



**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

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Order Instituting Rulemaking to Continue  
Oversight of Electric Integrated Resource  
Planning and Procurement Processes.

Rulemaking 25-06-019  
(Filed June 26, 2025)

**HYDROSTOR, INC. COMMENTS ON PROPOSED DECISION REQUIRING 2029-2032  
ELECTRIC RESOURCE PROCUREMENT AND TRANSMITTING PORTFOLIOS  
FOR 2026-2027 TRANSMISSION PLANNING PROCESS**

February 6, 2026

Gabe Murtaugh  
Director of Regulatory Affairs (Western US)  
Hydrostor, Inc.  
16922 Airport Blvd #12  
Mojave, CA 93501  
Tel: (916) 293-1071  
E-Mail: [gabe.murtaugh@hydrostor.ca](mailto:gabe.murtaugh@hydrostor.ca)

## **SUBJECT INDEX LISTING RECOMMENDED CHANGES TO THE PROPOSED DECISION**

- The Commission calls out a need of more than 11 GW of long duration energy storage (“LDES”) resources in their Transmission Planning Process (“TPP”) Base Case portfolio by 2031. Thus, LDES attributes are needed to reliably meet decarbonization goals at least cost in the 2030 to 2032 period. Significantly more LDES need has been identified than what has been ordered for procurement to date.
- There are no viable alternative means to securing long-duration storage attributes, particularly on an interim basis necessary to ensure LDES availability, other than an explicit procurement order. These attributes need to be procured well in advance of resolution of a final version of the Reliable Clean Power Procurement Program or various outstanding resolutions in the resource adequacy program.
- Load-serving entities must be directed to procure LDES for these resources to be developed and come online in California because, in the current and foreseeable regulatory environment, only a clear directive for procurement of LDES will result in development of resources with these operational attributes.
- The Commission’s interim procurement order should be consistent with system planning and must therefore ensure that at least 1,500 MW net qualifying capacity of LDES resources are procured as part of the interim procurement order and require that all storage resources procured be at least 8-hours in duration to meet system needs in a cost-effective manner.
- This only represents 25 percent of the Commission’s proposed interim procurement order, and is significantly less than the LDES needs identified in the TPP Base Case portfolio by 2031. This should be viewed as a technology neutral ‘no regrets’ procurement mechanism to keep California on the least cost pathway to decarbonization and reliability.
- With the correct procurement signals, there is a significant and more than sufficient amount of potential LDES projects in California and already in the current interconnection queue. Future LDES solutions and evolving pipelines for new technologies are robust as development expands globally. Clear signals for LDES procurement will remove barriers and unlock development.

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FOR 2026-2027 TRANSMISSION PLANNING PROCESS**

Pursuant to Rule 14.3 of the California Public Utilities Commission (“Commission”) Rules of Practice and Procedure, Hydrostor, Inc. (“Hydrostor”) hereby submits these comments on the *Proposed Decision of Administrative Law Judge Julie A. Fitch Requiring 2029-2032 Electric Resource Procurement and Transmitting Portfolios For 2026-2027 Transmission Planning Process*, hereinafter the “Proposed Decision” or “PD,” filed in the above-captioned proceeding on January 14, 2026. Hydrostor’s comment is timely consistent with Administrative Law Judge Fitch’s January 27, 2026 *Email Ruling Granting, in Part, Request for Extension of Filing Deadlines for Proposed Decision (Rule 11.6)*, setting filing deadlines for comments and the replies thereto no later than February 6, 2026 and February 11, 2026, respectively.

**I. SUMMARY OF COMMENTS AND RECOMMENDATIONS ON THE PROPOSED DECISION**

Hydrostor's key comments and recommended changes to the Proposed Decision follow:

- Hydrostor agrees with the Commission that interim procurement, through this Decision, is needed.
- The Commission calls out a need of more than 11 GW of long duration energy storage (“LDES”) resources in their Transmission Planning Process (“TPP”) Base Case portfolio by 2031. Thus, LDES attributes are needed to reliably meet decarbonization goals at least cost in the 2030 to 2032 period. Significantly more LDES need has been identified than what has been ordered for procurement to date.
- There are no viable alternative means to securing long-duration storage attributes, particularly on an interim basis necessary to ensure LDES availability, other than an explicit procurement order in this PD. These attributes need to be procured well in advance of resolution of a final Reliable Clean Power Procurement Program (“RCPPP”) or various outstanding resolutions in the resource adequacy (“RA”) program.
- Load-serving entities (“LSE”) must be directed to procure LDES for these resources to be developed and come online in California because, in the current and foreseeable

regulatory environment, only a clear directive for procurement of LDES will result in development of resources with these operational attributes.

- The Commission’s interim procurement order should be consistent with system planning and must therefore ensure that at least 1,500 MW net qualifying capacity (“NQC”) of LDES resources are procured as part of the interim procurement order and require that all storage resources procured be at least 8-hours in duration to meet system needs in a cost-effective manner.
- This only represents 25 percent of the Commission’s proposed interim procurement order, and is significantly less than the LDES needs identified in the TPP Base Case portfolio by 2031. This should be viewed as a technology neutral ‘no regrets’ procurement mechanism to keep California on the least cost pathway to decarbonization and reliability.
- With the correct procurement signals, there is a significant and more than sufficient amount of potential LDES projects in California already in the current interconnection queue. Future LDES solutions and evolving pipelines for new technologies are robust as development expands globally. Clear signals for LDES procurement will remove barriers and unlock development.

In the appendix to these comments, Hydrostor provides modifications to the Proposed Decision’s Findings of Fact, Conclusions of Law and Ordering Paragraphs that implement Hydrostor’s recommended modifications to the Proposed Decision.

## **II. DEVELOPMENT AND OPERATION OF LONG LEAD-TIME, LONG-DURATION ENERGY STORAGE RESOURCES DEPENDS ON TIMELY, FULL CAPACITY PROCUREMENT**

### **A. Hydrostor is Developing Long Duration Energy Storage Projects for California.**

Hydrostor and its affiliated companies are developing a number of long-duration energy storage projects (8+ hours of continuous discharge at nameplate capacity) employing an advanced-compressed air energy storage (“A-CAES”) technology in California and internationally. At present, GEM A-CAES LLC, one of Hydrostor’s affiliated companies, is developing the Willow Rock Energy Storage Center (“WRESC”), which has the potential to be the largest new LDES project in California.<sup>1</sup> Hydrostor has additional LDES projects under development in the state including a major project in CAISO Cluster 15.

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<sup>1</sup> On December 19, 2025, the California Energy Commission (“CEC”) issued the Commission Adoption Order licensing WRESC and allowing GEM A-CAES LLC to proceed with the construction of WRESC pursuant to the conditions of the CEC’s Final Decision for the project. (Hydrostor is nearing completion of development activities that will allow WRESC’s construction to commence in the second quarter of 2026 (as required for MTR contract compliance), subject to completion of offtake contracts.

WRESC is also among the projects that qualify for Federal tax credits and other incentives. WRESC has a conditional commitment for a loan guarantee of up to \$1.76 billion from the U.S. Department of Energy,<sup>2</sup> in addition to eligibility for significant Federal tax incentives. The availability of this loan guarantee is not indefinite, and an immediate procurement pathway is critical to ensure this loan guarantee remains, the project is able to take advantage of federal tax incentives, and the project is able to deliver on already contracted requirements from the Mid-Term Reliability (“MTR”) procurement order.<sup>3</sup>

**B. Full Capacity Contracting Is a Necessary Precursor to Construction of Resources with Long-Duration Attributes.**

While Hydrostor has already successfully contracted a substantial portion of the offtake for the WRESC,<sup>4</sup> proving its highly competitive and cost-effective nature, the key to unlocking the WRESC project itself (and the associated pipeline of A-CAES and other LDES resources in California) is continued, dedicated clarity on LDES requirements in the state to ensure continuity of need for these longer lead-time resources. Direct feedback that Hydrostor has received from LSEs has been that absent an additional mandate for LDES, they have no immediate incentive to procure additional LDES despite the overwhelming evidence that LDES is urgently needed by to meet the electric sector’s decarbonization goals as specified in the TPP Base Case portfolio.<sup>5</sup>

Hydrostor continues to market capacity from its pipeline of developing LDES projects in California, including the balance of uncontracted capacity from WRESC. Hydrostor implores the Commission to implement procurement and other policies recognizing that for LDES projects commercial certainty achieved by full capacity contracting is the single most important

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<sup>2</sup> See “Hydrostor’s Willow Rock Energy Storage Center Receives Conditional Commitment for up to \$1.76 billion loan guarantee from U.S. Department of Energy,” Jan. 8, 2025, <https://hydrostor.ca/hydrostors-willow-rock-energy-storage-center-receives-conditional-commitment-for-up-to-1-76-billion-loan-guarantee-from-u-s-department-of-energy/>.

<sup>3</sup> D.21-06-035, as modified by subsequent decisions in R.20-05-003.

<sup>4</sup> Hydrostor has contracted for a minimum of 250 MW of capacity under the MTR LDES mandate, representing a significant portion of this requirement, despite being disadvantaged by LDES definitional uncertainty and bridging requirements that have been addressed and documented in R.20-05-003.

<sup>5</sup> PD at 51-52.

factor to getting these projects operational.<sup>6</sup> As discussed below, the proposed Department of Water Resources (“DWR”) procurement pursuant to Assembly Bill (“AB”) 1373 is neither timely nor sufficient to address this critical LDES need, and the Commission should take reasonable and prudent steps to address the identified need for LDES in California.

### **III. THE COMMISSION MUST MANDATE PROCUREMENT OF LONG-DURATION ENERGY STORAGE TO BRING THESE RESOURCE ATTRIBUTES ONLINE IN A TIMELY AND COST-EFFECTIVE MANNER**

Hydrostor appreciates the Proposed Decision’s analysis supporting a new 2029-2032 procurement requirement. Hydrostor agrees that the timeline for procurement requirements in the Proposed Decision allows for “a smooth transition to the potential adoption of an RCPMP framework,” and this Order “should not cause market disruption regardless of the form the Reliable and Clean Power Procurement Program RCPMP may ultimately take.”<sup>7</sup> The RCPMP currently has significant issues to resolve both in terms of potential effective load carrying capability (“ELCC”) usage and treatment of LDES and long-lead time (“LLT”) resources.

It is therefore imperative that the Commission provide LSEs direct guidance to ensure the interim procurement ordered in this decision results in a mix of resource attributes that more closely reflect the portfolio identified in the selected TPP Base Case portfolio. Consistency with the TPP Base Case portfolio is consequential as this portfolio represents the mix of resource attributes the state could develop to most cost effectively and reliably serve load and meet California’s Senate Bill (“SB”) 100 decarbonization goals. Specifically, the Proposed Decision must be modified to ensure sufficient energy storage resources with long-duration attributes (8+ hours of continuous discharge at nameplate capacity) are online in the timeframes consistent with the TPP Base Case portfolio. Hydrostor therefore proposes that at least 1,500 MW of net qualifying capacity of LDES resources are procured under this interim procurement order, and that all storage resources procured be at least 8-hours in duration. The PD should also ensure that measures are taken that result in immediate procurement of LDES resources contracted to meet MTR online deadlines and of those resources eligible for expiring Federal incentives and/or

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<sup>6</sup> Procurement consistent with the state’s policy objectives is now the most crucial precursor to development of WRESC in a timeframe that meets the online dates for MTR procurement and for opening a pipeline for this substantial, diverse storage technology in California.

<sup>7</sup> PD at 24.

tax credits so that ratepayers do not lose these substantial cost savings for needed grid resources. We further suggest that the Commission direct the initial 2,000 MW tranche of resource procurement to specifically target a 2029 commercial operation date (“COD”) given the significant near-term needs of the California grid, while maintaining flexibility in demonstrated good faith implementation before 2031 on an unpenalized basis. This will ensure that appropriate incentives exist for near-term implementation of needed resources while not discouraging the necessary financing of these resources through lack of back-end flexibility.

**A. Long Duration Energy Storage Attributes Have Repeatedly Been Shown as Needed to Reliably Meet Decarbonization Goals at Least Cost in the 2030-2032 Period, and the Proposed Decision’s Procurement Order Should Reflect This.**

Hydrostor supports an order for additional procurement in the aggregate amounts and the general online timeframes outlined in the Proposed Decision. However, the PD’s procurement order provides no guidance directing LSE procurement of resources needed to reliably meet decarbonization goals at the least cost to ratepayers. While the PD’s order continues to exclude fossil-fueled resources and limits the overall amount of storage that can be used by LSEs to meet the procurement requirement, the PD does not otherwise provide sufficient resource attribute guidance to ensure LSEs meet statutory decarbonization goals in a cost-effective manner. If not modified, the PD’s procurement order sets the stage for a portfolio of resources unmoored from what the PD itself finds is required to reliably achieve California’s legislated decarbonization goals at least cost.

Procurement ordered by the Commission should not be wholly inconsistent with carefully analyzed and stakeholder-vetted planning portfolios that have been chosen to “cost-effectively and reliably serve load and meet state GHG emission reduction goals.”<sup>8</sup> Any procurement order should be reflective of the resource attributes selected for the corresponding timeframes in the Commission’s Preferred System Plan (“PSP”) and the proposed TPP Base Case portfolio. Unfortunately, the PD’s procurement order is so broad that it is anticipated to overwhelmingly, and possibly exclusively, add solar and short-duration battery storage to the new capacity available by the 2030 and 2032 online dates.<sup>9</sup> Recently released solicitations by large investor-

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<sup>8</sup> PD at 58.

<sup>9</sup> Opening Comments of Southern California Gas Company (U 904 G) in Response to Administrative Law Judge’s Ruling Seeking Comments on Electricity Portfolios For 2026-2027 Transmission Planning

owned utilities (“IOU”) in anticipation of this PD also exclude stand-alone storage from procurement eligibility, creating another barrier for LDES resources.<sup>10</sup> This clearly does not advance California towards the mix of resources identified in the corresponding timeframes of these planning portfolios, and the PD will not result in procurement of LDES resources needed to keep California on track for least cost procurement that advance decarbonization.

The PD’s TPP Base Case portfolio identifies an 11.6 GW LDES need by 2031,<sup>11</sup> an amount far in excess of any LDES capacity ordered for procurement to date (1 GW) even when adjusting for ELCC.<sup>12</sup> The Commission staff has previously discussed why long-duration energy storage is selected in the planning portfolios, explaining that the Commission’s modelling reflects increased value from longer durations of storage due to a higher resource adequacy value as additional duration provides additional ELCC, GHG reductions from shifting growing solar generation, and transmission availability benefits as longer durations require the same amount of transmission as 4-hour durations.<sup>13</sup> These rationales remain consistent with the latest IRP modeling update.

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Process and Need for Additional Reliability Procurement, p. 2. SoCalGas notes that “MTR results suggest a need for the IRP to provide more targeted guidance to incentivize LSEs to pursue a broader mix of resources beyond intermittent renewable resources like solar and batteries. One way to address the resource type shortfalls could be to modify procurement orders to more clearly identify the specific resource characteristics or resource types that will be essential for future grid reliability and resilience. Without some form of additional clarity, such as via procurement order, procurement is likely to continue favoring resources such as solar and batteries, leading to an increasingly imbalanced and potentially overbuilt portfolio.”

<sup>10</sup> See, for example, Southern California Edison Company’s 2024 Clean Energy RFO released pursuant to the “Proposed Decision under Rulemaking 25-06-019” (available at <https://www.sce.com/about-sce/energy-procurement/solicitations/2024-clean-energy-rfo>).

<sup>11</sup> In this context, LDES includes what has been modelled as “Li-Ion Battery (8-hr)” and “Location-Constrained Storage (12-hr)” in the proposed TPP Base Case portfolio. The portfolio specifically calls for 10 GW and 1.6 GW, respectively, to be available to the system by 2031. (PD at 51.)

<sup>12</sup> The proposed TPP Base Case portfolio is unadjusted for ELCC, whereas the 1 GW of LDES ordered in D.21-06-035 was on an NQC basis after ELCC adjustment. Actual procurement from this order was just over the 1 GW requirement. ([https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2025\\_09\\_need-determination-analysis.pdf](https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2025_09_need-determination-analysis.pdf)) However, even with the TPP portfolio capacities adjusted at a conservative ELCC, the modeled need for LDES by 2031 remains significantly larger than 10 GW.

<sup>13</sup> 2023 Proposed PSP & 2024-2025 TPP Resolve Modeling Results with updated slides, Nov. 2, 2023, at p. 58 (available at [https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2023-irp-cycle-events-and-materials/2023-proposed-psp-and-2024-2025-tpp-resolve-analysis-slide-deck\\_final-v2.pdf](https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2023-irp-cycle-events-and-materials/2023-proposed-psp-and-2024-2025-tpp-resolve-analysis-slide-deck_final-v2.pdf))

In contrast, the PD's recommended 2026-2027 TPP Base Case portfolio does not identify any incremental short-duration storage need in the early 2030's.<sup>14</sup> Based on publicly available data, it appears LSEs have already significantly over-procured short-duration storage resources compared to what is identified as needed in the proposed 2026-2027 TPP portfolio.<sup>15</sup> Such material deviations in procurement from the recommended 2026-2027 TPP Base Case can only result in a system that is more expensive, less reliable, and/or does not achieve climate policy objectives. Accordingly, there is a significant disconnect between what is being modelled in this IRP proceeding in terms of resources needed to maintain reliability at least cost while meeting GHG targets and what is reflected in the PD's procurement order.

Hydrostor engaged two consultants to run a sensitivity using the CPUC's publicly available RESOLVE model and this analysis shows that the failure to procure LDES results in at least an additional \$400 million per year of costs for system procurement in 2031.<sup>16</sup> Failure to procure LDES resources between now and 2045 results in a loss of more than \$9 billion in net present value.<sup>17</sup> This is a very large price for California ratepayers to shoulder if the final procurement order is not modified to create a pathway targeted to ensure procurement of LDES resources, which are identified as the least-cost outcome to ensure reliability.

Significantly, the California Independent System Operator ("CAISO"), whose comments should be given great weight in matters related to resource planning, has urged the Commission to "provide a reasonable level of certainty that any resource types and capacity amounts for

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<sup>14</sup> Short duration storage in this context includes what has been modelled as "Li-Ion Battery (4 hr)" in the proposed TPP Base Case portfolio. (PD at 51.)

<sup>15</sup> The recommended 2026-2027 TPP Base Case calls for an incremental need of 6.8 GW of short duration storage in 2031, but the latest publicly available procurement report based upon December 2025 IRP filings shows that 14,238 MW of nameplate battery storage and 10,521 MW of nameplate solar and batteries being procured for MTR purposes. (See California Public Utilities Commission (CPUC) Staff Review of Load-Serving Entities' (LSEs') Compliance with the Mid-Term Reliability (MTR, D.21-06-035) and Supplemental MTR (SMTR, D.23-02-040) Decisions, posted July 2025, page 28 (available at <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltp/compliance-status-reportmid-term-reliability-mtr-and-supplemental-mtr.pdf>).

<sup>16</sup> These consultants are Resilient Transition LLC and Energy Strategies, LLC.

<sup>17</sup> Access to the analysis can be found here: <https://hydrostor.ca/wp-content/uploads/2026/02/RESOLVE-Analysis-No-LDES-Resilient-Transition.pdf> and <https://hydrostor.ca/wp-content/uploads/2026/02/RESOLVE-Analysis-No-LDES-Energy-Strategies.pdf>.

which it asks the CAISO to reserve deliverability will remain in future portfolios *and be supported by procurement pathways*.<sup>18</sup> In discussing near term procurement, CAISO encourages the Commission to “guide LSE procurement toward the Commission’s planning portfolio that is calibrated to meet a 0.1 LOLE,” noting that the Commission should guard against any single resource type dominating LSE procurement.<sup>19</sup> In comments on the proposed RCPPP, CAISO has similarly encouraged the Commission ensure procurement and resource development is aligned with resource types and locations specified in the PSP and with CAISO’s transmission planning,<sup>20</sup> noting that the CAISO and the Commission are parties to a 2022 Memorandum of Understanding (“MOU”) that commits these two energy principals to “tighten linkages between planning and procurement processes to ensure timely development of resources needed to achieve reliability targets and state policy goals.”<sup>21</sup> Specifically, in the 2022 MOU, the Commission agreed to the following:

In authorizing or requiring procurement of resources by load serving entities, the CPUC will provide direction, to the extent appropriate, to pursue resources with the operational characteristics and geographic locations consistent with the resource planning conducted by the CEC and CPUC, and the transmission planning conducted by the ISO based on that resource planning.”<sup>22</sup>

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<sup>18</sup> CAISO Opening Comments on Administrative Law Judge’s Ruling Seeking Comments on Electricity Portfolios For 2026-2027 Transmission Planning Process and Need for Additional Reliability Procurement, Oct. 22, 2025, at 6 (*emphasis added*).

<sup>19</sup> *Id.* at 5.

<sup>20</sup> Opening Comments of the California Independent System Operator Corporation on Administrative Law Judge’s Ruling Seeking Comments on Reliable and Clean Power Procurement Program Staff Proposal, July 15, 2025, R.20-05-003, at 5, explaining:

[T]he CAISO sees a role for the Commission as a central planning entity to direct new procurement when needed to ensure resources are contracted and developed on time to meet emerging grid needs. In light of significant load growth and changing load shapes—including emerging winter morning peaks—reliability needs may extend to different parts of the day and the year. The Commission as the central planning entity is in the best position to ensure procurement and resource development across multiple LSEs best reflects the Commission’s [PSP] and remains on course to meet evolving reliability needs. The Commission should retain flexibility to issue specific procurement to ensure resource development best aligns with the resource types and locations specified in the Commission’s PSP, and with the CAISO’s transmission planning.

<sup>21</sup> *Id.* at 5.

<sup>22</sup> Memorandum of Understanding Between the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) and the California Independent System Operator (ISO) Regarding

Hydrostor agrees with CAISO's concerns regarding a disconnect between the guidance provided for LSE resource procurement in Commission orders and the planning conducted for future portfolios.

**B. Only a Directive Requiring LSEs to Procure Long-Duration Storage Attributes Will Result in Timely Procurement and Development of These Resources.**

Based on Hydrostor's significant experience related to LDES procurement in California, LSEs are generally uninterested in pursuing procurement of LDES capacity in excess of the existing 1,000 MW minimum LDES MTR requirement. This is consistent with Commission data showing LSEs have not exceeded the 1,000 MW LDES obligation by any significant amount,<sup>23</sup> thereby indicating that California will be far short of the long-duration capacity in the TPP Base Case portfolios without a near-term targeted procurement order. This appears to be chiefly due to the failure of LSE procurement evaluations properly accounting for the value of LDES.<sup>24</sup> As referenced earlier, the failure to procure LDES actually results in more expensive outcomes for the system. This is in addition to costs associated with an inefficiently planned transmission system (which will need to be course corrected at a later date) and potentially lost federal incentives for projects (leading to higher replacement costs in the future). Furthermore, the TPP Base Case portfolio confirms that California already has all the short duration energy storage it needs for the next 20 years, so procurement of these resources will simply be adding costs onto the system for very little marginal benefit. These costs are not fully reflected in the LSE contracts with individual short-duration storage resources, but these costs will eventually be passed on to ratepayers in rate-based network upgrades.

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Transmission and Resource Planning and Implementation, Dec. 2022, para. 10 (available at <https://www.caiso.com/library/transmission-planning>).

<sup>23</sup> See the Commission Staff's Mid-Term Need Determination Analysis presentation, Sept. 30, 2025, slide 18 (showing LSEs have contracted 268 MW in excess of the 1 GW LLT LDES obligation, assuming no failure rate for contracts or delays) (available at: [https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2025\\_09\\_need-determination-analysis.pdf](https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2025_09_need-determination-analysis.pdf)).

<sup>24</sup> Most LSEs undertake procurement using a least cost / best fit analysis utilizing Net Market Value ("NMV") (i.e., benefits less costs) and for LDES resources, this NMV approach ascribes similar benefits (i.e., arbitrage value, Resource Adequacy ("RA") value) to a short duration resources given the current market dynamics and RA program. However, a long duration resource will, by its nature, always cost more. Consequently, short duration resources will always be selected over LDES in a generic procurement order.

LSEs are not incentivized to procure storage resources with longer durations. Despite providing greater reliability by having extended operational capability, LDES resources receive essentially the same capacity credit as short duration storage. This creates a market preference for 4-hour storage, but a complete absence of any competitive pathway for LDES under current procurement frameworks. This is true regardless of how the Commission adjusts ELCC values. This structural failure stems from California's reliance on a faulty premise: that ELCCs will drive the procurement of the LDES that the CPUC, CAISO, and CEC all acknowledge the grid requires, including more than 10 GW of incremental LDES by 2031. The reality, confirmed through direct conversations with LSEs, is that ELCCs play essentially no role in resource selection decisions. When LSEs evaluate projects, their Net Market Value ("NMV") analysis is independent of ELCCs, and short duration resources will always be selected, as described above. LSEs do use ELCCs to establish their procurement obligation on a nameplate basis. That is, ELCCs impact *how much* to procure, but not *what* to procure.

While Hydrostor recognizes that these serious barriers to the value of LDES could be mitigated over time through development of the RCPMP, appropriate redefinition and implementation reform of ELCCs, as well as RA program reform that directly recognizes the significant value of LDES, these developments are both highly uncertain and not sufficiently expedient to ensure the cost-effective development of LDES resources needed for the TPP Base Case portfolio.

Importantly, Hydrostor's proposal is technology-neutral. Hydrostor's approach ensures that there will be significant competition for any LDES procurement ordered by the Commission, providing ratepayer value. An analysis of the CAISO interconnection queue suggests that there are approximately 125 standalone storage projects representing, representing over 30 GW of deliverable capacity in Cluster 14 or earlier. In addition, there are close to 50 standalone storage projects representing close to 16 GW in Cluster 15. While some of these projects may have been contracted, this still leaves significant competition.

To date, nearly all of the storage capacity developed on the system has been 4-hour duration driven by LSE evaluation methodologies, described above, and as a by-product of the counting rules initially developed for storage resources in the RA program. Thus, a logical assumption would be that many of the projects in the queue are short-duration as well, including

a significant portion of lithium-ion projects. However, lithium-ion projects are relatively easy to scale to a larger duration, and developers can easily modify these projects to become LDES resources with the same queue positioning, assuming a clear commercial signal is provided for LDES procurement.<sup>25</sup> There are a number of LDES technologies globally that are already being implemented elsewhere that can also respond to immediate clear signals for LDES procurement to deliver onto the California grid before 2032. If a clear near-term commercial signal for procurement comes from the Commission, this would allow for the significant storage capacity that is already in the queue to qualify for and provide 8-hour duration storage services to the grid. For example, Aypa Power's Eusimod project was originally conceived as a 4-hour project but was later extended to 8-hours.<sup>26</sup> This can be accomplished with a straightforward Material Modification Assessment submission to the CAISO that has significant existing precedent.

However, without a specific procurement mandate in the near-term, especially within the interim procurement order already tabled, neither economic signals nor other procurement incentives exist for California to meet the projected long-duration storage needs in service of the PSP selected GHG emission reduction levels.

**C. Immediate Procurement Following the Adopted Decision is Needed to Meet Long Lead-Time MTR Requirements and to Preserve Federal Tax Credits and Other Federal Support.**

Interim procurement is needed to support projects still working towards meeting the objectives of the D.21-06-035 MTR procurement order. MTR contracts require construction start times in the near-term to ensure the MTR online timelines are met. Partially due to the fact that there has not been continuity in procurement of LDES resources, meaning that MTR procurement has not kept pace with long-duration storage planning needs and other hurdles have delayed procurement of these resources (such as prior disincentives associated with bridge contract requirements for resources with later in-service dates), LDES resources may have been

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<sup>25</sup> For lithium-ion battery projects, increasing duration by increasing the project footprint and doubling the number of cells, while leaving the inverters and injection/withdraw capability unchanged from a 4-hour configuration.

<sup>26</sup> See San Diego Community Power's Board of Directors presentation, February 27, 2025, slide 44 (<https://sdcommunitypower.org/wp-content/uploads/2020/12/BOD-PPT.pdf>).

only partially contracted up to this point and require additional offtake to proceed with construction in order to be online by June 1, 2031.

To deliver the resources needed to meet decarbonization objectives at least cost to ratepayers, it is imperative that the Commission adopt procurement orders that allow resources to take full advantage of Federal tax credits and other federal financial incentives, such as conditional loans and grants. Such a procurement order is more closely aligned with the discussion in the PD regarding the Commission’s intent “to pursue any viable projects that can still qualify for Federal tax credits or other incentives.”<sup>27</sup> A procurement order that prioritizes projects eligible for Federal tax benefits also aligns with Governor Newsom’s Executive Order N-33-25, which supports its directives with the finding that “immediate action is needed to maximize the expiring Federal production and incentive tax credits for clean energy projects able to begin construction by July 2026 or come online by December 2027.”<sup>28</sup>

Hydrostor implores the Commission to ensure that LSEs launch procurements for capacity from LDES resources (and prioritize applicability of federal incentives for these resources specifically). There is already significant incentive for LSEs to procure renewable and clean energy as described previously – this includes clean energy resources that are eligible for expiring federal tax incentives. Clean energy resources do not need exceptional treatment in this Decision regardless of their federal incentive status, as this will be explicitly considered in LSE evaluation of these resources. Conversely, delay in ordering such procurement for LDES may put availability of Federal incentives at risk, resulting in higher costs for resources with long-duration storage attributes.

**D. Department of Water Resources’ AB 1373 Central Procurement Efforts Are Significantly Delayed and Cannot Be Relied Upon to Supply Long-Duration Energy Storage Resources When Needed.**

As previously addressed by Hydrostor in its comments on the Ruling,<sup>29</sup> the Commission cannot justify delay in procurement of resources with long-duration energy storage attributes in

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<sup>27</sup> See PD at 2.

<sup>28</sup> California Executive Order N-33-25, issued Aug. 29, 2025.

<sup>29</sup> Hydrostor, Inc. Comments on Administrative Law Judge’s Ruling Seeking Comments on Electricity Portfolios for 2026-2027 Transmission Planning Process and Need for Additional Reliability Procurement, Oct. 22, 2025, at 14-15.

hopes of timely DWR central procurement of eligible LLT resources, such as 12+ hour LDES that does not employ lithium-ion batteries.<sup>30</sup> First, this central procurement is not comprehensive for all long-duration attributes required in the TPP as it is only for 12+ hour durations, and it is not technology neutral as it excludes long-duration storage projects employing lithium-ion batteries.<sup>31</sup> Second, the LLT procurement directive sets maximum capacity quantities. It is therefore aspirational, and not certain to result in timely procurement of these resources. Third, since the decision establishing a capacity need for these resources over a year ago, none of the preparatory and pre-bid activity expected for AB 1373 central procurement has occurred.<sup>32</sup>

Despite the Commission's best intentions in developing the AB 1373 need determination and support for technologies eligible for this category of procurement, it cannot be relied upon to achieve a portfolio of LDES resources in the timeframes set forth in the TPP Base Case portfolio. Accordingly, the Commission must mandate procurement as part of this interim order to bring anything sufficiently more than the already ordered 1,000 MW of long-duration attributes online in the 2030-2032 period.

**E. The Proposed Decision Should Be Modified to Require LSEs to Immediately Secure at Least 1,500 MW NQC of Long Duration Storage.**

Considering the facts and arguments outlined above, the Proposed Decision should be modified to require at least one-fourth of the NQC ordered to come from LDES resources. Only a targeted procurement mandate for long-duration storage attributes will ensure these resources will be capable of coming online before or by the June 1, 2032 deadline.

The LSE procurement required from LDES resources would therefore be **1,500 MW of net qualifying capacity ("NQC") of total procurement or 25% of the 6 GW procurement order**. Specifically, this should include procurement of 500 MW NQC as part of the initial 2,000 MW tranche (targeting COD by 2029 with flexibility based on demonstrable good faith progress for implementation by 2031), and 1,000 MW NQC as part of the 4,000 MW tranche by 2032. This timeline for LDES procurement also aligns with the MTR June 1, 2031 online deadline where resources require additional offtake to be fully procured. While this capacity

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<sup>30</sup> See D.24-08-064, Ordering Para. 1, at 86.

<sup>31</sup> *Id.*

<sup>32</sup> See D.24-08-064 at 64-66.

amount for LDES resources is still woefully short of the LDES reflected in the PD's 2026-2027 TPP Base Case portfolio, such a requirement assures some level of progress towards and consistency with the preferred set of resources modelled to cost-effectively and reliably meet California's decarbonization goals in this timeframe. While Hydrostor still believes that its earlier proposal for procurement of 3,000 MW LDES is reasonable and justified,<sup>33</sup> this proposal is a more modest reflection of the system's need for long-duration attributes and better aligns with the Proposed Decision's 6,000 MW interim procurement order.

As also discussed herein, modification of the PD is needed to ensure that LDES projects are procured immediately. Only near-term procurement, a crucial precursor to construction of these resources, will provide LDES projects a feasible pathway toward meeting MTR online deadlines where additional procurement is needed, and is necessary to secure Federal tax credits and other incentives. As such, the Commission should consider ordering LSEs allotted more than a total 150 MW NQC of total procurement to immediately issue a solicitation for the LDES portion of the procurement ordered or take other measures it deems necessary to expedite procurement and requiring good faith efforts to procure their LDES obligations by June 1, 2026.<sup>34</sup>

**F. All Storage Procured Under the Interim Procurement Order Should be LDES.**

Given the facts recited above on the need for LDES and particularly the over-procurement of short duration storage, the Commission must require that all storage procured under the interim procurement order meet LDES definitions (8+ hours in duration). This will help ensure that development is on track to deliver resource attributes that the system needs in the early 2030's as well as align actual outcomes of the interim procurement order to the needed attributes on the system. For greater clarity, this is not mutually exclusive from the implementation of a 1,500 MW LDES procurement requirement, nor does it absolve the need for this requirement as has been described herein.

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<sup>33</sup> Hydrostor, Inc. Comments on Administrative Law Judge's Ruling Seeking Comments on Electricity Portfolios for 2026-2027 Transmission Planning Process and Need for Additional Reliability Procurement, Oct. 22, 2025, at 2-3.

<sup>34</sup> We note that there are larger LSEs that have already launched processes in advance of the Order in any event, which would simply need to be updated to reflect the specific LDES requirement.

Additionally, the overall 50% cap on storage resources is unnecessary as the Renewable Portfolio Standard program and the RA framework sufficiently incentivizes procurement of energy resources relative to storage resources. The RA program requires LSEs to show that sufficient energy is procured to charge storage resources shown.<sup>35</sup>

#### IV. CONCLUSION

Hydrostor greatly appreciates the direction taken by the Proposed Decision to order additional NQC procurement for resources coming online between June 1, 2030 and June 1, 2032. However, in its current form, the PD's procurement order will not result in a portfolio of resources that is consistent with IRP planning and the 2026-2027 TPP Base Case portfolio. In particular, the procurement order will not result in any additional procurement of long-duration energy storage, and the amount of LDES planned for in the 2026-2027 TPP will not be available in the corresponding timeframes. In these comments and the appendix hereto, Hydrostor provides modifications to the PD that are consistent with concerns highlighted herein and the proposed 2026-2027 TPP Base Case portfolio being recommended.

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Respectfully submitted,

By: \_\_\_\_\_/s/  
Gabe Murtaugh  
Dir. of Regulatory Affairs (Western US)  
Hydrostor, Inc.  
16922 Airport Blvd #12  
Mojave, CA 93501  
Tel: (916) 293-1071  
E-Mail: [gabe.murtaugh@hydrostor.ca](mailto:gabe.murtaugh@hydrostor.ca)

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<sup>35</sup> While the treatment of charging sufficiency for LDES resources is under consideration in the RA rulemaking (R. 25-10-003), LSEs must at least show they have sufficient energy within the 24 hour slice-of-day period to charge all short-duration energy storage, which comprises the vast majority of storage procured, and therefore sufficient energy is assured to be procured to cover the significant majority of energy storage procured by LSEs.

**APPENDIX:**  
**HYDROSTOR'S PROPOSED REVISIONS TO THE PROPOSED DECISION'S  
FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDERING PARAGRAPHS**

**Findings of Fact**

1. Commission staff conducted an analysis of electric reliability needs between 2028 and 2032 with SERVM, using an updated 2024 IEPR load forecast, and updated list of resources procured to meet MTR and Supplemental MTR requirements, and in response to comments on the RCPMP proposal and the ACP-CA Motion to Amend the Scoping Memo in R.20-05-003.

2. Several things have changed since the Commission last ordered IRP procurement in D.23-02-040 (as modified by D.24-02-047): (1) the CEC's 2024 IEPR demand forecast projects significant load growth in 2028-2032; (2) Federal tax credit benefits are being rapidly phased out over the next few years, **and other Federal incentives for clean energy and storage development are subject to near-term expiry**; and (3) other Federal actions have been taken imposing tariffs and limiting or delaying renewables siting on Federal lands.

3. Commission staff SERVM analysis results in an estimated need for a cumulative total of 6,267 MW of perfect capacity to be online by June 1, 2032.

4. The proposed aggregate average of 1,500 MW of procurement per year is in line with prior procurement orders and LSEs have been on notice that in R.20-05-003 an ongoing procurement requirement as part of RCPMP may be imposed by the Commission.

5. It is likely that there are still some renewables projects **and storage resources** without contracts that can take advantage of expiring Federal tax credits **and other incentives**, in order to provide cost savings to ratepayers.

6. Requiring procurement by 2030 and 2032 is far enough in the future that it should mitigate potential negative market impacts.

7. DCPMP is likely to remain online at least through 2030.

8. Based on the Commission staff analysis presented in the September 30, 2025 ALJ Ruling, there is likely to be a reliability shortfall of approximately 6,000 MW by 2032 based on current load forecasts and expected resources online.

9. The MTR and Supplemental MTR orders specified that eligible new resources must be either zero-emitting or otherwise eligible under the RPS program. Repowered resources

were eligible on the basis of any incremental capacity added during repowering, but not for the full capacity of the resource. Incremental capacity from modifications or upgrades to resources on the baseline line is also eligible, but only for the capacity above and beyond the baseline amount.

10. D.23-02-040, Ordering Paragraph 13, allowed LSEs to undertake baseline swaps, for eligible resources under the MTR and Supplemental MTR orders.

11. Energy storage, especially **short-duration** battery storage, has made up a large proportion of the resources procured to meet MTR and Supplemental MTR requirements, both due to its declining costs, its modularity, and its fast average development timelines.

**[NEW Finding of Fact] LSEs are not on track to procure long-duration energy resources in the amounts modelled as needed to most cost-effectively meet reliability and decarbonization goals by 2031.**

12. Individual ESP energy and peak load forecasts are maintained confidentially by the Commission due to the cap on direct access load and competitiveness implications.

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## **Conclusions of Law**

1. Based on the staff reliability analysis summarized in the September 30, 2025 ALJ Ruling, the Commission should require approximately 6,000 MW NQC of new resource procurement through 2032.

2. Requiring procurement ~~in 2030~~ should allow LSEs to take advantage of any remaining projects that are able to qualify for expiring Federal tax credits **and other incentives, if they which** provide cost savings to ratepayers.

3. Requiring more of the procurement at a later date, in 2032, should mitigate potential negative market effects and help secure reasonable costs to ratepayers.

4. The Commission should require LSEs to procure 2,000 MW NQC of total new procurement to ~~be target being~~ online by June 1, ~~2030~~ **2029, while maintaining flexibility in demonstrated good faith implementation before June 1, 2031 on an unpenalized basis.**

5. The Commission should require LSEs to procure 4,000 MW NQC of total additional new procurement by June 1, 2032.

6. The Commission should maintain resource eligibility rules for the procurement ordered in this decision consistent with MTR and Supplemental MTR requirements, which means that resources must be zero-emitting or RPS-eligible, repowering or modifications/upgrades are eligible only for the incremental capacity (if any) that was added during repowering or modification/upgrade, and baseline swaps, baseline waivers, and obligation swaps should be allowed.

**[New Concl. of Law] The Commission's procurement orders should guide LSE procurement toward resource attributes selected in the adopted Preferred System Plan and the Transmission Planning Process Base Case portfolio where such resources are not otherwise likely to be procured in advance of forecasted need.**

**[New Conclusion of Law] Because additional long-duration energy storage resources are not likely to be procured in amounts approaching the 2026-2027 TPP Base Case portfolio adopted in this order, of the 6,000 MW NQC of new resource procurement:**

- **500 MW NQC shall be from LDES that can meet the targeted June 1, 2029 online deadline, with flexibility out to June 1, 2031 based on good faith implementation; and,**
- **1,000 MW NQC shall be from LDES resources that can meet the June 1, 2032 online deadline.**

7. Energy-only contracts should be eligible to be counted toward the procurement required in this decision, in the limited situation where there are generation and storage projects that are co-located, the storage is fully deliverable, and the multiple resource IDs have the same point of interconnection on the CAISO system.

8. ~~The Commission should avoid over-reliance on storage resources by imposing a cap such that no more than 50 percent of the capacity otherwise eligible to be procured in response to this decision may come from storage. Thus, at least half of the procurement will be from generation resources that are otherwise eligible.~~ **The Commission should require that all energy storage procured in response to this decision come from Long Duration Energy Storage.**

9. Imposing a local procurement requirement for the capacity required by this decision is likely to increase costs and make procurement more difficult. Therefore, the Commission should not require a specific amount of local procurement, though LSEs are

encouraged to pursue procurement in local areas where it makes sense for their portfolios.

10. The Commission should maintain the principle that each LSE is responsible for procuring electricity resources to serve its own load where possible, unless there is a compelling reason to order centralized procurement for logistical or cost reasons.

11. Responsibility for the 6,000 MW NQC of new resource procurement required in this decision should be allocated to LSEs on the basis of each LSE's share of the managed peak on the electric system as of resource adequacy program year 2026, and weighted by the 2026 energy load forecasts for IOUs and CCAs from the CEC's adopted 2024 IEPR.

12. Individual LSE allocation of procurement responsibility should be as given in Attachment A. The ESP allocations should be calculated by dividing the individual ESP's year-ahead adjusted peak resource adequacy forecast for 2026 (for month 9) by the total/aggregate year-ahead adjusted peak resource adequacy forecasts for 2026 (for month 9) for all Commission-jurisdictional LSEs.

13. Commission staff should transmit individual ESP allocations confidentially within two weeks after this decision is adopted.

14. This decision should keep compliance and enforcement as similar as possible to MTR and Supplemental MTR requirements, and also keep the requirements as simple as possible.

15. LSEs should be eligible to count any excess procurement undertaken to meet D.21-06-035 or D.23-02-040 requirements toward the requirements of this decision, if the resources otherwise qualify under the terms of this decision.

16. LSEs should be required to bring online a total of 2,000 MW NQC, **of which 500 MW shall be from long duration energy storage resources, by June 1, 2030** ~~by June 1, 2030~~ **2029, while maintaining flexibility in demonstrated good faith implementation before June 1, 2031 on an unpenalized basis;** and a total of an additional 4,000 MW NQC total, **of which 1,000 MW shall be from long duration energy storage resources,** by June 1, 2032.

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## Ordering Paragraphs

1. All load serving entities (LSEs) subject to the California Public Utilities Commission's integrated resources planning purview shall procure new net qualifying capacity (NQC) from non-emitting, storage, and/or resources eligible under the renewables portfolio standard program, with 2,000 megawatts (MW) NQC total, **of which at least 500 MW must come from long duration energy storage resources,** due online by June 1, ~~2030~~**2029, while maintaining flexibility in demonstrated good faith implementation before June 1, 2031 on an unpenalized basis;** and an additional 4,000 MW NQC, **of which at least 1,000 MW must be from long duration energy storage resources,** due online by June 1, 2032. To be counted, resources must be delivering power to the grid and contracted to begin deliveries by the above dates. Hybrid and co-located solar and storage resources may also be used to satisfy the requirements, if the co-located storage meets the online criteria stated above and the multiple co-located resources are interconnected to the transmission system at the same location. Repowered resources and other baseline resources that have been modified or upgraded that otherwise qualify may also be used, but only to the extent that the repowering or modification/upgrade results in incremental capacity, and only the incremental capacity may be counted toward the requirements. ~~A maximum of 50 percent of each LSE's share for each procurement tranche (2030 and 2032) may come from storages resources.~~ **All storage resources procured must be at least 8-hours in duration or longer.**

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