



UCLA INSTITUTE OF THE ENVIRONMENT AND SUSTAINABILITY
LA KRETZ HALL, SUITE 300
619 CHARLES E. YOUNG DR. EAST
BOX 951496
LOS ANGELES, CA 90095-1496

PHONE: 310-825-5008

FAX: 310-825-9663

<http://www.environment.ucla.edu>

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Senator Alex Padilla, 20th District
Chair, Senate Energy, Utilities and Communications Committee
Room 4038, State Capitol
Sacramento, CA 95814

Dear Senator Padilla,

This letter is in response to the latest Legislative Analyst's Office (LAO) report on the reauthorization of the Public Interest Energy Research (PIER) program that is administered by the California Energy Commission (CEC). The LAO report regarding the PIER program points to some of PIER's deficiencies that are certainly necessary to address in any reauthorization.

Despite PIER problems, we, the Institute of the Environment and Sustainability at UCLA, believe that PIER ought to be reauthorized as it provides public interest energy research that is not funded otherwise, except by the big federal labs and granting institutions. ***But this is funding that is not specific to California's needs.*** Only California among the 50 states has crafted a policy framework for a new energy economy. Thus California must fund public interest energy research to accomplish these ambitious goals. Though we support the valuable conversation that the LAO report has initiated, we would like to point out some weaknesses in the report that we believe must also be addressed such that the discussion about reauthorization is conducted in a productive and informed way. I will lay these out first, then discuss some possible new directions for PIER funding.

Outline of LAO Report Weaknesses

1. *The LAO's evaluative framework for success is muddled.*

Evaluating PIER's effectiveness could be based on rate-payer savings (dollars to ratepayers) or greater energy efficiency/conservation gains (energy benefits). These are not the same, but it's unclear in the LAO report which criterion they are using to evaluate PIER's effectiveness.

The LAO does not make clear what metric it is using to assess the return on investment for research funds. The LAO implies the \$700 million has not produced much innovation, or dramatic breakthroughs. Do they have a comparative metric to compare this amount of funding in

the energy sector and ROI? For example, the U.S. Department of energy invested that amount in just energy storage demonstration projects under ARRA. \$700 million over 15 years, distributed to 6-7 different research areas does not amount to much in toto, or per topic. It is unclear what LAO expects to get for the money given the structure of PIER though important results have been obtained.

2. *The LAO's analysis overlooks the challenges of technology transfer.*
Anyone who has been involved in the development of technology, however brilliant it might be at addressing a problem, knows that the real challenge is technology transfer. The LAO's analysis seems to assume a seamless adoption of innovation funded by PIER.
3. *The analysis ignores how the energy landscape has changed since PIER's inception.*
PIER was created in 1996 in a time of great turmoil in the electricity market and when new energy saving technologies were still incipient. We are now in 2011 and many conditions have changed: we have now off-the-shelf technologies that were not available then; we have new and significant legislation like SB 375 and AB 32. The LAO report acknowledges that policy changes have occurred, but fails to address how dramatic these changes are for energy research. Reconsideration of PIER funding in light of these changes must be thorough and nuanced.
4. *The report does not define environmental benefits.*
No definitions are provided, and we are concerned that LAO assumes system reliability and lower system costs are enough to capture environmental benefit.
5. *The LAO assumes that a 5-year reauthorization will be sufficient.*
There is no reason provided for this timeframe. Does the LAO have studies that show that, for example, 5 years are sufficient for a distributed energy grid concept to be developed and implemented, or technologies can be developed in a 5-year timeline? There is no demonstrated understanding of the other obstacles that face technological implementation, like regulation, zoning, codes and land use.
6. *The LAO assumes that the Investor Owned Utilities (IOU) have new incentives to do this research.*
The LAO report states (pg 7): "Because IOUs have a greater incentive today to invest in research that is aligned with the public interest of pursuing the state's energy goals, the Legislature could consider. . ." Why do IOUs have a greater incentive today? This seems more an article of faith than much of anything else, and again, is based on the idea that technological innovation is the path to reducing cost, and that the utilities will benefit from this. This is an unsubstantiated and naïve assumption.
7. *The LAO does not seem to have much understanding of the research process itself.*
Just because research is funded, it does not guarantee there will be success, or that marketable technologies will result, or other types of specific results. The fundamental nature of research is to test new ideas; it does not always produce marketable products, it may produce new insights that then lead to new ideas. Such lack of knowledge about the research enterprise raises questions about the LAO's assumptions about the program. Identifying the metrics the LAO used to evaluate PIER success would be useful. LAO does not enumerate these; doing so will require a thorough process for identifying these goals and metrics.
8. Finally, the LAO lists groups and entities from which it chose individuals to interview, but does not give details. It is impossible to evaluate the credibility of their report without clarity of the expertise and sources upon which the findings are based.

Some of the problems we have identified (that the LAO does not) relative to PIER include: a skewed distribution of funding favoring UC campuses in northern California. We understand the importance of building trust and continuity in research funding, but the geographical distribution difference goes beyond those considerations and there is superb research on energy related issues taking place at the other UC campuses. The LAO also does not place PIER research in a context of changing energy needs and regulations for the state going forward.

We recommend that PIER be reorganized. There are too many program areas (an artifact of the needs identified in 1996), that are not well integrated. **We also believe that PIER funding should be used to better implement California state laws on emissions reductions, including GHGs, and its specific characteristics, including climate, urban form, and energy resources.** New laws include AB 32, SB 375, AB 811, AB 1493 AB 118, AB 162, the renewables portfolio standard, etc. For example, while these regulations push changes in vehicle miles traveled and urban form (better jobs/housing balance), little research has been done to help implement them in the different California communities. Take distributed energy as one of the approaches to reduce GHGs and energy use. Implementation will require different land use changes in Sausalito than Yuba City to accommodate storage. Jobs/housing balance will require different types of approaches in Redding and Riverside. But policy makers have little actual data with which to plan for change. Another example of the need for information is that there is no empirical evidence that CEQA has constrained infill development – a critical strategy for meeting California’s energy goals – but no studies show the situation either way, and it might be different in different cities of the state. California has the largest economy of any state in the nation and has the 8th largest economy in the world. It is highly urbanized and complex. To achieve the ambitious goals outlined by the legislation listed above, it needs sophisticated analysis and research **that will only be achieved by the state itself funding it.**

The state has little specific fine grained data on energy use in its communities that allows the state and localities to quantify energy use according to who uses it, where it is used, and for what it is used. Electricity use is just the tip of the iceberg in terms of energy flows in California communities. Working with the utilities, transportation and housing agencies, business and the goods movement sector, the CEC should be in a position to reveal the real energy and waste flows in the different California communities, north and south, east and west. From that perspective, CEC is in a critical position to assist localities, the COGs, the ARB, DWR, and other agencies to plan for the state’s energy needs into the 21st Century. To accomplish these goals, public interest energy research by California and for California is needed. As a UCLA researcher, I have received funding from PIER to support the efforts of the Los Angeles Regional Collaborative for Climate Action and Sustainability, a coalition of Los Angeles County, the city of Los Angeles, the Metropolitan Transit Authority, the City of Santa Monica, several of the regional COGs, SCAG, Pasadena, Long Beach, a number of nonprofit organizations, and business organizations. The research will provide important data and analysis for this organization to develop an LA County wide regional plan to address climate impacts in a coordinated, collaborative, and more integrated manner. This PIER-funded research will help Southern California cities and agencies meet the goals of SB 375, AB 32 and achieve greater sustainability.

In summary, PIER funding is a critical state resource. But it should be reauthorized with substantial improvement that draws on a detailed and inclusive process to identify California’s energy research needs. We are happy to work with you, the Committee, the state legislature, the CEC and other stake

holders to develop new legislation for this precious research funding that can help the state in a way no other funding can do.

Best regards



Stephanie Pincetl
Director, Center for Sustainable Urban Systems
Institute of the Environment and Sustainability

Cc: Senator Jean Fuller	Assemblymember Mike Feuer
Senator Kevin de Leon	Assemblymember Curt Hagman
Senator Fran Pavely	Assemblymember Betsy Butler
Senator Lois Wolk	Assemblymember Bob Blumenfield
Senator Rod Wright	