

**UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION**

California Independent System  
Operator Corporation

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Docket No. ER21-2853

**ANSWER OF THE  
CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**

The California Independent System Operator Corporation (“CAISO”) respectfully submits its answer to comments and protests in this proceeding.<sup>1</sup> Most parties filing comments support or do not oppose the CAISO’s tariff revisions, which seek to enhance market participation rules for hybrid and co-located resources.<sup>2</sup> In its limited protest, Middle River asks the Commission to reject one element of the CAISO’s filing--the proposal to exempt hybrid resources from the CAISO’s Resource Adequacy Availability Incentive Mechanism (RAAIM). For the reasons explained below and in the CAISO’s transmittal letter, the Commission should reject Middle River’s arguments and find the CAISO’s tariff revisions are just and reasonable.

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<sup>1</sup> The CAISO submits this answer pursuant to Rule 213 of the Commission’s Rules of Practice and Procedure, 18 C.F.R. § 385.213. The CAISO respectfully moves for waiver of Rule 213(a)(2), 18 C.F.R. § 385.213(a)(2), to permit it to answer the protest filed in this proceeding. Good cause for this waiver exists here because the answer will aid the Commission in understanding the issues in the proceeding, provide additional information to assist the Commission in the decision-making process, and help to ensure a complete and accurate record in the proceeding. *See, e.g., Equitrans, L.P.*, 134 FERC ¶ 61,250 at P 6 (2011); *Cal. Indep. Sys. Operator Corp.*, 132 FERC ¶ 61,023 at P 16 (2010); *Xcel Energy Servs., Inc.*, 124 FERC ¶ 61,011 at P 20 (2008).

<sup>2</sup> The following entities filed substantive comments in response to the CAISO’s tariff amendment: the United States Energy Storage Association (ESA) and California Energy Storage Alliance (CESA), the CAISO’s Department to Market Monitoring (DMM), Pacific Gas and Electric Company (PG&E), and Middle River Power LLC (Middle River).

## I. Introduction

The CAISO's proposed tariff revisions seek to enhance its market rules to address the deployment of energy storage. As part of these revisions, the CAISO proposed a set of rules to enhance participation by hybrid resources, which are mixed-fuel resources with a single Resource ID at a single Point of Interconnection. Today, the CAISO has one such resource participating in its market. The resource comprises a solar photovoltaic component and a battery energy storage component. Its total capacity is approximately 3 MWs. Among the many rules the CAISO proposed in its filing, is a rule to exempt hybrid resources providing system or local resource adequacy capacity from RAAIM. This mechanism incentivizes resources to ensure they offer their capacity during specific availability assessment hours.

Most parties filing comments support or do not oppose the CAISO's tariff revisions. ESA, CESA, DMM, and PG&E all submitted supportive comments. Middle River filed a limited protest asserting the rationale for the CAISO's proposed RAAIM exemption for hybrid resources is suspect.<sup>3</sup> Middle River also argues exempting hybrid resources from RAAIM is unreasonable because these resources could soon represent a significant portion of the resources that will be providing resource adequacy capacity to the CAISO.

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<sup>3</sup> Middle River owns a portfolio of natural gas generating facilities within the CAISO balancing authority area. More information about Middle River's generating facilities is available on Middle River's website: <https://www.middleriverpower.com/#portfolio>

**II. Applying RAIM to hybrid resources with a variable energy component would penalize them and would not ensure they offer their resource adequacy capacity during specific availability assessment hours.**

The CAISO uses RAIM to incentivize availability of resource adequacy resources by evaluating the availability of these resources and calculating resulting charges and payments.<sup>4</sup> RAIM incentivizes resources providing resource adequacy capacity to meet their must-offer obligations during critical hours in the CAISO's markets and to provide substitute capacity if these resources go on outage. The CAISO assesses charges (non-availability charges) and makes payments (availability incentive payments) to resources providing resource adequacy capacity, based on the average of their availability during specific hours over each calendar month.

The monthly resource adequacy capacity value for solar and wind (variable) resources within the CAISO balancing authority area generally reflects the Effective Load Carrying Capability (ELCC) methodology adopted by the California Public Utilities Commission.<sup>5</sup> This methodology also applies to the variable energy resource component of a hybrid resource. The capacity value for a traditional thermal resource generally is based on the resource's nameplate value discounted by a deliverability assessment that determines how much of the resource's capacity is deliverable to the CAISO load. The ELCC methodology, in contrast, measures the capacity value of a variable output resource by determining how many MWs of that resource type must

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<sup>4</sup> *Cal. Indep. Sys. Operator Corp.*, 153 FERC ¶ 61,002 (2015).

<sup>5</sup> CPUC Decision 17-06-027, *Decision Adopting Local Capacity and Flexible Capacity Obligations for 2018 and Refining the Resource Adequacy Program*, issued July 10, 2017. <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M192/K027/192027253.PDF> This decision adopted an ELCC methodology to determine the capacity value of solar and wind resources

substitute for a MW from a hypothetical fully-dispatchable and fully-available capacity resource (*i.e.*, the “perfect resource”) during identified loss of load expectation hours. The ELCC methodology also accounts for the saturation effect of adding multiple resources with the same type of limitations. The ELCC methodology invariably will result in a lower capacity value as compared to the traditional capacity counting methodology.

The CAISO tariff exempts several resource types from RAAIM in connection with the provision of local and system resource adequacy capacity. These resources are not assessed charges and do not receive payments based on evaluating whether they offered their resource adequacy capacity during specified hours. Among other resources, these tariff provisions exempt variable energy resources from RAAIM for system or local resource adequacy capacity.<sup>6</sup> One reason for this exemption is that the ELCC methodology already discounts the capacity value of variable energy resources to account for their variable nature. Applying RAAIM would essentially double-penalize these resources for their unavailability by applying a RAAIM charge after their resource adequacy capacity has already been discounted by current resource adequacy counting rules. A second reason for the exemption of variable resources from RAAIM is the assumption that because of the low marginal cost of variable resources to generate, essentially \$0 MWh, there is little reason for these resources to withhold capacity from the market.

The CAISO has proposed a similar exemption for hybrid resources in part

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<sup>6</sup> CAISO tariff section 40.9.2(b).

because hybrid resources will largely reflect capacity from variable energy components, *i.e.* solar or wind.<sup>7</sup> Similar to variable energy resources, existing resource adequacy counting rules for hybrid resources discount the renewable component of a hybrid resource.<sup>8</sup> In its limited protest, Middle River challenges the CAISO's characterization that resource adequacy values for variable energy resources such as solar and wind are determined by the resource's historical performance.<sup>9</sup> The CAISO acknowledges that Middle River more appropriately explains that it is the historical performance of a resource technology type, *e.g.* solar or wind, and not the specific resource that informs the monthly resource adequacy value of a variable energy resource or the variable component of a hybrid resource. However, this clarification in no way changes that applying RAIM to a hybrid resource with a variable energy component offering system or local resource adequacy capacity would further penalize that resource.

Hybrid resources with a variable energy component that offer system or local resource adequacy capacity already have significant incentives to make energy from that component available when they have sufficient fuel. These incentives arise from renewable portfolio standard requirements and, in some cases, tax incentives that seek to maximize the energy production from wind and solar resources when they have available fuel. Unlike natural gas fired generating facilities, the marginal cost of fuel for these components of hybrid resources is zero. Applying RAIM to these resources will

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<sup>7</sup> Proposed tariff section 40.9.2 (b)(1)(D)

<sup>8</sup> CPUC Decision No.20-06-031 *Decision Adopting Local Capacity Obligations for 2021-2023, Adopting Flexible Capacity Obligations for 2021, and Refining the Resource Adequacy Program* dated June 30, 2020 at 25-31:  
<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M342/K083/342083913.PDF>.

<sup>9</sup> Protest of Middle River at 3-4.

not create additional incentives for them to offer resource adequacy capacity during specific availability assessment hours. As explained in Section III, applying RAAIM to these resources will create a disincentive for them to offer resource adequacy capacity, which would create a competitive advantage for other market participants in the bilateral resource adequacy market.

Middle River argues that under existing capacity counting rules, the capacity value of a hybrid resource's storage component will reflect its nameplate value if the storage resource has at least four hours of discharge duration, and it speculates that this capacity will be a significant fraction, if not the majority, of the overall qualifying resource adequacy capacity for the hybrid resource. At this stage of the development of hybrid resources and based on current participation of hybrid resources in the CAISO's markets, it is too early to speculate how developers will configure their facilities.

Middle River references information about the CAISO's interconnection queue and argues the CAISO expects significant deployment of hybrid resources.<sup>10</sup> Middle River fails to explain that this information identifies battery energy storage resources that propose to interconnect *either* as co-located resources or hybrid resources. If these resources interconnect as co-located resources, then current rules associated with RAAIM will apply to the storage resources. To date, the CAISO has observed more interest in the co-located resource model. Neither Middle River, the CAISO, nor the Commission knows yet which resource model will be prevalent or result in successful deployment of battery energy systems. However, applying RAAIM to hybrid

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<sup>10</sup> Protest of Middle River at 4-5 and n 12.

resources with a variable energy components will penalize them and create a disincentive to provide system or local resource adequacy capacity consistent with current capacity counting rules.

**III. Middle River Power's protest effectively seeks to reduce the resource adequacy contribution by hybrid resources**

Middle River's request that the Commission reject the CAISO's proposed RAAIM exemption for hybrid resources will make these resources subject to RAAIM. If subject to RAAIM, hybrid resources likely would not offer capacity from their variable energy component as resource adequacy capacity. To do so would subject the scheduling coordinator for the resource to uncertainty regarding whether it can offer its resource adequacy capacity from its variable energy component in all availability assessment hours because of the weather dependent nature of its fuel source. The risk of paying ongoing RAAIM penalties will discourage hybrid resources from offering their full capacity, which in turn reduces competition in the resource adequacy market. In addition, this outcome reduces the commercial value of hybrid resources when compared to a standalone or co-located variable energy resource operating within the CAISO's balancing authority area. At this stage of nascent development in the hybrid and co-located resource models, the CAISO urges the Commission to reject Middle River's arguments. If the Commission deems it appropriate, the CAISO is willing to evaluate the performance of hybrid resources providing resource adequacy capacity and submit an informational report within one year of the date the Commission issues an order approving the CAISO's tariff revisions. This information could help inform any future refinements to resource adequacy capacity counting rules.

**IV. The CAISO's proposed exemption for hybrid resources from RAIM is severable from the remainder of market rules to facilitate**

The CAISO's proposed tariff rule to exempt hybrid resources from RAIM is separate from other tariff revisions the CAISO has proposed in its filing. The proposed RAIM exemption is not interrelated, interdependent, or affected by Commission action on other tariff revisions in this filing. The CAISO, therefore, requests that the Commission evaluate the justness and reasonableness of the RAIM exemption for hybrid resources on its individual merits.

**V. Conclusion**

The CAISO urges the Commission to reject Middle River's limited protest and accept the CAISO's proposed RAIM exemption for hybrid resources as just and reasonable.

Respectfully submitted,

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## CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon all of the parties listed on the official service list for the above-referenced proceeding, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Folsom, CA this 6<sup>th</sup> day of October, 2021.

*Is/ Anna Pascuzzo*

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