CALIFORNIA ENERGY COMMISSION
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Electric Program Investment Charge (EPIC) Request for Comments on a Draft Solicitation to Fund Plug Load Technologies and Approaches for Buildings

California Energy Commission staff is developing a competitive grant funding opportunity (GFO) to fund the development of next generation plug load devices and the development of plug load integration strategies through the EPIC Program. The Energy Commission staff tentatively plans to release the GFO in the fall of 2015. The focus on the GFO is planned for the following areas:

I. DEVELOP NEXT GENERATION PLUG LOAD DEVICES

Applications

Residential and commercial

Suggested Projects

1. Technologies

Projects may focus on improving the energy efficiency of a variety of plug load devices and miscellaneous electrical devices by developing, implementing, measuring, and verifying their energy savings potential. Projects may target devices and components that are highly inefficient, operate uncontrolled with long operating hours, and have the potential for large energy savings (in part through power scaling) in residential and commercial buildings.

Potential project activities include:

- Equipment on 24/7: Reduce idle loads of devices that are on 24/7 such as microwaves, burglar and security systems, sprinkler controllers, thermostats, and displays.
- Set top boxes and DVR boxes: Develop and test set top boxes and DVR boxes that can resume operation after sleep mode within one second. The minimum energy goal is a sleep mode that consumes less than one watt.
- Plug load analytics: Develop software which can effectively reduce excess plug load energy consumption by analyzing smart meter data.
- Pool Pumps: Improve controls so that pool pumps are not consistently left in the “ON” position longer than needed.
- Recirculating hot water pumps: Improve controls on recirculating hot water pumps so that they are not left in the “ON” position without any controls.
- Personal computers and computer displays and monitors: Develop and test methods that enable hibernation and sleep modes on computers when idle without inconveniencing users. The minimum energy goal is a 20 percent reduction in energy use from today’s most efficient computers.

- Office equipment and home entertainment (including televisions and audio equipment): Develop and test methods that enable sleep modes when equipment is idle without inconveniencing users. The minimum energy goal is a 20 percent reduction in energy use.
- Gaming systems/consoles and video conferencing equipment: Develop and test methods that increase energy efficiency and enable sleep modes when equipment is idle. The minimum energy goal is a 20 percent reduction in energy use.
- Develop component-level efficiency improvement and reporting, and components that can be power-scaled.

2. Codes and Standards

Projects may involve the development, testing, and validation of algorithms that accurately model unique or innovative advanced energy efficiency systems in order to support future energy codes and standards.

II. DEVELOP INTEGRATED PLUG LOAD STRATEGIES

Applications

Residential and commercial

Suggested Projects

1. Strategies

Projects may focus on improving energy efficiency by integrating plug load devices and other miscellaneous electrical devices together. Projects may target devices and components that are integrated with building energy management systems that enhance building controls while minimizing energy use.

Potential project activities include:

- The integration of distributed or plug load control to reduce phantom loads and manage plug loads based on occupancy.
- Mobile or wireless controls, user friendly interfaces, and off-site and on-site monitoring for plug load devices to control energy use and analyze energy savings potential.

2. Control Integration and Displays

Projects may involve the development of systems and devices that inform consumers to make energy efficient choices. Potential project activities include:

- Develop power supply and internal energy reporting.
- Develop test procedures for enabling communication between devices.
- Develop home networking systems and energy management system monitoring to provide real-time energy use information for homeowners.
- Integrate plug load systems and devices with demand response applications and other energy consuming systems in buildings.
- Evaluate market and industry acceptance and behavior of plug load integration.
- Develop integrated technology to achieve proportionality between the energy consumed and the useful work delivered to devices.

3. Codes and Standards

Projects may involve the development, testing, and validation of algorithms that accurately model unique or innovative advanced energy efficiency integration systems in order to support their ability to comply with future energy codes and standards.

EPIC Program Background

EPIC is a ratepayer surcharge authorized by the California Public Utilities Commission (CPUC). In December 2011, the CPUC adopted Decisions 11-12-035, as modified by Decision 13-01-016, authorizing the collection of EPIC funds for the benefit of electricity ratepayers of Pacific Gas and Electric (PG&E), San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE). In May 2012, the CPUC adopted Decision 12-05-037, as modified by Decision 13-04-030, establishing the purposes and governance for the EPIC Program and designating the Energy Commission as one of its administrators. On November 14, 2013, the CPUC adopted Decision 13-11-025, which modified and approved the Energy Commission's Proposed 2012-2014 EPIC Investment Plan.[1] The plan sets the framework for providing investments in applied research and development, technology demonstration and deployment, and market facilitation of clean energy technologies and approaches. Additionally, Senate Bill 96 (Committee on Budget and Fiscal Review, Statutes of 2013, Chapter 356) provides that in administering the EPIC Program, the Energy Commission will fund research, development, and demonstration programs and projects that lead to technological advancement and breakthroughs to overcome barriers that prevent the achievement of the state's statutory energy goals, and result in advancements on the most significant technological challenges.

The Energy Commission is committed to supporting the inclusion of a diverse group of participants in the EPIC program including women, minorities, and disabled veterans.

For additional information on the EPIC Program, please see: www.energy.ca.gov/research/epic/index.html.

[1] The Electric Program Investment Charge: Proposed 2012-2014 Triennial Investment Plan: http://www.energy.ca.gov/research/epic/documents/final_documents_submitted_to_CPUC/2012-11-01_EPIC_Application_to_CPUC.pdf, Attachment 1.

Written Comments

The Energy Commission is seeking comments on the proposed GFO (Attachment A) for plug load research in the following areas:

(1) Comments on the suggested projects and research focus list. Are there additional areas in plug load research that need attention?

(2) Comments on the priority of the research areas. Should the main focus be improving plug load devices or the integration of the devices? Should specific performance targets be specified? If so, what should be the basis of the targets (e.g. X% above current standards)? What are the priority items in each area in the next 2-3 years and in the next 5-10 years? Are there additional areas that should be prioritized?

(3) Comments on future codes and standards. What research and data is needed to justify and inform future codes and standards improvements for plug load devices?

(4) Comments on the disadvantaged communities. How can plug load research best bring benefits to disadvantaged communities?

Comments should be submitted to Felix Villanueva by 5 p.m. on Thursday, July 2, 2015. The Energy Commission encourages comments by e-mail. Please include your name and the name of the organization you represent. Comments should be in a downloadable, searchable format such as Microsoft® Word (.doc) or Adobe® Acrobat® (.pdf). Please include the title of the ***EPIC Draft Solicitation: Plug Loads*** in the subject line. Send comments to:

felix.villanueva@energy.ca.gov

If you prefer, you may send a paper copy of your comments to:

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Public Adviser and Other Commission Contacts

The Energy Commission's Public Adviser's Office provides the public assistance in participating in Energy Commission proceedings. If you want information on how to participate in this forum, please contact the Public Adviser, Alana Mathews, at PublicAdviser@energy.ca.gov or (916) 654-4489, toll free at (800) 822-6228.

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