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*Comment Received From: bart riley*  
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**feedback for draft solicitation of EPIC**

*Additional submitted attachment is included below.*

# Feedback from XL Batteries

## QUESTIONS FOR STAKEHOLDERS

CEC staff are seeking responses and comments to the following to shape the direction and scope of this solicitation:

### General

1. Do the Project Groups described in Section IV.A address the primary objectives of the solicitation to enable more strategic and high-value implementation of energy storage to support grid reliability?

Yes

2. In addition to the target performance metrics outlined in Section IV.A regarding LCOS, calendar life, and roundtrip efficiency, what other metrics should be reported?

A measure of safety would be useful. Here are a couple of suggestions:

- The simplest way to achieve this is to provide a National Fire Protection Association hazard diamond
- A listing from a hazmat placard: Class 1 explosives, Class 2 gases, Class 3 flammable liquids, Class 4 flammable solids, Class 5 oxidizers, Class 6 poisons, Class 7 radioactive materials, Class 8 corrosive substances, Class 9 miscellaneous

3. CEC is considering releasing this funding opportunity as a two-phase solicitation that includes a Pre-Application Abstract phase and Full Application phase. Projects that are successful in the Abstract phase will have two months to prepare a Full Application. Is this approach preferable to applicants or should the CEC consider a one-phase solicitation without the Pre-Application Abstract phase?

Pre-applications (as proposed) are preferred

4. Are the draft funding levels and match requirements appropriate to achieve the desired outcomes of each Group?

This is hard to gauge as the most relevant data is CEC's track record of achieving desired outcomes from their past solicitations. That being said, we are very confident we can achieve CEC's desired outcome in the program we will propose.

### Group 1

1. Is a three-year project timeline feasible for Group 1 projects to meet the objectives of the solicitation? Are there any potential barriers or challenges in implementing these types of projects over three years?

~~yes it is feasible~~ (we should only answer if we plan to submit here)

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2. What level of analysis would an applicant be able to provide to demonstrate supply chain sustainability improvements of a proposed innovation? For example, could applications be expected to describe the source and lifecycle impacts of relevant materials, ethics or workforce implications, and/or manufacturing scale-up capabilities?

A basic level of Environmental, Social, Governance (ESG)<sup>1</sup> (see analysis should be done for all projects as such could identify possible issues at an early enough time for proper mitigation.

3. What data would be useful to gather and publish to validate technology improvements and accelerate commercialization?

The draft solicitation already asks for data key to the differentiating aspect of the proposed technology. Supplemental data that is also performance/cost critical should also be required. For example if the proposed technology extends the life of a technology, the round trip efficiency and energy density should also be reported.

4. What emerging technologies can be demonstrated to further reduce energy storage safety risks?

pH neutral redox flow batteries.

5. Are there additional energy storage applied R&D or innovation opportunities not captured by this Group 1 concept?

None come to mind.

6. Should there be separate qualifications or target metrics for short-duration and long-duration storage within Group 1?

No. Many electrochemical technologies are fast response. There is a subset of such that has the potential to meet/exceed the DOE's LCOS target of <\$0.05/kWh. The proposed projects that have the potential to cover all grid use cases (most of which are short duration and have the potential to meet/exceed the DOE's LCOS target of <\$0.05/kWh should have a preference in the draft solicitation.

7. Should real-world field demonstrations be required or optional for Group 1 projects?

The best proof a technology will work is a field demonstration. CEC should be flexible with respect to what type of demonstration qualifies and the duration period appropriate for such qualification, but it will be in a better position regarding time to impact the California grid by requiring a field demonstration.

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<sup>1</sup> Environmental, social and governance (ESG) refers to a collection of corporate performance evaluation criteria that assess the robustness of a company's governance mechanisms and its ability to effectively manage its environmental and social impacts.

## Feedback from XL Batteries

### Group 2

1. Is a four-year project timeline feasible for Group 2 projects to meet the objectives of the solicitation? Are there any potential barriers or challenges in implementing these types of projects over four years?

Yes, provided there is an appropriate site or customer who can support the draft solicitations schedule.

2. Are there any use cases missing from Table 1 that should be included?

In the absence of clear LDES specific common use cases - there are a great deal of corner cases talked about by some in the industry, but no 'standards' have emerged, Table 1 is complete.

3. What are some examples of innovative use cases for commercial Li-ion batteries that are worth exploring in this solicitation?

In our opinion, CEC is better off focusing on emerging technologies that can do everything Li-ion can do but have a fundamentally lower cost structure, for example LCOS <\$0.05/kWh

4. Is the minimum scale of demonstration (>100 kW capacity) reasonable?

Yes.

5. Do the Group 2 requirements sufficiently encourage projects to be in and benefitting disadvantaged communities, low-income communities, or Native American tribes?

Yes.

6. To maximize the impact and benefits of Group 2 demonstrations, what partnerships are most critical?

Siting and appropriate qualified local support will be critical to allowing emerging technologies, most typically associated with start-ups. To execute on the draft solicitation schedule, CEC could play an enabling role by brokering partnerships between start-ups and California grid ecosystem players.

7. What barriers and opportunities exist for partnerships with utilities or other stakeholders to demonstrate transmission or distribution-connected energy storage use cases?

This program gives the CEC an opportunity to reduce the barriers by various outreach, underwriting, or influencing legislation all with the goal in mind of accelerating net zero California. With demonstration projects in the range of 100kW, the grid interconnect studies should be simpler and faster, or perhaps there are California companies that have an internal need for 100 kW. Once utilities see fully functional (for their use cases) and reliable energy storage with either improved performance or better (when scaled) cost structure, they will start to take such seriously.

8. What data would be useful to gather and publish for measurement and verification purposes and to inform bankability and replicability?

Percent up time/availability and event caused down time with after the fact root cause analysis is the best way to get at reliability. In addition, projected and actual maintenance costs (and

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basis for such) provides further useful information. Replicability is best measured by making multiple units, which is well beyond this projects scope. Short of that, an analysis of the manufacturing strategy down to the unit process level can be useful.

Because product reliability is critical to the viability of a given technology and supplier, we strongly suggest that for at least a subset of Group 2 winners there be a supplement CEC funded activity to measure the actual performance and reliability of the storage system for at least 5 years and ideally 20 years.

9. Is the 12-month minimum demonstration period requirement reasonable for Group 2 projects?

Yes.