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**Docket No. 12-EPIC-01**

California Energy Commission  
Dockets Office, MS-4  
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RE: Comments of the California Labor Management Cooperation Committee of the Electrical Industry and ICF International on the California Energy Commission's First Triennial Investment Plan for the Electric Program Investment Charge (EPIC) Program (Docket No. 12-EPIC-01)

Dear Commissioners and Staff:

The California Labor Management Cooperation Committee (LMCC) representing IBEW/NECA and ICF International (ICFI) offers the following comments to the California Energy Commission on the Electric Program Investment Charge (EPIC) program.

LMCC provides the regional organization structure for coordination and delivery of workforce and employer education and training for energy efficiency, electric vehicle infrastructure, renewable energy, and a broad range of electrically based sustainable energy technologies. The California LMCC/IBEW-NECA coordinates and delivers technical and business training for 34,000 state certified electricians and 2,000 licensed electrical contractors through 23 electrical training centers for industry-driven existing and new technologies as well as codes/standards. ICFI is a 6,000 person professional development firm specializing in reducing the carbon footprint of organizations and their facilities through effective training, evaluation and program operations.

Since 2008 and with limited state funds, the LMCC has embarked on an effort to assist California's Investor-Owned Utilities (IOUs) with meeting California's energy efficiency targets. LMCC has been working jointly with the state's IOUs, the California Lighting Technology Center at UC Davis, and many other collaborators to address the fact that 40% of the state's electrical energy usage comes from non-residential buildings, and that 35-41% of the electrical energy in these facilities comes from indoor and outdoor

lighting. This energy efficiency effort was accomplished through the creation of the California Advanced Lighting Controls Training Program (CALCTP).

Currently, the IOUs are working on incentives for customers that use CALCTP trained and certified professionals to install complex advanced lighting control systems and networks. The CALCTP program has been highlighted multiple times by the U.S. Department of Labor and the Don Vial Center at UC Berkeley. An Office of the Future utility study of the Landmark Square property in Long Beach has demonstrated that a CALCTP trained and certified workforce installing a well-designed system can save as much as 75% of lighting electrical energy, in addition to the reduction of facility maintenance costs.

LMCC, along with a long list of EV industry collaborators has utilized the CALCTP model to create a program for the training and certification of electricians to properly install electric vehicle supply equipment (EVSE) or “charging stations” for personnel and business applications.

In both the CALCTP and EVITP programs, LMCC has been a co-founder and leading industry partner in the effort to transform commercial markets. Given LMCC’s experience in the field of sustainable we trust that the California Energy Commission will consider our comments in two major areas: 1) Workforce education and training (Workforce Development), and 2) Technology Creation, Product Development, and Commercialization (Technology Maturation):

1. In the area of Workforce Development the collective experience of the LMCC has convinced our trustees and staff that

- Utilizing highly skilled trades people who have graduated from a state approved apprenticeship program provides the California with a head start in performing sustainable energy work
- A large population of skilled trades people are unemployed or underemployed
- Sustainable energy work often requires additional training and that training requires considerably less resources when building upon a highly skilled base
- Many sustainable energy systems are sophisticated and complex and therefore require high levels of skill to install, test, and commission them effectively
- Many sustainable energy systems will not operate optimally without highly skilled maintenance

- Sustainable energy application certification is essential to provide buyers with the ability to identify those with adequate skills

2. Innovation in sustainable energy technology and its maturation is essential to meeting California's energy goals. The Energy Commission's leadership in this area is applauded by the LMCC.

With regard to the stages of the EPIC Technology Maturation Curve, the LMCC has the following comments

- Stage 2: Prototyping and proof of concept is valuable to products and companies. It is also important to building successful industries.
- Stage 3: Under the "Product Development" heading in Stage 3, "Demonstration/Pilot Facility" is listed. The LMCC supports adding the broader concept of facility to the narrower definition of product. We believe both are essential for market penetration and transformation.
- Stage 4: In addition to proving that the "manufacturing process" can be scaled, we recommend the addition of installation, building and retrofit processes which can be scaled effectively and economically.
- Stage 5: In addition to "proven technology being sold and distributed", it is also essential that sustainable retrofitted and new construction projects be sold.

Products are certainly important. Facility systems, networks, and buildings are also important and should be added across the Technology Maturation Curve. To demonstrate, here are two examples of technology cluster projects that support an expanded redefinition of the Technology Maturation Curve:

In Southern California the LMCC has supported the deployment of a revolutionary Smart Microgrid / Facility Based Energy Storage system. This system, installed and operating at The Electrical Training Institute in the City of Commerce, demonstrates how an existing electrical infrastructure, integrated with advanced electronics, energy storage, solar, and advanced controls, can provide a platform for smarter and more reliable electrical systems. These state-of-the-art technologies enable adoption of the emerging smart grid, facilitate integration of electric vehicles to the grid, and support California's renewable portfolio standards requiring 33% of the state's electricity to be generated from renewable sources by 2020.

In Northern California an LMCC affiliate is finalizing construction of a Zero Net Energy Center. The Alameda County Electrical Training Trust has retrofitted an existing building into a 46,000 square foot state-of-the art training center that reduces energy use by 75 percent compared to existing commercial buildings. This is accomplished by drastically reducing energy load through:

- Roof Monitor Ventilation and Day-Lighting;
- Natural Ventilation and Night Pre-Cooling;
- Thermal Mass Energy Storage;
- Day-Lighting and Advanced Lighting Controls;
- Dimmable Day-Lighting;
- Supplemental—Variable Refrigerant Flow Mechanical Systems; and
- Integrated Building Automation Systems.

Additionally, the ZNE Center generates energy from distributed onsite PV and Wind sources to achieve ZNE status.

These two sustainable energy clusters will be the focal points for new training and certification programs.

1. Zero net energy / automated building technology training and certification incorporating the CALCTP model CALCTP of training and certification.
2. A Smart Microgrid / Facility Based Energy Storage system training and certification program also based on the CALCTP format.

These two projects have been detailed to make the case for allowing EPIC to accommodate

- Facility systems, networks, and buildings (in addition to products)
- Existing leading-edge projects that may already have progressed beyond the R&D stage
- Supporting proof of concept work for pilots that are fully completed
- Recognizing the advantages of leveraging projects that have already been constructed and that can move sustainable technologies into markets more rapidly and less expensively

Finally, the LMCC envisions the EPIC program as a highly successful vehicle for integrating technology and workforce development to meet California's energy goals. The LMCC urges the Commission to pursue such integration because

- Technology creation, development and commercialization will not succeed in the marketplace unless the products, systems, networks, and facilities meet their specified optimum potential
- Effective high quality workforce training and certification is essential to enabling sustainable technology to meet that potential
- As critical as high quality workforce training and certification is to lighting controls, EV's, and other current technology, it is at least as critical to ZNE buildings, facility based energy storage, microgrids, advanced building automation, and other innovative sustainable energy technologies

The California Labor Management Cooperation Committee (LMCC) representing IBEW/NECA and ICF International (ICFI) are pleased to have the opportunity to comment on the EPIC program. We greatly appreciate the Energy Commission's consideration of our comments and look forward to working with the Energy Commission and the Public Utilities Commission as EPIC progresses.

Sincerely,

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