March 4, 2015

California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Re: Electric Program Investment Charge (EPIC): Checking in on the Implementation of the First-Triennial Investment Plan

To the California Energy Commission:

Thank you for both establishing EPIC and for requesting public comment on the First Triennial Investment Plan. For context and perspective, this letter provides a brief background on SRI International (SRI) before commenting on EPIC.

SRI International

SRI, a nonprofit research institute headquartered in Menlo Park, California, has a mission to deliver world-changing solutions to make people safer, healthier, and more productive. As a non-profit, SRI commercializes the technologies it develops through ventures and licenses. To date, SRI has created and launched more than 60 ventures, with a total market capitalization exceeding $20 billion. Many of these ventures, such as Intuitive Surgical and Siri (acquired by Apple), are established in California and create jobs in the state.

Comments on EPIC

SRI is pleased to see EPIC offer PON-14-308: Federal Cost Share Under the Electric Program Investment Charge. A program to provide cost-share support has the potential to significantly expand the ability of California-based researchers to win funding from the U.S. Department of Energy (DOE) to develop and deliver solutions that meet California energy goals and contribute to the state's economic growth.

To date SRI has not taken advantage of PON-14-308 for several reasons. Suggestions to address these issues are provided in the next section.

- **Timing**. CEC frequently requires applicants to submit its applications to PON-14-308 before they have heard whether or not they will be invited to submit full proposals. Using DOE's Advanced Research Projects Agency (ARPA-E) as an example, DOE solicitations frequently use a two-stage submission process. In the first phase, applicants typically submit a short (four-page) white paper that describes the concept, its impact, the proposed work, and the team organization and capabilities. Based on this submission, ARPA-E either encourages or discourages a full application. It is difficult to justify the expense of submitting an application to CEC, which includes a 30-page project narrative, before receiving an invitation to submit a full proposal.
- **Cost**. The effort required to submit an application under PON-14-308 is comparable to that required to submit a full application to DOE or ARPA-E. Preparing both applications in the same time frame prevents the team from focusing on the Federal application and increases application costs, which are already a significant unreimbursed expense.

- **Cost share remains a barrier to applying for Federal funds**. PON-14-308 only awards applicants half the required cost share. While reducing cost-share requirements will allow more California entities to apply for Federal funding, even the reduced requirement will prevent some resource-limited nonprofits, educational institutions, and small-businesses (especially start-ups) from applying for Federal funding. This is especially relevant to ARPA-E applications, since the organization is required by statute to "accelerat[e] transformational technological advances in areas that industry is by itself not likely to undertake because of technical and financial uncertainty."[1] In the case of PON-14-308, even commercial companies may not be able to justify providing half the cost share, since the CEC maintains a license that CEC can propagate to other entities for the benefit of IOU ratepayers. Without having a description of the types of conditions under which this might happen, one must assume the worst case scenario, i.e. that the research organization is unlikely to derive any commercial benefit in California, since the CEC could undercut the business opportunity by providing licenses freely to competitors.

Suggestions for Consideration

The following suggestions are designed to expand the pool of applicants that can afford to participate in applying for cost-share support through PON-14-308:

1. **Simplify the initial application process**. Consider a four-page submission comparable to what the Federal government uses to evaluate whether it wishes to encourage or discourage a full application. The template ARPA-E used for white papers in response to its recent ARID solicitation is attached as an example. Consider a one-page addition to the ARID template for applicants to describe how the project will: (a) benefit California IOU ratepayers by increasing reliability, lowering costs, or increasing safety; and (b) lead to technological advancement and breakthroughs to overcome barriers to achieving the state's statutory energy goals.
2. **Improve alignment with DOE's application process**. Consider announcing whether CEC will provide cost-share support to a specific solicitation within a few weeks of the solicitation's announcement or receiving an indication of interest from potential applicants. Knowing CEC will accept applications for cost-share support will enable organizations to submit white papers to funders for evaluation confident they can apply to CEC for cost-share support. We suggest CEC request full applications (consisting of the five-page package described above) after applicants have received notification from the funding agency that they are encouraged to submit a full application. For most solicitations, DOE and ARPA-E allow about six weeks for applicants to prepare full proposals. If CEC applications were due five weeks before final submissions, CEC's review process would be limited to submissions already vetted by the funding agency's peer review process. Assuming a streamlined application and an applicant pool limited to applicants and ideas already vetted by DOE, CEC should have adequate time to review the applications and provide letters for qualified applicants to include with their full proposals. Once DOE has selected projects for negotiation, applicants should be expected to submit full applications that comply with CEC's statutory requirements. In circumstances where the funding agency uses a single-stage process, CEC could establish an earlier deadline, but may still want to consider a simplified application.

[1] America COMPETES Act, Pub. L. No. 110-69, § 5012 (2007), as amended (codified at 42 U.S.C. § 16538).

3. **Make complete cost-share recovery possible.** Providing complete cost share will help broaden the base of California applicants for Federal funds, especially among nonprofits, educational institutions, and small businesses. If CEC has concerns about depleting its pool of cost-share funds too quickly, CEC may want to consider a cap on cost-share awards. Cost share typically ranges from 5% to 20% of the total DOE award. A cap of $200K per year per award would enable applicants to completely cover cost share for awards ranging from $1M (assuming 20% cost share) to $4M (assuming 5% cost share). Applicants would still be able to pursue larger awards by supplementing the cost share from CEC.

As noted in past public comment, an effective cost-share program can bring several benefits to the state. Specifically, an effective cost-share program will:

- Enable organizations conducting research in California to respond to a greater number of federal solicitations and to submit larger proposals.
- Broaden the mix of organizations conducting research in California to address state energy goals.
- Improve the quality of proposals by (1) enabling organizations to form teams based on the strength of each member's technical contribution rather than their ability to provide cost share and (2) allowing teams to focus on proposal preparation rather than cost-share negotiations during the brief solicitation window.
- Leverage the investment in energy research made by California taxpayers and increase California-based companies' ability to attract federal energy research funds.
- Increase the likelihood that energy innovations will come out of California, be commercialized by California companies, create jobs in California, and address California's energy goals.
- Help California-based energy researchers move their innovations farther down the commercialization path without giving up intellectual property in exchange for cost share.
- Keep California competitive with other states that provide cost share for energy research.
- Diversify the applicant pool participating in CEC and DOE solicitations.

SRI appreciates the chance to submit comment. Please feel free to contact me at barbara.heydorn@sri.com, 650-859-5717 if you have questions.

Sincerely,

Barbara Heydorn

Barbara Heydorn
Senior Director, Energy Center

APPENDIX: Template for White Papers from ARID

PROJECT TITLE

Lead Organization (City, State); Principal Investigator Name

Technical Category
Estimated Total Project Cost
Project Duration

1. CONCEPT SUMMARY

- Describe the proposed concept with minimal jargon, and explain how it addresses the Program Objectives of the FOA.

2. INNOVATIONS AND IMPACT

- Clearly identify the problem to be solved with the proposed technology concept.
- Describe how the proposed effort represents an innovative and potentially transformational solution to the technical challenges posed by the FOA.
- Explain the concept's potential to be disruptive compared to existing or emerging technologies.
- Describe how the concept will have a positive impact on at least one of the ARPA-E mission areas in Section I.A of the FOA.
- To the extent possible, provide quantitative metrics in a table that compares the proposed technology concept to current and emerging technologies and to the technical performance targets in Section I.E of the FOA for the appropriate Technology Category in Section I.D of the FOA.

3. PROPOSED WORK

- Describe the final deliverable(s) for the project and the overall technical approach used to achieve project objectives.
- Discuss alternative approaches considered, if any, and why the proposed approach is most appropriate for the project objectives.
- Describe the background, theory, simulation, modeling, experimental data, or other sound engineering and scientific practices or principles that support the proposed approach. Provide specific examples of supporting data and/or appropriate citations to the scientific and technical literature.
- Describe why the proposed effort is a significant technical challenge and the key technical risks to the project. Does the approach require one or more entirely new technical developments to succeed? How will technical risk be mitigated?
- Identify techno-economic challenges to be overcome for the proposed technology to be commercially relevant.

Pages 1-4 and any appendix of this document contain confidential, proprietary, or privileged information that is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes or in accordance with a financial assistance or loan agreement between the submitter and the Government. The Government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source.

4. TEAM ORGANIZATION AND CAPABILITIES

- Indicate the roles and responsibilities of the organizations and key personnel that comprise the Project Team.
- Provide the name, position, and institution of each key team member and describe in 1-2 sentences the skills and experience that he/she brings to the team.
- Identify key capabilities provided by the organizations comprising the Project Team and how those key capabilities will be used in the proposed effort.
- Identify (if applicable) previous collaborative efforts among team members relevant to the proposed effort.

5. APPENDIX: ILLUSTRATION OF AN EXAMPLE FULL COOLING SYSTEM

- This one page appendix is **required** for concepts falling under Category 3 (as described in Section I.E). It is **optional** for concepts falling under Category 1 or Category 2.
- The full cooling system diagram should show all components and flow paths
- The example full cooling system should include the novel concept being proposed and should be able to meet all programmatic objectives (as outlined in Section I.C).

CONCEPT PAPER TEMPLATE INSTRUCTIONS

CONTENT REQUIREMENTS (See Section IV.C of the FOA for Content Requirements):

(1) The Concept Paper template may be used to prepare Concept Papers.

(2) Applicants should ensure the accuracy of their Concept Paper by reviewing and/or printing prior to the Concept Paper submission.

(3) ARPA-E will not review or consider noncompliant and/or nonresponsive Concept Papers (see Section III.C of the FOA).

(4) Each Concept Paper should be limited to a single concept or technology. Unrelated concepts and technologies should not be consolidated into a single Concept Paper.

(5) Confidential, proprietary, or privileged information should be indicated by including in the header and footer of every page the following language: "Contains Confidential, Proprietary, or Privileged Information Exempt from Public Disclosure." In addition, the cover sheet of the Concept Paper must also include the disclaimer provided in Section VIII.E of the FOA, and every line and paragraph containing proprietary, privileged, or trade secret information must be clearly marked with double brackets or highlighting. See Section VIII.E of the FOA for additional information on marking confidential information.

(6) Delete these template instructions and delete the prompts in each section above prior to submitting Concept Papers.

FORMAT REQUIREMENTS (See Section IV.C of the FOA for Format Requirements):

(1) Concept Papers must be submitted in Adobe PDF format, be written in English, use black 12 point or larger Times New Roman font (except in figures and tables), use 8.5 inch by 11 inch paper, be single-spaced, and have margins no less than 1 inch on every side.

(2) The Concept Paper body shall not exceed four (4) pages in length including graphics, illustrations, figures, and/or tables. If applicants exceed the maximum page length, ARPA-E will review only the authorized number of pages and disregard any additional pages.

(3) An illustration of the full cooling system showing all components and flow paths, not to exceed 1 page, may be appended to the Concept Paper body. For all technologies that fall into Category 3 (as described in Section I.E) the appended cooling system illustration is ***required***.

(4) The ARPA-E assigned Control Number, Lead Organization Name, and Principal Investigator's (PI's) Last Name must be in the upper right corner of the header of every page. Page numbers must be included in the footer of every page.