

## DOCKETED

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**On Draft Funding Initiatives on Applied Social Science 2018-2020 EPIC Investment Plan**

*Additional submitted attachment is included below.*



March 20, 2017

RE: Docket # 17-EPIC-01, Draft Funding Initiatives on Applied Social Science  
2018 – 2020 EPIC Investment Plan

Dear Commissioners:

Thank you for providing an opportunity to comment on the California Energy Commission's (CEC's) 2018 – 2020 EPIC Investment Plan Draft Funding Initiatives. The Energy Institute at Haas at UC Berkeley (Energy Institute) offers the following comments regarding the proposed Initiative 7.1.2.

### **The Importance of Applied Social Science Research**

The Energy Institute strongly supports the CEC's inclusion of Initiative 7.1.2 "Applied Social Science to Inform Technology Development and Adoption for Deep Decarbonization of the Energy System". As the description indicates, "technology solutions are incomplete if users do not adopt them or do not use them effectively". The Energy Institute agrees that more research is needed to better understand the behavior of households and businesses as it relates to technology adoption and the use of new technologies.

Social science approaches that apply advanced data analysis and econometric approaches can help research administrators, demand and supply modelers, technology developers and policymakers better understand the real-world impacts of technologies, practices and policies. Research can also identify barriers and other explanations for why expectations and reality may differ.

Economics in particular focuses on carefully constructing counterfactuals. To accurately understand the impact of an energy efficiency or demand response program, for example, one needs to carefully consider what would have happened in the absence of the intervention, that is, the counterfactual. The economics' toolkit is well-suited to tackle this challenge.

### **Expand to Include Research into All Market Issues that Affect Technology Deployment and Adoption**

The Energy Institute encourages the CEC to expand Initiative 7.1.2 to include other important market issues that affect technology adoption. New decarbonizing technologies, such as those funded by the CEC, will be entering a market environment that is rapidly changing and not well understood. Social science research can shed light on these changes and highlight opportunities.

At the wholesale market level, how markets will perform as renewable energy and storage penetration increases is not well understood. Proposals to integrate with other western markets also raise important questions. A better understanding of these markets is needed to prioritize research projects, design cost-effective policy, and commercialize new technologies. The CEC should fund economics research to better understand these wholesale market issues.

On the distribution grid, important questions remain related to the value of distributed energy resources, the impact of increasing numbers of electric vehicles, and how to best design retail prices. Again, research is needed in these areas to further the EPIC program's goals.

These issues should be included in an expanded Initiative 7.1.2.

### **Research Needed into the Intersections between Environmental Justice and Decarbonization**

The connections between the state's greenhouse gas policies and local air pollution also remain highly contested, especially in relation to environmental justice concerns. How the costs and benefits of technologies and regulations are shared across California's diverse populations is also poorly understood. The Energy Institute recommends funding economics research into the aspects of these topics that relate most closely to electric ratepayers.

The Energy Institute notes that the CEC has included environmental justice-related topics in draft Initiative 7.3.2 and in Theme 8. However, since applied social science research is primarily highlighted in Initiative 7.1.2, the Energy Institute suggests the CEC incorporate the economics/social science environmental justice research into Initiative 7.1.2.

### **Multiple Approaches to Interdisciplinary Work**

The Energy Institute also agrees that advances in economics and social sciences should be combined with a consideration of technology development and deployment perspectives. The best approach to achieve this may vary from project-to-project. As an example, Energy Institute researchers are currently undertaking a CEC EPIC-funded project in which we are running a randomized controlled trial in partnership with a technology provider (Agreement EPC-14-075). The social science research is closely intertwined with an understanding of the underlying technology.

In other cases, the most appropriate arrangement might be a well-rounded Technical Advisory Committee (TAC) that includes relevant technical expertise. This approach is working well in our CEC EPIC-funded project that is examining take-up and energy savings from a residential air-conditioning program (Agreement EPC-14-026). Input from the TAC has been important to interpret some of the social science findings.

### **Applied Social Science Research Well-Suited for Research Center(s)**

The Energy Institute urges the CEC to consider implementing Initiative 7.1.2 through the funding of one or more research centers. Social science research is particularly well-suited for a research center approach.

Through a research center, the CEC can fund a series of projects that are conducted over the three-year funding period. The research center can ensure that projects are complementary and mutually reinforcing. Projects will move forward more quickly than if the CEC were to run a new solicitation for each round of projects.

An applied social science research center would also be a magnet that would attract top researchers and students to work on California's challenges. The experience of the CEC-funded Center for the Study of Energy Markets (CSEM) demonstrates how CEC research center funding can achieve this.

A research center approach can also be a more cost-efficient approach for the CEC to fund multiple projects within a thematic area. With the exception of large-scale field experiments, most social science research is desk-based. This makes it relatively lower cost per project as compared to technology demonstrations. The low project costs mean that the proposal development and other administrative

costs can represent a relatively large fraction of the total cost. A research center provides economies of scale that keep administrative costs down, freeing up more resources for project technical tasks.

The Energy Institute provided a longer discussion of the value of research centers in a February 10, 2017 comment filed in Docket # 17-EPIC-01.

The Energy Institute thanks the CEC for inviting comments and looks forward to the 2018 – 2020 Research Plan.

Respectfully Submitted,

Andrew Campbell  
Executive Director  
Energy Institute at Haas  
University of California, Berkeley

*acampbell@berkeley.edu*  
*(415) 515-4655*