

**DOCKETED**

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**Open Access Battery Performance Database and Centralized  
Testing Hub for Industry and Academia**

*Additional submitted attachment is included below.*



## Electric Program Investment Charge 2026–2030 (EPIC 5) Research Concept Proposal Form

The California Energy Commission (CEC) is currently soliciting research concept ideas and other input for the Electric Program Investment Charge 2026–2030 (EPIC 5) Investment Plan. For those who would like to submit an idea for consideration, please complete this form and submit it to the CEC by **August 8, 2025**. More information about EPIC 5 is available below.

To submit the form, please visit the e-commenting link: <https://efiling.energy.ca.gov/EComment/ECommentSelectProceeding.aspx> and select the Docket **25-EPIC-01**. Enter your contact information and then use the “choose file” button at the bottom of the page to upload and submit the completed form. Thank you in advance for your input.

1. Please provide the name, email, and phone number of the best person to contact should the CEC have additional questions regarding the research concept:

Dominik Haering, [dhaering@uci.edu](mailto:dhaering@uci.edu), 331-803-8670

2. Please provide the name of the contact person's organization or affiliation:

UC Irvine, Horiba Institute of Mobility and Connectivity (HIMaC)

3. Please provide a brief description of the proposed concept that you would like the CEC to consider as part of the EPIC 5 Investment Plan. What is the purpose of the concept, and what would it seek to do? Why are EPIC funds needed to support the concept?

We propose launching an open-access battery performance database supported by a centralized testing program at the Horiba Institute for Mobility and Connectivity (HIMaC) at UC Irvine. This initiative will generate and publish standardized performance and aging data for battery cells and packs, enabling broad access to reliable data for researchers, technology developers, and policymakers.

HIMaC already has the infrastructure and expertise to conduct high-quality, consistent testing. EPIC support would expand the program by:

- Creating a publicly accessible database with standardized formats and protocols
- Offering funding pathways for industry and academia to submit cells or packs for third-party testing
- Supporting diverse technologies, including lithium-ion, sodium-ion, and emerging chemistries
- Including application-relevant testing such as automotive, grid storage, and fast-charging use cases

#### Purpose and Value:

- Lower barriers to entry for early-stage battery developers
- Support performance validation and accelerate technology readiness
- Provide data for modeling, policy analysis, and grid integration planning
- Reduce duplicative testing across the state
- Promote transparency, collaboration, and innovation across industry and academia

#### Why EPIC Funding Is Needed:

While HIMaC provides a strong foundation, EPIC funding is essential to:

- Scale test capacity
- Build and maintain the data platform
- Support subsidized access for under-resourced innovators
- Ensure open data sharing and long-term public benefit

4. In accordance with Senate Bill 96<sup>i</sup>, please describe how the proposed concept will "lead to technological advancement and breakthroughs to overcome barriers that prevent the achievement of the state's statutory energy goals." For example, what technical and/or market barriers or customer pain points would the proposed concept address that would lead to increased adoption of clean energy technology or innovation? Where possible, please provide specific cost and performance targets that need to be met for increased industry and consumer acceptance. For scientific analysis and tools, provide more information on what data and information gaps the proposed concept would help fill, and which specific parties or end users would benefit from the results, and for what purpose(s)?

This concept addresses critical barriers in battery technology development, including the lack of standardized, publicly accessible performance and degradation data, and limited testing capacity that slows innovation and market adoption. Many developers face high costs and inconsistent testing protocols, creating uncertainty around battery lifespan, safety, and real-world performance.

By providing independent, third-party testing and an open-access database through the existing HIMaC facility, the project fills essential data gaps across multiple chemistries and applications. It enables accurate benchmarking, performance validation, and cost modeling, supporting improved technology readiness and reducing commercialization risks.

End users such as battery manufacturers, electric vehicle OEMs, energy storage developers, researchers, and policymakers will benefit by gaining reliable data to optimize designs, inform regulatory standards, and guide investment decisions—ultimately accelerating clean energy adoption aligned with California’s statutory energy and climate goals.

5. Please describe the anticipated outcomes if this research concept is successful, either fully or partially. For example, to what extent would the research reduce technology or ratepayer costs and/or increase performance to improve the overall value proposition of the technology? What is the potential of the innovation at scale? How will the innovation lead to ratepayer benefits in alignment with EPIC’s guiding principles to improve safety,<sup>ii</sup> reliability,<sup>iii</sup> affordability,<sup>iv</sup> environmental sustainability,<sup>v</sup> and equity?<sup>vi</sup>

If successful, this program will enhance battery technology development by providing reliable, standardized performance data, reducing R&D costs and accelerating commercialization of advanced batteries. Improved data transparency will enable better product designs with longer lifespans, higher safety, and lower costs, benefiting manufacturers and end users alike.

At scale, the database and testing access will support widespread adoption of clean energy technologies, including electric vehicles and grid storage, by lowering uncertainty and financial risks. Ratepayers will benefit through increased affordability due to cost reductions, enhanced reliability from better-performing batteries, and improved environmental sustainability by accelerating clean technology deployment.

The program also promotes equity by subsidizing access for smaller companies and academic researchers, ensuring diverse participation in the clean energy transition and helping underserved communities benefit from cleaner, safer energy solutions.

6. Describe what quantitative or qualitative metrics or indicators would be used to evaluate the impacts of the proposed research concept.

Quantitative Metrics:

- Number of battery cells and packs tested annually across different chemistries and applications.
- Volume of users (industry, academia, policymakers) accessing the database.
- Percentage of funded testing projects completed and reported.
- Improvements in battery performance metrics reported (e.g., cycle life, energy density) linked to database insights.
- Reduction in R&D costs or time-to-market for participating organizations.

#### Qualitative Metrics:

- User satisfaction and feedback on testing services and data accessibility.
- Evidence of database use in policy development, standards setting, or commercial decision-making.
- Case studies demonstrating technology improvements or market adoption enabled by the program.

These metrics will measure the program's effectiveness in accelerating battery innovation, improving transparency, and supporting California's clean energy goals.

7. Please provide references to any information provided in the form that supports the research concept's merits. This can include references to cost targets, technical potential, market barriers, equity benefits, etc.

U.S. Department of Energy, Battery Data and Benchmarking

<https://www.energy.gov/eere/vehicles/battery-data-and-benchmarking>  
— Highlights the importance of open, standardized battery performance data to accelerate technology advancement.

California Energy Commission, EPIC Investment Plan

— Emphasizes data-driven innovation and the need for shared testing infrastructure to overcome market barriers.

8. The EPIC 5 Investment Plan must support at least one of five Strategic Goals:<sup>vii</sup>

- a. Transportation Electrification
- b. Distributed Energy Resource Integration
- c. Building Decarbonization
- d. Achieving 100 Percent Net-Zero Carbon Emissions and the Coordinated Role of Gas

#### e. Climate Adaptation

Please describe in as much detail as possible how your proposed concept would support these goals.

The proposed open-access battery testing and data program supports multiple EPIC 5 Strategic Goals:

a. Transportation Electrification: By providing standardized, reliable battery performance data, the program accelerates the development and deployment of advanced batteries for electric vehicles, reducing cost and performance uncertainties that limit adoption.

b. Distributed Energy Resource Integration: Accurate battery performance data informs grid storage applications and DER integration strategies, improving reliability and operational planning for utilities and system operators.

d. Achieving 100 Percent Net-Zero Carbon Emissions: The program supports development of low-cost, high-performance batteries, essential for decarbonizing transportation and energy storage sectors, advancing California's net-zero goals.

e. Climate Adaptation: Enhanced battery technologies contribute to resilient energy storage solutions that help stabilize the grid during climate-related disruptions and emergencies.

Overall, this program fosters innovation, transparency, and equity by enabling broad access to critical battery data, supporting EPIC's mission to advance clean, reliable, and affordable energy technologies.

## About EPIC

The CEC is one of four EPIC administrators, funding research, development, and demonstrations of clean energy technologies and approaches that will benefit electricity ratepayers of California's three largest investor-owned electric utilities.

EPIC is funded by California utility customers under the auspices of the California Public Utilities Commission.

To learn more about EPIC, visit: <https://www.energy.ca.gov/programs-and-topics/programs/electric-program-investment-charge-epic-program>

EPIC 5 documents and event notices will be posted to:  
<https://www.energy.ca.gov/proceeding/electric-program-investment-charge-2026-2030-investment-plan-epic-5>

Subscribe to the EPIC mailing list to stay informed about future opportunities to inform the development of EPIC 5:  
<https://public.govdelivery.com/accounts/CNRA/signup/31897>

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- i See section (a) (1) of Public Resources Code 25711.5 at:  
[https://leginfo.ca.gov/faces/codes\\_displaySection.xhtml?lawCode=PRC&sectionNum=25711.5](https://leginfo.ca.gov/faces/codes_displaySection.xhtml?lawCode=PRC&sectionNum=25711.5).
- ii EPIC innovations should improve the safety of operation of California's electric system in the face of climate change, wildfire, and emerging challenges.
- iii EPIC innovations should increase the reliability of California's electric system while continuing to decarbonize California's electric power supply.
- iv EPIC innovations should fund electric sector technologies and approaches that lower California electric rates and ratepayer costs and help enable the equitable adoption of clean energy technologies.
- v EPIC innovations should continue to reduce greenhouse house gas emissions, criteria pollutant emissions, and the overall environmental impacts of California's electric system, including land and water use.
- vi EPIC innovations should increasingly support, benefit, and engage disadvantaged vulnerable California communities (DVC). (D.20-08-046, Ordering Paragraph 1.) DVCs consist of communities in the 25 percent highest scoring census tracts according to the most recent version of the California Communities Environmental Health Screening Tool (CalEnviroScreen), as well as all California tribal lands, census tracts with median household incomes less than 60 percent of state median income, and census tracts that score in the highest 5 percent of Pollution Burden within CalEnviroScreen, but do not receive an overall CalEnviroScreen score due to unreliable public health and socioeconomic data.
- vii In 2024 the CPUC adopted five Strategic Goals to guide development of the EPIC 5 Investment Plan. A description of the goals can be seen in Appendix A of CPUC Decision 24-03-007 available at: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M527/K228/527228647.PDF>