

DOCKETED

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EPIC Research Concept - Paying for Decarbonization Enabling an Equitable Technology Transformation

Additional submitted attachment is included below.



ELECTRIC PROGRAM INVESTMENT CHARGE 2021-2025 (EPIC 4) RESEARCH CONCEPT PROPOSAL FORM

The CEC is currently soliciting research concept ideas and other stakeholder input for the EPIC 4 Investment Plan. For those who would like to submit an idea for consideration, we ask that you complete this form and submit it to the CEC by 5:00 p.m. on **July 2, 2021**.

To submit the form, please visit the e-commenting [link](https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=20-EPIC-01), <https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=20-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 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:

Andrew Campbell, acampbell@berkeley.edu, (415)515-4655

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

Energy Institute at Haas, University of California, Berkeley

3. Please provide a brief description of the proposed concept you would like the CEC to consider as part of the EPIC 4 Investment Plan. What is the purpose of the concept, and what would it seek to do?

Paying for Decarbonization: Enabling an Equitable Technology Transformation.

Electricity prices in California are high and rising. The report *Designing Electricity Rates for An Equitable Energy Transition*, released in 2021 by Next 10 and the Energy Institute at the University of California, Berkeley, shows that the volumetric prices that consumers pay are two to three times the costs to produce additional electricity.

Wildfire mitigation is pushing utility costs higher– but not the cost of providing incremental electricity – and will continue to do so for the foreseeable future. However, high electricity prices will slow the electrification of transportation and space and water heating, posing a barrier to the adoption of decarbonizing technologies. The report shows that high prices also have troubling implications for equity and affordability. The proposed concept is to analyze the consequences of California’s high electricity prices— what is the impact of California’s electricity prices on technology adoption and equity? The concept is to also evaluate the merits of potential remedies, taking into account economic efficiency, decarbonization and overall equity. The concept would include

policymaker convenings and reports that facilitate action by key California energy agencies and the legislature.

4. In accordance with Senate Bill 96, 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 technologies? 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, what data and information gaps would the proposed concept help fill, what specific stakeholders will use the results, and for what purpose(s)?

The EPIC program has supported the development of many promising technologies that could enable the electrification of transportation and buildings. Ultimately, for these technologies to help the state achieve its energy goals, consumers must adopt them. The current state of electricity prices, with residential volumetric electricity prices two to three times as high as the incremental costs, pose a significant financial barrier to technology adoption. The competing fuels, natural gas and gasoline, are far less distorted. This dynamic is slowing down fuel switching. Furthermore, growing grid investments, wildfire mitigation activities and utility expenditures on clean energy programs are pushing electric utility costs even higher and could pose an even greater barrier to technology adoption. Electricity is also becoming increasingly unaffordable. The trend could begin to undermine political support for essential decarbonization programs, including those that support technology advancement and deployment.

This research concept will recommend ways to address rising costs and redesign prices in order to help the state achieve its decarbonization and other energy goals. The research performed through this initiative should create new data sets, conduct new empirical research and share the results directly with the relevant policymakers and staff at the CEC, CPUC and legislature. This stakeholder engagement will put the results into action.

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 costs and/or increase performance to improve the overall value proposition of the technology? What is the potential of the technology at scale?

This concept will result in an analysis of the causes and consequences of California's high electricity prices and an evaluation of potential remedies. The analysis will be

granular enough to show how price burdens are being shared today, taking into account demographic factors such as income and region of the state. The alternative funding solutions studied will show how the burdens would change. If implemented in whole or in part, the recommendations would be expected to accelerate the adoption of technologies that electrify transportation and buildings.

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

The impact of the proposed research can be evaluated by estimating the impact of alternative utility funding approaches and rate designs on technology adoption and greenhouse gas emissions. The impacts of the concept would also be measured by evaluating the equity implications of different funding alternatives for electric ratepayers. For example, the analysis could estimate the relative cost impact on households by income.

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

Borenstein, Severin, Meredith Fowlie and James Sallee. February 2021. "Designing Electricity Rates for An Equitable Energy Transition." Energy Institute Working Paper 314.