BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Reforms and Refinements, and Establish Forward Resource Adequacy Procurement Obligations.	Rulemaking 25-10-003 (Filed October 9, 2025)

COMMENTS ON TRACK 1 PROPOSALS BY THE DEPARTMENT OF MARKET MONITORING OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

The Department of Market Monitoring (DMM) of the California Independent System Operator Corporation (CAISO) submits these comments to parties' February 10 and 11, 2026 Track 1 proposals.[1]

I. Unforced capacity (UCAP) accreditation

UCAP accreditation should create the correct resource-level incentives for a long-term resource accounting framework and a fungible resource adequacy (RA) market.

DMM continues to support UCAP resource accounting, as it creates a framework that equally accounts for resource availability after derates to ensure that all resources during constrained hours will be able to provide for system reliability.[2] UCAP incorporates forced outages in such a way that allows the market to equally account for the expected resource availability during constrained grid conditions.

[1] *Workshop on Track 1 Proposals in R.25-10-003*, California Public Utilities Commission, February 10-11, 2026: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/resource-adequacy-homepage/resource-adequacy-compliance-materials/resource-adequacy-history/2-10-2026-track-1-proposals/feb-10-workshop-slides.pdf

[2] *Comments on Track 1 Proposals by the Department of Market Monitoring of the California Independent System Operator Corporation*, Department of Market Monitoring, March 8, 2024, pp 1-5: https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M528/K047/528047424.pdf

The availability derived from a UCAP framework allows for load serving entities (LSEs) to have a fungible market across (and within) all resource types, and lessens the need for LSEs to procure RA capacity across the dimensions of quality and quantity. UCAP simplifies RA procurement to a quantity framework. This homogeneity is amenable to classic economics and market clearing conditions, which is foundational to efficient market design.

Qualitative differences will still exist across the RA fleet. These differences are incorporated in the resource adequacy availability incentive mechanism (RAAIM) in the CAISO market. The up-front UCAP framework levelizes differences between and within resource types, and any deviations from historical resource availability can be incentivized appropriately in the RAAIM framework. Therefore, DMM continues to recommend pursuit of the UCAP framework by 2028, while also recommending that the CAISO maintain and enhance RAAIM. Enhancements of the RAAIM framework will provide the availability incentives required of capacity during constrained hours, of which DMM will continue to provide stakeholder input at the ISO.

DMM supports the UCAP design proposed by Energy Division to be implemented in 2028. Specifically, DMM supports assessment of UCAP on individual resources using public data based on CAISO Availability Assessment Hours.

CPUC is proposing a UCAP framework with an expected implementation in 2028. The proposal by Energy Division aligns with the design criteria DMM has long supported.[3,4,5] The policy design includes assessing UCAP during the availability assessment hours (AAHs) for individual resources using public data during the last three of four best years for the RA year. If a resource has not yet begun commercial operations at the time of

[3] *Ibid.*

[4] *Comments on Resource Adequacy Modeling and Program Design Issue Paper,* Department of Market Monitoring, December 6, 2024: https://www.caiso.com/documents/dmm-comments-on-resource-adequacy-modeling-and-program-design-issue-paper-dec-06-2024.pdf

[5] *Comments on Resource Adequacy Modeling and Program Design Working Group,* Department of Market Monitoring, March 13, 2025: https://www.caiso.com/documents/dmm-comments-on-resource-adequacy-modeling-and-program-design-working-group-mar-13-2025.pdf

UCAP assessment, the resource will receive a fleet average for the resource type. This should not impact the incentives of market participants, or the individual resource, to provide anything other than incentive-aligned behavior because both existing and new resources are incentivized to increase their net qualifying capacity (NQC) under UCAP.

DMM believes it is important for the CPUC to contemplate the interactions of the UCAP framework with the flexible RA framework. For instance, will UCAP be imposed on the effective flexible capacity (EFC) of a flexible RA resource? If so, will the UCAP derate apply to the full set of flexible RA AAHs? If a storage resource has EFC in the charging range, how will UCAP apply to the charging range? Will a charging UCAP be calculated? Lastly, if there are no additional rules for flexible RA, this should be clearly stated in the CPUC's Final Decision.

DMM recommends the CPUC work with the ISO in the development of a new RAAIM framework with incentives that are aligned with the RA program. RAAIM reforms have been proposed that would move away from the AAHs, and would assess availability or performance incentives during periods of tight grid conditions.[6,7] With the CPUC using the AAHs to assess UCAP, the ISO and the CPUC should work to create incentive compatibility between the programs for ensuring long-term availability incentives under UCAP that align with operational incentives of RAAIM reforms. The role of UCAP is to ensure accurate and consistent reporting of a resource's expected operational capability to the market. RAAIM functions as an incentive for resources to be operational in the day-ahead and real-time markets. The two policies serve different functions but should nonetheless be incentive-aligned in their development.

The ISO has proposed to limit storage resources to their operational range that does not enter nonlinear ranges near extreme states-of-charge (often called foldback). DMM has

[6] *Resource Adequacy Modeling and Program Design Track 2 – RAAIM Reform,* California ISO, March 2, 2026: https://stakeholdercenter.caiso.com/InitiativeDocuments/Presentation-Resource-Adequacy-Modeling-and-Program-Design-Track-2-Options-for-RAAIM-Reform-Mar-2-2026.pdf

[7] *Resource Adequacy Issue Paper,* California ISO, November 7, 2024: https://stakeholdercenter.caiso.com/InitiativeDocuments/Issue-Paper-Resource-Adequacy-Modeling-and-Program-Design-Nov-07-2024.pdf

previously recommended incorporating state-of-charge limitations for storage resources into the UCAP framework.[8,9] The ISO's proposal to limit the qualifying capacity (QC) of storage resources would overcome these concerns under current market conditions and rules. Further, as discussed below, if the ISO were to incorporate Master File changes or new bidding functionality into the market to reflect storage resource nonlinearities, DMM asks the CPUC to contemplate how UCAP will incorporate power output limitations (effectively, derates) into UCAP accounting.[10,11]

UCAP for hybrid resources should be calculated from the currently proposed outage data.

During the Track 1 proposals, parties discussed UCAP accounting for hybrid resources. The concern during the discussions was that outages may reflect one or more of the component resources of the hybrid, and thus overstate the derate of a resource's NQC. This may lead to a UCAP value that overstates the average derate of the resource. As a result, parties recommended delaying the implementation of UCAP for hybrid resources. DMM disagrees with the conclusion that delays of UCAP for hybrid resources are necessary in order to clarify the definition of an outage in the ISO system.

An outage in the ISO system is any "changes in physical characteristics specified in the Master File, including the PMax, Minimum Load, and Ramping capability of the unit, due

[8] *Comments on Track 1 Proposals by the Department of Market Monitoring of the California Independent System Operator Corporation*, Department of Market Monitoring, March 8, 2024, pp 1-5: https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M528/K047/528047424.pdf

[9] *Comments on Resource Adequacy Modeling and Program Design Issue Paper,* Department of Market Monitoring, December 6, 2024: https://www.caiso.com/documents/dmm-comments-on-resource-adequacy-modeling-and-program-design-issue-paper-dec-06-2024.pdf

[10] *Storage Design and Modeling: Working Group on Uplift and Default Energy Bid, Outage Management, and State-of-Charge Management* presentation*,* California ISO, January 22, 2026: https://stakeholdercenter.caiso.com/InitiativeDocuments/Presentation-Storage-Design-Modeling-Jan-22-2026.pdf

[11] *Comments on Storage Design and Modeling Working Group Presentation on January 22, 2026,* Department of Market Monitoring, February 17, 2026: https://www.caiso.com/documents/dmm-comments-on-storage-design-and-modeling-jan-22-2026-working-group-presentation-feb-17-2026.pdf

to changes in their actual physical characteristics."[12] A hybrid resource in the ISO system is comprised of multiple component parts (e.g., a solar and a storage resource) that is treated as one resource. However, an outage or derate of the resource should only represent the reduction in the physical capability of the resource, and thus not the component parts of the resource. The UCAP concern is that the derate may reflect a component source (e.g., solar) that currently has an NQC that is not the Pmax of the resource. As a result, the derate of the component resource may overly impact the NQC of the full hybrid resource.

With current ISO Tariff rules, a resource ought to be accurately reflecting their physical capability in the ISO's outage management system. DMM understands that due to the differences in the NQC of the component resources, that the derate may lead to small differences in UCAP valuations. However, the UCAP accounting system can still be implemented as proposed, and the derates can be compared against the Pmax of the resource and appropriately applied to the qualifying capacity (QC) scaled by the component parts.

Because UCAP represents the average physical capability of a resource, resources should be subject to UCAP regardless of the interaction of prices and bids.

A proposal was brought to the CPUC in Track 1 to assess UCAP during periods where resources would have reasonably been dispatched.[13] The proposal recommended determining periods where prices were below bids (or default energy bids) as periods in which the resource should not be subject to UCAP. DMM recommends against this proposal for two reasons. First, UCAP represents the expected physical capability of a resource, and not the relationship between costs and market prices. Second, the introduction of bids as a determining criteria in the UCAP framework incentivizes

[12] *CAISO Tariff section 9,* California ISO, November 1, 2023, Section 9.3.3(5): https://www.caiso.com/Documents/Section9-Outages-asof-Nov1-2023.pdf

[13] *Workshop on Track 1 Proposals in R.25-10-003*, California Public Utilities Commission, February 10-11, pp 26-36: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/resource-adequacy-homepage/resource-adequacy-compliance-materials/resource-adequacy-history/2-10-2026-track-1-proposals/feb-10-workshop-slides.pdf

inefficient bidding in the market that may not align with marginal cost of production. UCAP is a resource accounting and planning framework to quantify the expectation of resource availability during tight grid conditions conditional on physical outages, not market conditions and prices. Tight grid conditions are correlated with high prices. If UCAP does not fully capture the physical capability of resources even during periods of low prices, it could inflate the capability of resources during periods of stressed conditions that may occur unforeseen.

II. Storage qualifying capacity

Qualifying capacity for storage resources should be limited to a state-of-charge range where they do not exhibit power output limitations, and these limitations should be contemplated in the development of UCAP.

DMM continues to support the ISO's proposal requiring storage resources to limit their SOC to an operational range not impacted by power limitations.[14] The ISO is proposing that storage resources be "right sized", whereby the parameters of storage resources provided to the ISO's Master File reflect a qualifying capacity (QC) so that the resource can discharge for four hours or more without expected power limitations (e.g., foldback).[15] The proposal recommends the CPUC ensure that the QC of the resource is based on the SOC range that will not result in power limitations from physical (chemical) SOC constraints. The "right sizing" changes mean that in Master File, the resource will only reflect the minimum and maximum continuous energy limit that will best ensure resources do not experience power limitations because of the resource's SOC.

The ISO states the change in resource QC will ensure consistency across all assets, minimize reliability and operational concerns, eliminate the need to use outage cards and be assessed RAAIM, and incorporate the power limitations into any future capacity

[14] *Comments on Storage Design and Modeling Working Group Presentation on January 22, 2026,* Department of Market Monitoring, February 17, 2026: https://www.caiso.com/documents/dmm-comments-on-storage-design-and-modeling-jan-22-2026-working-group-presentation-feb-17-2026.pdf

[15] *Comments of the California Independent System Operator Corporation on Order Instituting Rulemaking,* California ISO, CPUC R.25-10-003, November 4, 2025: https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M586/K273/586273752.PDF

constructs such as UCAP adjustment to QC. This change will effectively reduce the capacity and energy of storage resources that are available to the market, as well as reduce the QC that the asset owners will be able to sell to load serving entities as resource adequacy.

The ISO has indicated in previous work that most storage resources have already been built such that they are "over-sized" and the policy change will not impact their functionality within the market.[16] DMM recommends in cases where resources that will be required to adjust their SOC, that the QC continue to reflect four-hour deliverability of the resource and make adjustments accordingly in the UCAP calculation. Since the resources will no longer need to take derates as a result of foldback, the UCAP calculation will need to adjust for the reduction in QC because these resources will no longer experience foldback with the new QC calculation.

The ISO has proposed solutions to allow the market access to the energy storage resource held in their nonlinear range.[17] The process that would allow the market access to energy in the nonlinear ranges is still unknown, but a design feature DMM supports.[18] However, incorporating nonlinearities into the market model will lead to SOC ranges where there will be power limitations on the resource that will not be documented in outage cards used in UCAP accounting. DMM recommends the CPUC determine how UCAP accounting will incorporate these modeled nonlinear power outputs in the future.

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[16] *LDES and VER Accreditation Workshop*, California Public Utilities Commission, November 4, 2025, p 102: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/resource-adequacy-homepage/resource-adequacy-compliance-materials/resource-adequacy-history/r23-10-011/20251104-ver--ldes-workshop-final.pdf

[17] *Storage Design and Modeling: Working Group on Uplift and Default Energy Bid, Outage Management, and State-of-Charge Management* presentation, California ISO, January 22, 2026: https://stakeholdercenter.caiso.com/InitiativeDocuments/Presentation-Storage-Design-Modeling-Jan-22-2026.pdf

[18] *Comments on Storage Design and Modeling Working Group Presentation on January 22, 2026,* Department of Market Monitoring, February 17, 2026: https://www.caiso.com/documents/dmm-comments-on-storage-design-and-modeling-jan-22-2026-working-group-presentation-feb-17-2026.pdf

III. Day-Ahead Market Enhancements: Imbalance Reserve and Reliability Capacity Bidding

Bidding of DAME products.

DMM does not foresee any detrimental impacts to the CAISO markets from RA resources bidding consistent with the provisions of their contract. To the extent that resources already have a must-offer obligation and do not incur any additional costs for providing imbalance reserves, bidding zero for day-ahead products that create real-time must-offer obligations appears consistent with their incremental costs of providing those products.

IV. Conclusion

DMM appreciates the opportunity to provide reply comments on Track 1 proposals.

Respectfully submitted

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