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Easing Distributed Energy Resource System Integration

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:*

Chris Battisti, cbattisti@trccompanies.com, 913-558-0861

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

TRC

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?*

Easing Distributed Energy Resource System Integration – Defining a System-of-System Strategic Approach to Community Resilience

Distributed energy resources (DER) are a key part of providing a resilient and decarbonized resource close to the point of energy consumption. Solar, wind, and battery storage systems combined with other technology such as microgrids, smart panels, building automation systems (BAS), electric vehicles, and virtual power plant (VPP) strategies can provide a more holistic approach to electricity usage that can shift load depending on what is needed.

Communities, including residential to commercial buildings, have unique needs depending on their environment and existing equipment. A system-of-system (SoS) approach to DER helps identify what communities need out of a new DER, identifying areas of need the DER can support, and documenting existing conditions to develop a custom strategic plan to make the most of the new resource. Below are some simplified but common examples that could use a standard approach to define needs:

- A hospital campus needs DER to ensure their critical systems continue to work, and can use an already installed microgrid and backup generation, but cannot determine what equipment needs the electricity the most without a modern BAS.
- A residential multifamily community with shopping and restaurants has identified a DER need for their local emergency services and food pantry, but restaurants and grocery stores want decarbonized energy for their food. Smart panels and monitoring is needed to ensure the DER is meeting the needs of the community.

This concept would develop a standard process to:

- 1) Determine community needs and problems
- 2) Inspect already installed technology
- 3) Identify DER and related technology to solve their problems and address their needs
- 4) Provide a strategic and actionable community plan for DER

Funding the process development would address EPIC strategic objectives for DER, including raising public trust and awareness in DER, provide reliable and resilient power based on community needs, standardize DER installation and integration, while providing a roadmap for communities to receive resilient, decarbonized, and secure electricity.

4. *In accordance with Senate Bill 96ⁱ, 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)?*

The concept will address key technology adoption barriers, lower technical barriers and customer pain points, and lead to greater adoption by addressing the following questions:

- 1) What is the main goal of the DER?
 - a. What facilities or systems will the DER serve?
 - b. What problems is it solving for the community?
 - 2) How will DER serve other systems, and what are the downstream effects?
 - 3) What technologies are needed to meet those goals and needs?
 - 4) What technologies are currently being used?
 - a. Are they working as needed or do they need repair?
 - 5) How do operations and maintenance work?
 - a. Are there appropriately trained staff to support DER?
 - b. If not, how can there be?
 - 6) What strategies can be implemented along with DER?
 - a. VPP?
 - b. Load shifting (electrical and mechanical)?
 - 7) How do you communicate with utilities?
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,ⁱⁱ reliability,ⁱⁱⁱ affordability,^{iv} environmental sustainability,^v and equity?^{vi}*

The anticipated outcome is a standardized integrated DER guidebook and process for stakeholders to use to simplify and streamline their DER implementation. A repeatable process can be fine-tuned by users to their specific needs, and is also more cost effective than a custom solution that may differ from company to company.

This would provide wider adoption of DER strategies, and lower the barrier for planning.

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

Qualitative metrics would include satisfaction with the guidebook, the usability of the process, and how the output of the process meets the needs of stakeholders.

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.*

Utilizing past lessons learned and applying it to the guidebook will support the merits of the concept:

[Lessons Learned from Energy Commission Microgrid Projects Final Project Report](#)

The Army has done microgrid work for over 10 years, and has multiple projects that can inform the guidebook:

[JCTD SPIDERS Technical Overview Phases 1-3](#)

8. *The EPIC 5 Investment Plan must support at least one of five Strategic Goals:*^{vii}
- 1) *Transportation Electrification*
 - 2) *Distributed Energy Resource Integration*
 - 3) *Building Decarbonization*
 - 4) *Achieving 100 Percent Net-Zero Carbon Emissions and the Coordinated Role of Gas*
 - 5) *Climate Adaptation*

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

This concept mainly support the *Distributed Energy Resource Integration* strategic goals by simplifying the DER implementation process, and standardizing what DER can provide to communities to solve problems. It also supports the *Climate Adaptation* strategic goal by providing a holistic view of communities to meet the needs of the occupants, and provide safe and reliable electricity.

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>

i See section (a) (1) of Public Resources Code 25711.5 at:

https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=PRC§ionNum=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>