispatch resource adequacy storage resources according to their day-ahead market awards and ensure that they are dispatched at the highest net-load peak. Thus, CAISO's proposal retains the economic dispatch of storage units in the day-ahead market and should result in economically optimized schedules while maintaining real-time reliability. As CAISO's Market Surveillance Committee observed, this proposal will likely result in higher revenues for energy storage resources, as it will more optimally dispatch energy

⁴⁰ CAISO Answer at 6-7.

⁴¹ See *Cal. Indep. Sys. Operator Corp.*, 126 FERC ¶ 61,150, at PP 33-34 (2009) (emphasizing the Commission's expectation that CAISO develop market-based mechanisms to reduce the need for exceptional dispatch and requiring CAISO to submit reports to ensure transparency and mitigate against an over-reliance on exceptional dispatch).

storage resources using their bids across the day-ahead and real-time markets.⁴² For this reason, we will not institute an FPA section 206 proceeding on this matter or otherwise require CAISO to implement a new solution within two years, as Boston Edison requests. However, we agree with CAISO's Market Surveillance Committee and encourage CAISO to monitor the impact of the provision and consider if such make whole payments are appropriate.⁴³

38. We disagree with protestors that CAISO's proposal is unduly discriminatory with respect to co-located resources. CAISO's proposal is designed to optimize real-time dispatch according to the unique characteristics of energy storage resources. We also disagree that the proposal is unduly discriminatory as applied to co-located resources because the requirement is not applied to hybrid resources. As CAISO notes, hybrid resources with a storage element are differently situated from co-located resources because in a hybrid resource both generation elements are under common control, but in a co-located resource CAISO is unable to account for the interaction between the storage resource and the variable energy resource that constitute a co-located resource.

39. Finally, we agree with CAISO that co-located resources should be able to avoid charging from the grid to the extent it is necessary to do so. Co-located resources will be dispatched in the day-ahead market based on their bids and may make adjustments to bids by both resources in real-time to ensure that they meet day-ahead schedules for their resource adequacy capacity. To the extent these resources cannot reliably meet day-ahead schedules for resource adequacy capacity due to contractually-imposed limitations, these resources should take these limitations into account when offering resource adequacy capacity. Although in its answer, Six Cities claims that co-located and hybrid resources are similarly situated from a technology perspective, it does not further explain its position or demonstrate why CAISO's existing market participation models do not justify the different application of the minimum state of charge tool. Further, the question of whether co-located and hybrid resources should utilize the same market participation model is beyond the scope of the revisions proposed here.

⁴² CAISO Filing, Attachment D, "Market Surveillance Committee Opinion on Resource Adequacy Enhancements Phase I: Minimum State of Charge Requirement," at 10.

⁴³ CAISO Filing, Attachment D, "Market Surveillance Committee Opinion on Resource Adequacy Enhancements Phase I: Minimum State of Charge Requirement," at 10 (encouraging CAISO to monitor storage operations and net revenues to understand whether the minimum state of charge tool might result in uncompensated opportunity costs).

2. Maintenance Outages Substitution Rule

a. CAISO Proposal

40. CAISO states that under the current Tariff rules, resource adequacy resources can request approval from CAISO for a maintenance outage either with or without a substitution requirement. CAISO states that virtually all resource adequacy maintenance outage requests are from resources using the “without substitution” option. CAISO states that it approves the request if the proposed outage would have no detrimental effect on using the grid efficiently and “the outage will not result in insufficient available resource adequacy capacity during the outage period.”⁴⁴ However, CAISO states that because it has monthly resource adequacy showings, it cannot know how a given request will affect resource adequacy sufficiency until the resource adequacy showings process is complete, about three weeks before the relevant month. CAISO states that “without substitution” requests that are denied still have the option of taking the outage with a substitution obligation and must provide substitute capacity no later than eight days before the outage.

41. CAISO states that both it and many market participants are dissatisfied with the existing process due to the amount of uncertainty it creates. Further, CAISO states that recent trends show that, even under the current substitution rules, almost all resource adequacy resources would face a substitution requirement for most maintenance outages. CAISO states that from January 2019 through June 2020, on average the resource adequacy showings were 4.57% above the monthly resource adequacy requirements and that since July 2020 this headroom has virtually disappeared.⁴⁵ CAISO states that given this trend, the likelihood of CAISO approving resource adequacy maintenance outages without substitution under the current Tariff rules is low. CAISO asserts that the current rules maintain an unnecessarily complex business process and raise unrealistic expectations for resources hoping to have an outage without substitution approved. CAISO states that the relationship between unsubstituted maintenance outages and the planning reserve margin was noted in the Final Root Cause Analysis as a contributing factor to the August 2021 heat event challenges.⁴⁶

⁴⁴ CAISO Transmittal at 22 (citing CAISO Tariff, § 9.3.1.3.3.2(c)(2)).

⁴⁵ *Id.* at 24.

⁴⁶ *Id.* at 22-27.

42. To address these concerns, CAISO proposes revisions to its tariff⁴⁷ to require, on an interim basis,⁴⁸ substitute capacity for all maintenance outages for resource adequacy resources. CAISO proposes slightly different rules depending on whether the scheduling coordinator requests the outage before or after the end of the resource adequacy plan cure period at 30 days before the month. CAISO states that in both cases it will establish the exact deadline in the business practice manual, but the deadline could be no more than 72 hours after the end of the cure period or the outage submission depending on whether the outage was requested before or after the end of the 30-day resource adequacy cure period.⁴⁹ CAISO contends that these proposed changes promote reliability by removing uncertainty for scheduling coordinators about whether CAISO will rescind a provisionally-authorized maintenance outage. CAISO notes that the proposed substitution requirement is intended to be an interim measure until CAISO develops and implements a resource outage reserve margin framework that would permit resource adequacy resources to take maintenance outages without providing substitute resource adequacy capacity under some circumstances, while still ensuring sufficient capacity is available to maintain reliability.⁵⁰

43. CAISO also proposes to include four narrow exceptions to this rule that reflect current practice. These proposed exceptions include: (1) maintenance outages that begin during an off-peak hour and are completed before the next on-peak hour; (2) resource outages that result from outages on CAISO-controlled transmission facilities; (3) outages on resource adequacy capacity that solely provides flexible resource adequacy capacity, which is not currently subject to the substitution requirement; and (4) certain pre-approved multi-month maintenance outages.⁵¹

44. CAISO acknowledges that this proposal may impose incremental costs on some resource adequacy resources but argues that these are reasonable costs to impose on generators that have accepted a capacity payment and agreed to accept a resource adequacy obligation. CAISO also asserts that this proposed change provides a clear reliability benefit by avoiding an unwarranted degradation of the existing planning

⁴⁷ Proposed CAISO Tariff § 9.3.1.

⁴⁸ CAISO states that it proposes to redesign the maintenance outage process in phase 2 of its resource adequacy enhancements stakeholder initiative but does not propose a specific sunset date for these revisions.

⁴⁹ CAISO Transmittal at 27-28.

⁵⁰ *Id.* at 5.

⁵¹ *Id.* at 28-29.

reserve margin, which has been set assuming all maintenance outages on resource adequacy resources have substitute capacity.⁵²

45. CAISO also notes that some stakeholders believe the proposed revisions may encourage resources to wait until the forced outage timeframe to report maintenance outages as forced outages or create uncertainty about what a generator is supposed to do if it identifies the need to take a time-sensitive outage shortly before the planned outage timeframe closes but it is unable to secure substitute capacity. CAISO states that although CAISO and stakeholders will further address the planned-to-forced outage reporting issue further in phase 2 of the resource adequacy enhancements stakeholder process, these concerns are addressed through existing Tariff provisions and CAISO already has monitoring measures in place to review such conduct. CAISO states that under the existing and proposed Tariff provisions, it would not be appropriate for a generator to intentionally wait until the forced outage timeframe to report an outage to avoid the substitution process or requirement. However, CAISO notes that if a generator reports a forced outage and can justify why the outage cannot wait, then CAISO states that it would be unlikely to take further action.⁵³

b. Comments and Protests

46. DMM states that from a reliability perspective, there are pros and cons to CAISO's proposed maintenance outage process changes but defers to CAISO's and CPUC's judgment that this proposal will improve reliability in the near term.⁵⁴

47. PG&E states that, based upon the impact of the substitution requirements for resource adequacy resources on maintenance outages on all LSEs, the Commission should approve the substitution requirement for RA resources on maintenance outages as a temporary measure and require CAISO to work with stakeholders on the continued development of a maintenance outage pool removing the substitute capacity requirement in the Phase 2 of the resource adequacy enhancements initiative by the end of 2021.⁵⁵

48. PG&E also requests that the Commission require CAISO to combine and reconcile the proposed revisions contained in this filing with proposed changes that relate to proposed operational tools and market rules to address tight supply conditions in summer 2021, particularly the revisions to sections 9 and 40 of the CAISO Tariff. PG&E

⁵² *Id.* at 27-30.

⁵³ *Id.* at 33.

⁵⁴ DMM Comments at 3-6.

⁵⁵ PG&E Comments at 4

states that the potential for inconsistency in the parallel filings could result in some implementation challenges for load serving entities by summer 2021.⁵⁶

49. Six Cities and Vistra/Dynegy argue that CAISO's proposed substitution rule may undermine reliability. Six Cities argues that the proposed substitution required for maintenance outages is unjust and unreasonable because it may not be feasible for resource owners and LSEs to procure substitute capacity to cover necessary maintenance outages when the supply of capacity is costly to procure. Six Cities asserts that CAISO has not provided an analysis showing that the substitution requirement is feasible which, according to Six Cities, raises the concern that these proposed revisions may do more harm than good.⁵⁷ Six Cities and Vistra/Dynegy both contend that CAISO's proposal may create perverse incentives for LSEs to hold capacity back so that it is available to substitute when maintenance outages occur because it is impossible to predict when and to what extent advanced notice non-maintenance outages may occur.⁵⁸

50. Middle River argues that the proposal will result in the procurement of capacity beyond the planning reserve margin required by the CPUC. Middle River states that under the current Tariff provisions, CAISO allows maintenance outages without substitution to the extent there is resource adequacy capacity beyond the system resource adequacy requirement to provide a buffer for these outages. Under CAISO's proposal, however, Middle River contends that resource adequacy resources requesting a maintenance outage will be required to provide substitute capacity regardless of the amount of resource adequacy capacity shown on the monthly resource adequacy plans. For example, Middle River states that during some months in 2020, the buffer between the planning reserve margin and the amount of resource adequacy capacity available was as high as ten percent. Middle River asserts that CAISO's proposal to require substitute capacity regardless of the size of the buffer will result in increased cost without a demonstration that the additional reliability is necessary or effective.⁵⁹ Middle River argues that CAISO's proposal has the effect of unreasonably increasing the 15% planning reserve margin and that, to the extent CAISO intends to make this change, it should be openly discussed in a stakeholder process.⁶⁰

⁵⁶ *Id.* at 2-3.

⁵⁷ Six Cities Protest at 2-4.

⁵⁸ *Id.* at 4-6; Vistra/Dynegy Protest at 9-10.

⁵⁹ Middle River Protest at 6-8.

⁶⁰ *Id.* at 10-12.

51. Middle River also disagrees that the existing Tariff rules contributed to the August 2020 blackouts. Middle River argues that the failure to replace maintenance outages was a failure of process and not of Tariff provisions. Middle River asserts that CAISO should have used its Tariff authority to cancel or require substitution for outages during August 2020, when there was very little excess resource adequacy capacity.⁶¹

52. Middle River and Vistra/Dynegy express concerns about the consequences of rejected maintenance outage requests. Middle River argues that the proposal creates issues for generators who would like to submit a maintenance outage after 25 days before the resource adequacy month. Middle River states that CAISO's proposed revisions would allow only 72 hours to procure substitution and that this time frame is often inadequate to procure substitute capacity. Middle River notes that to the extent generators are not able to procure substitute capacity, the maintenance outage would be rejected. Middle River states that this may require suppliers to take a forced outage to resolve the issue but asserts that taking a forced outage where CAISO has previously rejected a maintenance outage may be considered manipulative behavior. Middle River requests that, to the extent it accepts CAISO's proposal, the Commission should direct CAISO to provide market participants with the ability to convert maintenance outages to forced outages.⁶²

53. Vistra/Dynegy argue that rejection of a maintenance outage could leave a generator with no viable path forward, thereby creating the risk that a resource may be faced with causing irreparable damage to their unit. Vistra/Dynegy assert that if CAISO were to accommodate these outages by directing the resource owner to resubmit the outage during the forced outage timeframe, there is a risk that CAISO, DMM, or the Commission may interpret this action as an attempt to circumvent the rules. Thus, Vistra/Dynegy emphasizes that the Tariff rules for converting denied maintenance outages to forced outages must be clear. Further, Vistra/Dynegy assert that this proposal could undermine reliability if units are not approved for regular maintenance heading into summer periods. Vistra/Dynegy recommend that, if the Commission believes all maintenance outages should be required to obtain substitute capacity, the Commission should reject this proposal and provide guidance that CAISO could revise the proposal to only apply the substitution requirement to specific months with higher risk of insufficient resource adequacy capacity.⁶³

54. Six Cities notes that it proposed alternatives to CAISO's proposed substitution rule, such as allowing resources to show different resource adequacy values for different

⁶¹ *Id.* at 8-10.

⁶² *Id.* at 12-16.

⁶³ Vistra/Dynegy Protest at 7-9.

days of the month on the monthly resource adequacy plans, essentially allowing LSEs to self-manage outages. Six Cities states that it also proposed allowing imports to provide substitute capacity where import capability is available in order to broaden the pool of potential substitute capacity. Six Cities requests that the Commission either reject the proposed maintenance substitution revisions or direct CAISO to adopt the alternative implementation measures suggested by Six Cities.⁶⁴

c. Answers

55. CAISO disagrees with protests that the proposed substitution requirements place unreasonable burdens on resource adequacy resources because (1) the proposal places appropriate obligations on resource adequacy resources; (2) the proposal leaves ample opportunities for resource adequacy resources to take maintenance outages; and (3) the arguments are fundamentally about existing rules. CAISO acknowledges that it may be difficult to secure substitute capacity during peak summer months, but asserts that resources, regardless of their resource adequacy status, should not be planning in advance to take a maintenance outage during peak months when that capacity is most needed. CAISO contends that there should be ample spare capacity during off-peak months for these outages.⁶⁵ In response to requests for clarification of the rules surrounding denied maintenance outages that are resubmitted as forced outages, CAISO argues that these arguments implicate existing features of its Tariff and nothing about the proposed revisions adds ambiguity to the outage reporting or outage definitions.⁶⁶

56. CAISO contends that concerns about adverse consequences arising from the revised maintenance outage substitution rules are speculative and unfounded. Regarding concerns that a resource might hold itself out from providing resource adequacy capacity in a month when it plans to take an outage, CAISO states that it is skeptical that a resource would forego a month of capacity payments to avoid paying for substitute capacity for a few days, particularly because data indicates that securing substitute capacity for a maintenance outage outside the critical peak months should not be difficult. Further, CAISO highlights that any incentive for resources to withhold capacity from the bilateral resource adequacy market is an issue that exists under the existing framework and is not caused by the instant proposal.⁶⁷ CAISO also expresses skepticism that the proposed substitution rules would induce a generator to forego needed maintenance because the benefits to generators of following good utility practice and maintenance far

⁶⁴ Six Cities Protest at 6-8.

⁶⁵ CAISO Answer at 11-13.

⁶⁶ *Id.* at 13-15.

⁶⁷ *Id.* at 15-17.

outweigh the costs of procuring substitute capacity. CAISO states that it has seen no evidence of its existing substitution rules deterring needed maintenance and asserts that the revisions proposed here represent an incremental tightening of the resource adequacy substitution rules that should not hinder the performance of necessary maintenance.⁶⁸

57. Further, CAISO notes that individual local regulatory authorities set the planning reserve margin and CAISO has no ability to raise the planning reserve margin unilaterally under its Tariff. Thus, CAISO argues that Middle River's contention that the proposed revisions effectively raise the planning reserve margin is misplaced. CAISO reiterates its previous argument that the proposed revisions have the effect of ensuring that LSEs provide sufficient capacity to meet the current planning reserve margin since the margin does not currently account for capacity unavailable due to maintenance outages.⁶⁹

58. CAISO states that it expects the current trend of decreasing headroom between the capacity shown on monthly resource adequacy plans and the net resource adequacy requirement to continue such that, even without the proposed revisions, nearly all maintenance outages on resource adequacy resources would require substitution. For example, CAISO estimates that since July 2020, slightly more than 86% of resource capacity on maintenance outage had a substitute obligation. CAISO asserts that it believes the trend of tight headroom will persist in the near-term because of several ongoing initiatives regarding: (1) more stringent requirements for resource adequacy imports; (2) reduced reliance on resource adequacy credits; (3) more realistic capacity counting approaches for storage-backed hydro and demand response; and (4) continued retirements of thermal resources with a more variable and energy-limited fleet.⁷⁰

59. In response to SDG&E's request for clarification about the timing of maintenance outage requests, CAISO states that generators may wait to submit a request for maintenance outage until they have secured substitute capacity. CAISO also states that submission of a forced outage, the need for which was identified before the forced outage timeframe, is permissible if at the time it is submitted as a forced outage the work cannot wait. However, CAISO notes that upon such request, the scheduling coordinator needs to be ready to justify why the work could not wait until the maintenance outage timeframe.⁷¹

⁶⁸ *Id.* at 17.

⁶⁹ *Id.* at 18.

⁷⁰ *Id.* at 18-23.

⁷¹ *Id.* at 26-27.

60. CAISO notes that the three protesting parties offer alternatives to CAISO's proposal, but argues that its proposal is just and reasonable and the Commission need not consider alternatives to that proposal.⁷² Finally, in response to PG&E's request that the Commission direct CAISO to combine and reconcile the changes in this filing with those in its market enhancements initiative, CAISO states that does not believe there is substantive overlap between the amendments proposed in both proceedings.⁷³ CAISO states that it would not object, if so ordered, to make a compliance filing that reconciles the amendments proposed in the two proceedings.

61. Vistra/Dynegy argue that their concern with the proposed substitution requirement is not the expense of procuring substitute capacity, but the potential inability to procure such capacity. Vistra/Dynegy state that, in their experience, replacement capacity is not available at any price during some periods such as the shoulder months when maintenance outages are taken because all resources taking maintenance outages during that time will be seeking substitute capacity. Thus, Vistra/Dynegy assert that the proposal creates the potential for resources to decline to provide resource adequacy capacity during a planned outage month in order to manage the risk created by a mandatory substitute capacity rule.⁷⁴

62. Six Cities assert that CAISO's answer does not sufficiently explain why it rejected Six Cities' proposed alternatives to the mandatory substitution requirement. Six Cities contend that the stakeholder record demonstrates support for its proposal to require LSEs to submit daily resource adequacy values on the monthly resource adequacy showings, instead of a single value for each resource for the month. Further, Six Cities argue that its proposed "subset-of-month" approach would help LSEs better manage CAISO's shift to more expansive and costly substitution requirements. Six Cities assert that, at a minimum, this option should be open for consideration in the continuing phases of the resource adequacy enhancements initiative.⁷⁵

⁷² *Id.* at 23 (citing, e.g., *City of Bethany v. FERC*, 727 F.2d 1131, 1136 (D.C. Cir. 1984) (*City of Bethany*) (finding that, when determining whether a proposed rate was "just and reasonable", as required by the FPA, the Commission properly did not consider "whether a proposed rate schedule is more or less reasonable than the alternative rate designs.")).

⁷³ *Id.* at 26.

⁷⁴ Vistra/Dynegy Answer at 7-9.

⁷⁵ Six Cities Answer at 2-4.

d. Determination

63. We accept CAISO's proposal to impose a mandatory substitution requirement for maintenance outages as a just and reasonable measure to help provide certainty that CAISO will have access to the resource adequacy capacity it relies on for reliable grid operation. As CAISO notes, a significant contributing factor to the rolling blackouts of August 2020 was the non-replacement of resources on maintenance outages,⁷⁶ and CAISO's proposal to require substitute capacity will help prevent such a situation from recurring.

64. We also find that CAISO's proposed exceptions to the mandatory substitution requirement are just and reasonable. CAISO's proposal to exempt maintenance outages that begin during an off-peak hour and are completed before the next on-peak hour retains appropriate flexibility for resources that can perform maintenance without impacting resource availability in the peak load period. Furthermore, we find that CAISO's proposal to exempt transmission-induced outages reasonably reflects the fact that transmission-induced outages are not initiated or planned by the generator. With respect to CAISO's proposal to exempt outages from resources that only provide flexible capacity, we note that those resources are not currently subject to the substitution process, and we believe that CAISO need not include them in the process to render these requirements just and reasonable. Finally, we accept CAISO's proposal to exempt multi-month outages because it would not be practical under CAISO's monthly resource adequacy paradigm to enforce a substitution requirement for the multi-month outage at the time of the approval, when the relevant resource adequacy months may lay far into the future.

65. We disagree with protesters' assertion that CAISO's proposal is not just and reasonable because it creates difficulties for resources to take planned maintenance outages when capacity is scarce and expensive. We find that CAISO's proposal is intended to discourage planned maintenance outages during peak load months, which is similar to PJM Interconnection, L.L.C.'s policy of prohibiting maintenance outages for resources with capacity obligations during peak load months.⁷⁷ We believe that securing substitute capacity during non-summer months when capacity is more abundant should not be burdensome for resources planning a maintenance outage.

⁷⁶ See Final Root Cause Analysis at 43.

⁷⁷ PJM Manual 10: Pre-Scheduling Operations, at Section 2.2 (Nov. 19, 2020), available on the PJM website at PJM Manual 10.

66. While we acknowledge Middle River’s point that approval of the planned outages without substitution during August 2020 was ultimately a choice made by CAISO and not a Tariff requirement, we believe that the proposal here provides additional robustness to the resource adequacy program to guard against unexpected events. We find that in proposing the mandatory substitution requirement, CAISO reasonably prioritizes certainty over its own discretion in the outage planning process and is a positive step forward in bolstering the resource adequacy program.

67. We disagree with protestors that CAISO’s proposal constitutes an expansion of the planning reserve margin. We find that the proposal tightens enforcement of the currently effective planning reserve margin to ensure that resources are available and that all resources are meeting their resource adequacy obligations. The Commission has found that allowing CAISO to enforce resource adequacy requirements, including a planning reserve margin on load serving entities contributes to just and reasonable rates by ensuring sufficient resources are available.⁷⁸ It is, therefore, not unjust and unreasonable for CAISO to require each resource to meet its resource adequacy obligation in each month, rather than being relieved of those obligations simply because excess capacity has been procured by other LSEs.

68. We also find that CAISO’s answer that generators may wait to submit a request for maintenance outage until they have secured substitute capacity appropriately clarifies maintenance and forced outage concerns. CAISO clarifies that submission of a forced outage, the need for which was identified before the forced outage timeframe, is permissible if at the time it is submitted as a forced outage the work cannot wait.⁷⁹ We agree with CAISO that upon such request, the scheduling coordinator must be prepared to justify why the work could not wait until the maintenance outage timeframe.

69. Because we are accepting CAISO’s proposal as just and reasonable, we need not further consider Six Cities proposed alternatives.⁸⁰ We also find concerns raised by

⁷⁸ *Cal. Indep. Sys. Operator Corp.*, 116 FERC ¶ 61,274, at PP 1154-1155 (2006), *order on reh’g*, 119 FERC ¶ 61,076 (2007), *reh’g denied*, 124 FERC ¶ 61,094 (2008), *aff’d*, *Sacramento Mun. Util. Dist. v. FERC*, 616 F.3d 520 (D.C. Cir. 2010).

⁷⁹ CAISO Answer at 26-27.

⁸⁰ *See, e.g., ISO New England, Inc.*, 162 FERC ¶ 61,206, at P 33 (2018) (“[T]he question before the Commission . . . is whether ISO-NE has demonstrated that its [proposals] are just and reasonable, not whether ISO-NE’s proposal is more or less just and reasonable than protestors’ proposal alternatives.”); *City of Bethany*, 727 F.2d at 1136 (when determining whether a proposed rate was “just and reasonable”, as required by the FPA, the Commission properly did not consider “whether a proposed rate schedule is more or less reasonable than the alternative rate designs.”).

PG&E about potential inconsistencies between this filing and CAISO's initiative to ensure CAISO has the appropriate operational tools and market rules to address tight supply conditions in summer 2021 to be speculative. PG&E does not note any specific inconsistencies, and we are not aware of any. We therefore do not see a need to direct a compliance filing. Finally, while we note CAISO's representation that the substitution requirement reforms are an interim solution, we find that PG&E has not demonstrated that it is necessary to direct CAISO to remove the substitute capacity requirement by the end of 2021. However, we encourage CAISO and stakeholders to continue work on a durable solution during their ongoing resource adequacy enhancements initiative.

3. Outage Extensions

a. CAISO Proposal

70. CAISO proposes revisions to its Tariff⁸¹ to clarify its process with regard to requests for extending maintenance outages. CAISO states that the existing Tariff does not provide clear direction on the actions a generator must take to extend the duration of an existing outage or increase the capacity being derated, i.e., it is not clear whether a generator should amend its initial outage request or submit a new outage request. CAISO asserts that the inconsistent reporting of outages, due to the unclear extension process, can make analysis of outage patterns more challenging. To ensure that its outage reporting system can generate clean and consistent data, CAISO proposes to require market participants to submit new outage requests for outage extensions beyond the scheduled duration or to increase the MW capacity of an outage. CAISO states that if a new request is submitted at least eight days in advance, it will be treated as a maintenance outage and, after that time, will be treated as a forced outage.⁸²

b. Comments

71. DMM supports CAISO's proposed clarification because it should allow CAISO to better manage outage extensions separately from the original maintenance outage.⁸³

c. Determination

72. We accept CAISO's proposed clarification that extending the scope or duration of an existing outage requires a new outage request. CAISO's proposed revision to its

⁸¹ Proposed CAISO Tariff § 9.3.3.

⁸² CAISO Transmittal at 33-34.

⁸³ DMM Comments at 6.

Tariff will require market participants to submit a new outage request when they are seeking an outage duration extension or an increase in the MW amount of capacity on outage. We find that this proposed revision is a just and reasonable measure that will help ensure that CAISO has more accurate outage data.

4. Local Capacity Technical Study

a. CAISO Proposal

73. CAISO proposes to modify its Tariff rules⁸⁴ for local capacity studies to include an energy sufficiency evaluation and also proposes corresponding changes to its CPM backstop procurement authority so it can procure additional capacity if the resource adequacy resources procured by load-serving entities fail the energy sufficiency test. CAISO explains that its current authority to designate CPM capacity to address a local capacity deficiency is based on deficiencies in the resource adequacy showings relative to the local capacity technical study. However, CAISO explains that the Tariff-defined study criteria do not currently fully consider limitations on the duration of a resource's energy production or dispatch. CAISO notes that availability-limited resources, which comprise an increasing portion of local resource adequacy capacity, have a minimum duration of four hours to qualify as resource adequacy capacity. However, under the current resource adequacy counting rules, a 10 MW resource that can produce for four hours receives the same MW capacity value as a 10 MW resource that can produce for eight hours because these rules do not consider the resources' availability limitations. Thus, CAISO may have sufficient capacity to meet peak demand in a local capacity area but insufficient energy in MWh to meet needs across all hours.⁸⁵

74. To address this issue, CAISO proposes to update its Tariff to specify that the local capacity technical study will consider hourly load shapes and system limits under emergency conditions in order to quantify minimum amounts of hourly capacity and energy that local capacity area resources must be able to provide within each identified local capacity area or sub-area to resolve identified contingencies. Further, because CAISO cannot currently use its local CPM backstop authority to fulfill any energy needs revealed by the revised local capacity technical study, it also proposes to revise its Tariff to clarify that its local CPM backstop authority includes procurement authority to address new local energy sufficiency needs.⁸⁶

⁸⁴ Proposed CAISO Tariff § 40.3.1.1 and § 43A.2.2.

⁸⁵ CAISO Transmittal at 35.

⁸⁶ *Id.* at 36.

b. Comments

75. DMM supports CAISO's proposal to expand its CPM backstop procurement authority to ensure local capacity resources can meet energy needs in local areas and sub areas. DMM states that it shares CAISO's concerns about an increased reliance on energy and availability limited resources to meet resource adequacy requirements.⁸⁷

c. Determination

76. We accept CAISO's proposed Tariff revisions pertaining to the local capacity technical study and corresponding expansion of its CPM backstop procurement authority. As storage and other types of limited availability resources begin to comprise a larger portion of the resource adequacy fleet, we find it reasonable that the energy production capability of local resource adequacy resources should be considered in addition to the MW capacity. We find that the proposed addition of an energy sufficiency component to the local capacity technical study will give CAISO a more accurate picture of the combination and quantity of resources needed to ensure that CAISO can serve load reliably throughout the day. We also find that accepting CAISO's proposal to expand its CPM backstop procurement authority to include these local energy needs will ensure that CAISO has the authority to procure backstop capacity to cure deficiencies indicated by the new energy sufficiency criteria.

The Commission orders:

(A) CAISO's proposed Tariff revisions, other than those pertaining to the minimum state of charge tool, are hereby accepted for filing, to be effective June 1, 2021, as requested, as discussed in the body of this order.

(B) CAISO's proposed tariff revisions pertaining to the minimum state of charge tool to be effective no later than June 15, 2021, as requested, as discussed in the body of this order.

(C) CAISO is hereby directed to notify the Commission of the actual effective date of the Tariff revisions associated with the minimum state of charge tool within five business days of their implementation, in an eTariff submittal using Type of Filing Code 150 – Report.

⁸⁷ DMM Comments at 6-7.

By the Commission. Commissioner Chatterjee is not participating.

(S E A L)

Debbie-Anne A. Reese,
Deputy Secretary.