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UC BERKELEY ENVIRONMENTAL DESIGN

Architecture City & Regional Planning Landscape Architecture & Environmental Planning

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To: California Energy Commission

I am writing as the Associate Director of the Center for the Built Environment, an industry-university collaborative research center at UC Berkeley that is focused on improving the energy performance and environmental quality of buildings. I have 5 points regarding why I think it's important to invest EPIC funds in multi-year programs run through research centers, to create the transformational change that is urgently needed in our industry. I will also provide a list of criteria that I think should be used to select the centers that would be funded. I will be framing this argument in a generic way, about the value of research centers in general, rather than specifically promoting the benefits of any one center in particular.

1. Continuity

Long-term innovation requires multi-year efforts that can move seamlessly from fundamental research, to applications and pilot testing, to the development of tools and resources to facilitate technology transfer and industry adoption. The project-based model often moves through these phases at a snail pace, where different organizations pass the baton to each other and try to pick up where someone else left off. But research centers are more likely to provide an unparalleled persistence of interdisciplinary knowledge and programs that contribute to all phases, therefore accelerating the potential for making a real difference in the industry.

2. Agility

The pace of technology development is accelerating at a rate that the traditional project-based model can't easily keep up with, given that it can typically take years to move through the entire lifecycle of solicitation, proposal and project completion. Research centers are inherently nimble and flexible, and can rapidly respond to changes in industry, and to the fluctuating needs of regulatory agencies.

3. Cost effectiveness

Multi-year programs allow for the long-term and cost-effective support of advanced facilities and expertise, allowing the costs of a research program to be amortized over many years. Research graduate students take 2-5 years, with overlapping tenures that cause techniques and knowledge to be shared. The collection of facilities and individuals adds up to more than the sum of these individual parts. The industry and California also benefit from well-trained graduates in this region. Simply put, you can get much more benefit by making long-term investments in research centers.

4. Industry collaboration

It is critically important that we break down the silos between academia and industry to meet the urgent need for change. Research centers often have long-standing relationships with industry partners that take years to develop, but once established allows rapid feedback from industry-to-researchers to ensure our research remains relevant to current concerns, and from researchers-to-industry to ensure that newly developed tools and technologies can be rapidly deployed in the field.

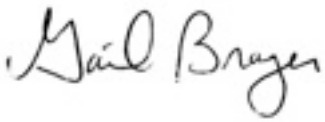
5. Policy implementation

Research centers are more likely to have in-house staff that are actively involved in organizations that develop codes and standards, that are advising and advocating for energy efficient systems and technologies, and are advancing their adoption. It often takes many years to get research results implemented into codes and standards, and much of that work can't even start until you have findings and the research project is over. The project-based model usually ends with the final publication, but multi-year funding of research centers can more effectively support the efforts that are required to get the work ultimately adopted into various policy.

In summary, I would like to propose a set of criteria the Commission should use to select research centers for multi-year funding:

1. A broad mission-based focus that starts with the energy-saving potential of the Center's work, but combines this with attention to human impact factors that are essential for getting those technologies adopted.
2. A demonstrated history of the Center getting their research findings both into practice, and into codes and standards.
3. Examples of where the Center's research results may have led to patents or start-up companies, thereby increasing their potential for commercialization.
4. Broad collaboration with industries and industry co-funding, which is evidence of the value of the Center's research mission.
5. A structure that ensures that a significant percentage of EPIC's investment will go towards Center research staff and expenses, vs. administrative support.
6. Evidence of the Center's commitment to training, such as having students or other young researchers on the teams, being mentored by more experienced researches
7. Connection to academic programs, because these represent our future generations, and increases the likelihood that we will be able to more actively engage women and minorities into EPIC's programs

Sincerely,



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