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From: R Queen [roqueen@projects.sdsu.edu]
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California Energy Commission Investment Plan for EPIC

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docket@energy.ca.gov

Docket No. 12-EPIC-01

Proposer: San Diego State University Research Foundation (SDSURF)

Contact Information: Rob Queen, roqueen@projects.sdsu.edu, 619-594-1158

Name of Proposed Program: Energy Innovation Small Grant

EPIC Program Areas: Applied Research and Development, Technology Demonstration

Introduction

SDSURF and the California State University currently administer the Energy Innovation Small Grant (EISG) Program for the Energy Commission PIER program. This stewardship of EISG funds began in 1998. Over the ensuing years the EISG program has produced notable successes and achieved critical acclaim from Commissioners, legislators, the research community and the general public. Because the PIER EISG program continues to be successful, has a trained staff in place, and meets the value chain described in the CPUC decision on EPIC, SDSURF requests that this program be continued on a non-competitive basis in the new EPIC program. While Energy Commission staff may request changes to specific language in EPIC EISG solicitations to meet all components of the EPIC decision the current EISG program is well constructed to meet the Guiding Principles of EPIC.

The Guiding Principles include

- The Value Chain (as defined by CPUC staff)
- AB 32 and Executive Order S-3-05
- The Loading Order

The EISG Program has been soliciting innovative energy concepts in the following areas:

- Industrial/Agriculture/Water End-use Efficiency
- Building End-Use Efficiency
- Renewable Energy Technologies
- Energy Systems Integration
- Electric Vehicle/System Technologies

In each project the proposer must justify the technologies in light of benefits to California ratepayers. Public benefits derived from EISG research and development projects are assessed within the following context:

- Reduced environmental impacts of the California electricity supply or transmission or distribution system
- Increased public safety of the California electricity system
- Increased reliability of the California electricity system
- Increased affordability of electricity in California

Since inception the EISG program has conducted 57 solicitations, received close to 2700 proposals and managed 364 projects that were approved by the Commission. Of the projects managed, over 60% have been successful. Approximately $1.6 billion of subsequent funding has been received by the projects from venture capitalists, utilities, and government funding. The return on investment calculated by dividing the subsequent funding by the grant funds devoted to all projects is greater than 60 to 1. In addition several companies have been formed in California as a result of EISG projects. These companies directly employ thousands of people. The economic impact of the EISG Program has been evaluated by an Energy Commission economist and publicized in the Sacramento Bee (http://www.sacbee.com/2011/08/26/3862556/energy-program-generates-ratepayer.html).

The EISG Program maintains a list of approximately 1400 technical reviewers to provide independent and expert reviews of every proposal. Each proposal is evaluated by at least three of these experts. After passing the technical review, top scoring proposals are further reviewed by a panel of about 12 experts at a face to face meeting. That panel always includes a CEC Staff person, utility personnel, UC and CSU faculty members, and representatives from the private energy services sector. This panel is called the Program Technical Review Board (PTRB). The PTRB rank orders the proposals and prepares a recommended slate of proposals for Commission approval.

A Technology Transfer component was added to the EISG PIER program the fall of 2007, utilizing the resources of the San Diego State University College of Business Administration and SDSU's Entrepreneurial Management Center to aid the principals of successful projects in developing business plans, finding business partners, conducting market evaluations, and evaluating issues associated with intellectual property. This subprogram has provided services to over two dozen companies, accelerating some companies to market or acquisition of follow-on and/or VC funding. Examples of companies that have benefitted from the Technology Transfer Program include Composite Support & Solutions, Inc., a company that makes composite walls that enhance safety and reliability in utility switch yards, One Cycle Control, a company that makes power control and conditioning devices, Primus Power, a company that produces flow battery technology, and Cha Corporation, a company that utilizes microwave technology to remove NOx from natural gas and biogas streams. .

Why Request a Non-competitive Designation?

The EISG Program has been and continues to be highly successful. The contract arrangements between the Energy Commission and CSU have been thoroughly vetted by attorneys on both sides. The current program is being administered by a highly trained staff at a very low overhead rate.

The current PIER EISG Program will sunset by March of 2014. The highly skilled EISG staff will remain intact through 2013 and be available to begin work on EPIC as the PIER EISG Program is completed. It is critical that these people be retained so that the EPIC EISG program can benefit from their expertise and begin to realize benefits soon after the CPUC approves the Energy Commission Investment Plan. Because of the tight time table, this can only be accomplished by a non-competitive contract to administer EPIC funds for a program very similar to the successful PIER EISG program. A new EPIC EISG program could be initiated via an Inter-Agency Agreement in a manner similar to that used for the PIER EISG program.

Potential Benefits of an EPIC Energy Innovation Small Grant Program

The PIER EISG Program has a history of helping small California entrepreneurs demonstrate their technologies so that venture capitalists and others can add significant funding and expertise to their businesses, thus creating new jobs in California and adding to the economic growth of the state. In some cases these small companies have grown into very large firms (NanoSolar, SolFocus, etc) and in other cases into medium firms (Adura Technologies, One Cycle Control, Primus Power, Amonix Inc., and Clean Power Systems are examples). In each case they are producing product or services that reduce energy use and/or cost and are helpful to the environment. Thousands of jobs have been created indirectly by EISG PIER projects. These job gains are detailed in the Sacramento Bee article referenced above. A new EISG program under EPIC should continue this process of energy saving, environmental enhancement, and job creation in California, all of which directly benefit California ratepayers.

Products on the Market

Another metric of success is the number of energy related products that have been placed in the market as a direct result of the EISG grants. By the end of 2011, the Program Administrator had identified 11 products on the market that have resulted from EISG grants. These include:

1. Adura Technologies, Wireless lighting control network
2. American Rooftile, IR reflective roof tile coating
3. Amonix, Concentrating solar energy system
4. Composite Support & Solutions, Switchyard firewalls
5. Dehlsen, Wind turbine drive train
6. Greenvolts, Two axis tracker for PVs
7. NanoSolar, Thin PV cells
8. One Cycle Control, Power conditioner
9. Primus Power, Energy storage cell
10. Sol Focus, Concentrating solar cells
11. Viega, Low Cost Radiant heating coils for floors of box stores

Specific Program Recommended for the CEC Investment Plan.

SDSURF proposes that the Energy Commission include $6 million per year in the investment plan to fund innovative energy projects. These funds would cover approximately 30 to 35 Phase 1 projects and up to 8 Phase 2 projects. (The current EISG program does not include Phase 2 funding). Phase 1 projects would be subject to a relatively low funding ceiling. Phase 2 project would be funded at a higher level. Funding levels could be similar to those in the U.S. Small Business Enterprise (SBE) program. The requested funds would include a Technology Transfer Program that would help the principals of successful projects cross the "valley of death" and move quickly toward commercialization. In addition the requested funding would include all administrative costs associated with the EPIC EISG Program. The proposed EPIC EISG program would offer three solicitations per year to small businesses, academics, non-profits and individuals in California. It would allow unsuccessful bidders to evaluate technical reviews, revise their proposals and resubmit them in a timely fashion. Fast turnaround is essential to the development of new concepts into practical, market ready products and services. Once projects are completed, the EISG EPIC administrator will have experts generate Independent Analysis Reports (IAR). These short reports include project objectives, outcomes, conclusions, benefits and recommendations for future work. They can be used by the Technology Transfer personnel and/or the researchers to garner interest in potential business partners. These reports can also be used by the Energy Commission to disseminate the results of this program.

To gain maximum value from the EPIC investment SDSURF recommends that the Intellectual Property rights provisions in the current PIER EISG program be retained in the EPIC EISG program.

SDSURF further recommends that the CEC staff include sufficient funds to inform innovators throughout the state of the potential EPIC EISG funds. Without a public information program many in California will not be aware of the opportunities to advance their energy concepts. This can limit the number of truly innovative ideas proposed for funding.

Robert Queen
Program Administrator
Energy Innovations Small Grant Program
619-594-1158
roqueen@projects.sdsu.edu

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