

Attachment A
Introduction and Eligibility Sections Only

PROGRAM OPPORTUNITY NOTICE

**Investing In California Communities through Building
Energy Efficiency Workforce Development**



PON-[XX]-[XXX]

<http://www.energy.ca.gov/contracts/index.html>

State of California

California Energy Commission

Draft: December 2014

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I. Introduction

A. PURPOSE OF SOLICITATION

The purpose of this solicitation is to fund Market Facilitation projects that realize significant, long-term energy efficiency gains in the building sector by ensuring an adequately trained workforce exists for the proper installation and maintenance of advanced energy efficiency technologies and strategies.

Numerous policies have identified the need for significant energy efficiency improvements to new and existing buildings to achieve the state's energy goals. As the housing and broader construction markets continue to improve, significant energy savings could be missed if new and existing buildings are not built, updated, or retrofitted with the best available technologies, techniques, and practices. Much of the skilled labor workforce may not be trained in the proper installation, operation, and maintenance of these energy efficiency advancements. This could lead to unrealized energy savings and expense due to improper installation and maintenance; or building developers and others responsible for the design, development, and management of buildings may decide to forgo these energy efficiency advancements because savings and benefits are unrealized. Projects must fall within the following groups:

- **Group 1: On-the-job training for constructing high performance attics and walls for new homes constructed in a manner consistent with proposals for the 2016 building energy efficiency standards.**
- **Group 2: Workforce training for installing advanced energy efficiency measures in existing buildings (residential/commercial/multifamily) in disadvantaged communities as defined by Senate Bill (SB) 535.¹**

See Part II of this solicitation for project eligibility requirements. Applications will be evaluated as follows: Stage One proposal screening and Stage Two proposal scoring. Applicants may submit multiple applications, though each application may address only one of the project groups identified above. If an applicant submits multiple applications that address the same project group, each application must be for a distinct project (i.e., no overlap with respect to the tasks described in the Scope of Work, Attachment 6).

¹ Senate Bill 535 (De Leon, Chapter 830, Statutes of 2012) requires the California Environmental Protection Agency to identify disadvantaged communities for investment opportunities for at least 25 percent of proceeds from the sale of greenhouse gas emission allowances in California's cap-and trade program. The law requires at least 25 percent of the proceeds to benefit disadvantaged communities and at least 10 percent of the proceeds to be invested in projects located in disadvantaged communities. The communities must be identified based on geographic, socioeconomic, public health, and environmental hazard criteria, and may include, but are not limited to, either of the following:

(a) Areas disproportionately affected by environmental pollution and other hazards that can lead to negative public health effects, exposure, or environmental degradation.

(b) Areas with concentrations of people that are of low income, high unemployment, low levels of homeownership, high rent burden, sensitive populations, or low levels of educational attainment.

B. KEY WORDS/TERMS

Word/Term	Definition
Applicant	The respondent to this solicitation
Application	An applicant's formal written response to this solicitation
CAM	<i>Commission Agreement Manager</i> , the person designated by the Energy Commission to oversee the performance of an agreement resulting from this solicitation and to serve as the main point of contact for the Recipient
EPIC	<i>Electric Program Investment Charge</i> , the source of funding for the projects awarded under this solicitation
Energy Commission	California Energy Commission
Entry Level	Jobs or occupations for which employers hire workers with little or no previous work experience or with relatively minimum training or education. Occupations that require more education or training may have specific entry-level classifications such as apprenticeship or internship.
IOU	Electric <i>Investor-owned utility</i> . The following IOUs are involved in EPIC: Pacific Gas and Electric Co., San Diego Gas and Electric Co., and Southern California Edison Co.
Journey Level	A fully qualified worker in a specific trade.
NOPA	<i>Notice of Proposed Award</i> , a public notice that identifies award recipients
Principal Investigator	The lead scientist or engineer for the applicant's project, who is responsible for overseeing the project; in some instances, the Principal Investigator and Project Manager may be the same person
Project Manager	The person designated by the applicant to oversee the project and to serve as the main point of contact for the Energy Commission
Project Partner	An entity or individual that contributes financially or otherwise to the project (e.g., match funding, provision of a demonstration site), and does not receive Energy Commission funds
Recipient	The recipient of an award under this solicitation
Solicitation	This entire document, including all attachments and exhibits ("solicitation" may be used interchangeably with "program opportunity notice")
State	State of California

C. APPLICANTS' ADMONISHMENT

This solicitation contains application requirements and instructions. Applicants are responsible for **carefully reading** the solicitation, asking appropriate questions in a timely manner, ensuring that all solicitation requirements are met, submitting all required responses in a complete manner by the required date and time, and **carefully rereading** the solicitation before submitting an application. In particular, please carefully read the **Screening/Scoring Criteria and Grounds for Rejection** in Part IV, and the terms and conditions located at: <http://www.energy.ca.gov/research/contractors.html>.

Applicants are responsible for the cost of developing applications. This cost cannot be charged to the State. All submitted documents will become public records upon the posting of the Notice of Proposed Award.

D. BACKGROUND

1. Electric Program Investment Charge (EPIC) Program

This solicitation will award projects funded by the EPIC, an electricity ratepayer surcharge established by the California Public Utilities Commission (CPUC) in December 2011.² The purpose of the EPIC Program is to benefit the ratepayers of three IOUs, including Pacific Gas and Electric Co., San Diego Gas and Electric Co., and Southern California Edison Co. The EPIC funds clean energy technology projects that promote greater electricity reliability, lower costs, and increased safety.³ Additionally, complementary principles that further guide the Program include projects that following the loading order of preferred resources and provide: a) societal benefits; b) greenhouse gas (GHG) emissions mitigation and adaptation in the electricity sector at the lowest possible cost; c) low-emission vehicles/transportation; d) economic development; and e) efficient use of ratepayer monies. In addition to providing IOU ratepayer benefits, funded projects must lead to technological advancement and breakthroughs to overcome the barriers that prevent the achievement of the state's statutory energy goals.⁴ The EPIC Program is administered by the California Energy Commission and the IOUs.

2. Program Areas, Strategic Objectives, and Funding Initiatives

EPIC projects must fall within the following **program areas** identified by the CPUC:

- Applied research and development;
- Technology demonstration and deployment; and
- Market facilitation

In addition, projects must fall within one of 18 general focus areas ("**strategic objectives**") identified in the Energy Commission's EPIC Investment Plan⁵ and within one or more specific

² See CPUC "Phase 1" Decision 11-12-035, December 15, 2011, http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/156050.PDF.

³ See CPUC "Phase 2" Decision 12-05-037, May 24, 2012, http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF.

⁴ California Public Resources Code, Section 25711.5(a), <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=prc&group=25001-26000&file=25710-25712>.

⁵ http://www.energy.ca.gov/research/epic/documents/final_documents_submitted_to_CPUC/2012-11-01_EPIC_Application_to_CPUC.pdf.

focus areas (“**funding initiatives**”) identified in the plan. This solicitation targets the following program area, strategic objective, and funding initiative:

- Program Area: Market Facilitation
 - **Strategic Objective S17:** Strengthen the Clean Energy Workforce by Creating Tools and Resources that Connect the Clean Energy Industry to the Labor Market.
 - **Funding Initiative S17.1:** Provide Grants to Develop and Enhance Training and Apprenticeship Programs to Support Clean Energy Deployment Programs in IOU Service Territories.

3. Applicable Laws, Policies, and Background Documents

This solicitation addresses the energy goals described in the following laws, policies, and background documents.

Laws/Regulations

- **Assembly Bill (AB) 32 (“The Global Warming Solutions Act of 2006”)**

AB 32 (Nunez, Chapter 488, Statutes of 2006) created a comprehensive program to reduce greenhouse gas (GHG) emissions in California. GHG reduction strategies include a reduction mandate of 1990 levels by 2020 and a cap-and-trade program. AB 32 also required the California Air Resources Board (ARB) to develop a Scoping Plan that describes the approach California will take to reduce GHGs. ARB must update the plan every five years.

Additional information: <http://www.arb.ca.gov/cc/ab32/ab32.htm>

Applicable Law: California Health and Safety Code §§ 38500 et. seq.

- **Renewables Portfolio Standard SB X1-2,)**

SB X1-2 (Simitian, Chapter 1, Statutes of 2011-12) requires that all California electricity retailers adopt the goals of 20 percent of retail sales from renewable energy sources by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020.

- **AB 758, Building Efficiency**

AB 758 (Skinner, Chapter 470, Statutes of 2009) requires the Energy Commission to collaborate with the California Public Utilities Commission and stakeholders to develop a comprehensive program to achieve greater energy savings in existing residential and nonresidential buildings. The Energy Commission developed a *Comprehensive Energy Efficiency Program for Existing Buildings Scoping Report* in 2012, and plans to develop voluntary and mandatory strategies and approaches to achieve energy savings.

Additional information: <http://www.energy.ca.gov/ab758/>

Applicable Law: California Public Resources Code § 25943, California Public Utilities Code §§ 381.2 and 385.2

- **SB 535, California Global Warming Solutions Act of 2006: Greenhouse Gas Reduction Fund (Statutes of 2012)**

SB 535 (De Leon, Chapter 830, Statutes of 2012) requires the California Environmental Protection Agency to identify disadvantaged communities for investment opportunities. The bill requires the Department of Finance, when developing a specified 3-year

investment plan, to allocate 25% of the available moneys in the Greenhouse Gas Reduction Fund to projects that provide benefits to disadvantaged communities, and to allocate a minimum of 10% of the available moneys in the Greenhouse Gas Reduction Fund to projects located within disadvantaged communities.

- **SB 96, Committee on Budget and Fiscal Review (Budget Act of 2013)**

SB 96 (Committee on Budget and Fiscal Review, Chapter 356, Statutes of 2013) requires the Energy Commission to award EPIC funds for projects that will benefit electricity ratepayers and lead to technological advancement and breakthroughs to overcome the barriers that prevent the achievement of the state's statutory energy goals and that result in a portfolio of projects that is strategically focused and sufficiently narrow to make advancement on the most significant technological challenges that shall include, but not be limited to, energy storage, renewable energy and its integration into the electrical grid, energy efficiency, integration of electric vehicles into the electrical grid, and accurately forecasting the availability of renewable energy for integration into the grid.

Additional Information:

http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=15.&title=&part=&chapter=8.1.&article

Applicable Law: California Public Resources Code § 25711.5.

- **AB 1109 (“The California Lighting Efficiency and Toxics Reduction Act”)**

AB 1109 (Huffman, Chapter 534, Statutes of 2007) places restrictions on the manufacture and sale of certain general purpose lights (i.e., lamps, bulbs, tubes, and other electric devices that provide functional illumination for indoor and outdoor use) that contain hazardous substances. It also requires the Energy Commission to adopt minimum energy efficiency standards for general purpose lights and to make recommendations to the Governor and Legislature regarding the continuation of reduced lighting consumption beyond 2018.

Additional Information: <http://www.energy.ca.gov/2008publications/CEC-400-2008-015/CEC-400-2008-015.PDF>

Applicable Law: California Health and Safety Code §§ 25210.9 et. seq., California Public Resources Code § 25402.5.4

- **Appliance Efficiency Regulations**

The Energy Commission promulgates appliance efficiency regulations that require manufacturers of various new appliances sold or offered for sale in California to test them using specified test methods. Covered appliances include refrigerators, air conditioners, heaters, plumbing fitting/fixtures, lighting, washers, dryers, cooking products, electric motors, transformers, power supplies, televisions, and battery charger systems.

Additional information: <http://www.bsc.ca.gov/>; <http://www.energy.ca.gov/appliances/>

Applicable Law: California Code of Regulations, Title 20, Division 2, Chapter 4, Article 4, §§ 1601 et. seq.

- **California Energy Code**

The Energy Code is a component of the California Building Standards Code, and is published every three years through the collaborative efforts of state agencies including the California Building Standards Commission and the Energy Commission. The Code ensures that new and existing buildings achieve energy efficiency and preserve outdoor and indoor environmental quality through use of the most energy efficient technologies and construction.

Additional information: <http://www.energy.ca.gov/title24/>

Applicable Law: California Code of Regulations, Title 24, Part 6 and associated administrative regulations in Part 1.

Policies/Plans

- **Governor's Clean Energy Jobs Plan (2011)**

As part of Governor Jerry Brown campaign he announced a plan to invest in clean energy and increase efficiency. The plan includes a goal of producing 20,000 megawatts (MW) of renewable electricity by 2020 by taking the following actions: addressing peak energy needs, developing energy storage, creating efficiency standards for buildings and appliances, and developing combined heat and power (CHP) projects. Specific goals include building 8,000 MW of large-scale renewable and transmission lines, 12,000 MW of localized energy, and 6,500 MW of CHP.

Additional information: http://gov.ca.gov/docs/Clean_Energy_Plan.pdf

- **Comprehensive Energy Efficiency Program for Existing Buildings (2012)**

This report explores the market characterization and potential program targets, and analyzes eight market components. These market components include financing, workforce development, residential and nonresidential ratings and assessments, energy upgrade programs, compliance and enforcement, marketing education, and outreach, and data. The report also investigates preliminary results from the California Energy Commission/American Recovery and Reinvestment Act investments in the existing building energy efficiency upgrade industry. The report finds that major needs exist within each sector to achieve the energy efficiency targets stated by the California Public Utilities Commission and the Energy Commission in the *Long Term Energy Efficiency Strategic Plan*.

Additional information: <http://www.energy.ca.gov/ab758/>

- **Integrated Energy Policy Report (Biennial)**

California Public Resources Code Section 25302 requires the Energy Commission to release a biennial report that provides an overview of major energy trends and issues facing the state. The IEPR assesses and forecasts all aspects of energy industry supply, production, transportation, delivery, distribution, demand, and pricing. The Energy Commission uses these assessments and forecasts to develop energy policies.

Additional information: <http://www.energy.ca.gov/energypolicy>

Applicable Law: California Public Resources §§ 25300 et. seq.

- **CPUC’s Energy Efficiency Strategic Plan (2008)**

The Energy Efficiency Strategic Plan creates a roadmap for achieving energy efficiency within the residential, commercial, industrial, and agricultural sectors. The plan was updated in January 2011 to include a lighting chapter.

Additional information: <http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/eesp/>

Reference Documents

Refer to the documents below for information about activities associated with clean energy workforce development:

- http://www.irle.berkeley.edu/vial/publications/ca_workforce_needs_assessment.html
- California Energy Service Corps Program.
<http://www.ccc.ca.gov/work/programs/AmeriCorpsPrograms/CalEnergyServiceCorps/Pages/CalEnergyServiceCorps.aspx>
- California Department of Community Services and Development. Weatherization Assistance Program (WAP).
<http://www.csd.ca.gov/Services/ResidentialEnergyEfficiencyServices.aspx>

Refer to the link below for information about past Energy Commission research projects and activities:

- <http://www.energy.ca.gov/research/>

E. FUNDING

1. Amount Available and Minimum/Maximum Funding Amounts

There is **up to \$9 million** available for grants awarded under this solicitation. The minimum funding amount for each grant is **\$2 million**. The maximum funding amount is **\$4.5 million**.

Project Group	Available funding	Minimum award amount	Maximum award amount
Group 1: Advanced energy efficiency for new homes constructed under the 2016 building standards.	\$4.5 million	\$2 million	\$4.5 million
Group 2: Energy efficiency improvements in existing buildings in disadvantaged communities.	\$4.5 million	\$2 million	\$4.5 million

The Energy Commission anticipates at least two awards for a minimum of \$2 million up to \$4.5 million for each of the following groups:

- Funding for Group 1 must be expended for on-the-job training for high performance walls and attics in new home construction projects in IOU service territories. Training

must be based on existing state-approved programs widely accepted by the building industry.

- Funding for Group 2 must be expended for on-the-job training on building retrofit projects located in SB 535 communities within an IOU service territory to facilitate local resident participation. Applicants are encouraged to leverage other regional workforce development programs that bring together employers, training providers, community organizations, and local government.

Competitive Solicitation: Applicants compete based on selection criteria and are scored and ranked based on those criteria. The highest scoring proposal in each group, achieving at least the minimum technical score, will be recommended for funding. If the Energy Commission does not receive sufficient passing proposal(s) requesting at least the \$2 million in one of the groups, the Energy Commission reserves the right, at its sole discretion, to redirect the remaining funding balance from that group to the other group that may have a passing, but unfunded proposal. Funds will be redirected to the highest scoring, unfunded applicants.

1. Match Funding Requirement

Match funding is required in the amount of 50% of the requested project funds. Applicants that provide more than this amount will receive additional points during the scoring phase (See Part IV).

- **“Match funds”** include: (1) “cash in hand” funds; (2) equipment; (3) materials; (4) information technology services; (5) travel; (6) subcontractor costs; (7) contractor in-kind labor costs; and (8) “advanced practice” costs. Match funding sources include the prime contractor, subcontractors, and pilot testing/demonstration/deployment sites (e.g., test site staff services). “Match funds” do not include Energy Commission awards, future/contingent awards from other entities (public or private), or the cost or value of the project work site. Definitions of “match funding” categories are listed below.
 - **“Cash in hand” funds** means funds that are in the recipient’s possession and are reserved for the proposed project, meaning that they have not been committed for use or pledged as match for any other project. “Cash in hand” funds include funding awards earned or received from other agencies for the proposed technologies or study (but not for the identical work). As applicable, proof that the funds exist as cash is required at the project kick-off meeting.
 - **“Equipment”** means an item with a unit cost of at least \$5,000 and a useful life of at least one year. **Purchasing equipment with match funding is encouraged** because there are no disposition requirements at the end of the agreement for such equipment. Typically, grant recipients may continue to use equipment purchased with Energy Commission funds if the use is consistent with the intent of the original agreement.
 - **“Materials”** means tangible project items that cost less than \$5,000 and have a useful life of less than one year.
 - **“Information Technology Services”** means the design, development, application, implementation, support, and management of computer-based information systems directly related to the tasks in the Scope of Work. All information technology services in this area must comply with the electronic file format requirements in Subtask 1.1 (Products) of the Scope of Work (Attachment 6).

- **“Travel”** means all travel required to complete the tasks identified in the Scope of Work. Travel includes in-state and out-of-state travel, and travel to conferences. Use of match funds for out-of-state travel and travel to conferences is encouraged.
- **“Subcontractor Costs”** means all costs incurred by subcontractors for the project, including labor and non-labor costs.
- **“Contractor in-Kind Labor Costs”** means contractor labor costs that are not charged to the Energy Commission.
- **“Advanced Practice Costs”** means costs not charged to the Energy Commission that represent the incremental cost difference between standard and advanced practices, measures, and products used to implement the proposed project. For example, if the cost of purchasing and/or installing insulation that meets the applicable building energy efficiency standard is \$1/square foot and the cost of more advanced, energy efficient insulation is \$3/square foot, the Recipient may count up to \$2/square foot as match funds.
- Match funds may be spent only during the agreement term, either before or concurrently with EPIC funds. Match funds also must be reported in invoices submitted to the Energy Commission.
- All applicants providing match funds must submit commitment letters that: (1) identify the source(s) of the funds; (2) justify the dollar value claimed; (3) provide an unqualified (i.e., without reservation or limitation) commitment that guarantees the availability of the funds for the project; and (4) provide a strategy for replacing the funds if they are significantly reduced or lost. Please see Attachment 11, Commitment and Support Letter Form.

2. Change in Funding Amount

The Energy Commission reserves the right to:

- Increase or decrease the available funding and minimum/maximum award amounts described in this section.
- Allocate any additional funds to passing applications, in rank order.
- Reduce funding to an amount deemed appropriate if the budgeted funds do not provide full funding for agreements. In this event, the Recipient and Commission Agreement Manager will reach agreement on a reduced Scope of Work commensurate with available funding.

F. KEY ACTIVITIES SCHEDULE

Key activities, dates, and times for this solicitation and for agreements resulting from this solicitation are presented below. An addendum will be released if the dates change for activities that appear in **bold**.

ACTIVITY	DATE	TIME ⁶
Solicitation Release	TBD	
Pre-Application Workshop	TBD	TBD
Deadline for Written Questions	TBD	TBD
Anticipated Distribution of Questions and Answers	TBD	
Deadline to Submit Applications	TBD	3:00 p.m.
Anticipated Notice of Proposed Award Posting Date	TBD	
Anticipated Energy Commission Business Meeting Date	TBD	
Anticipated Agreement Start Date	TBD	
Anticipated Agreement End Date	TBD	

G. PRE-APPLICATION WORKSHOP

Energy Commission staff will hold one Pre-Application Workshop to discuss the solicitation with applicants. Participation is optional but encouraged. Applicants may attend the workshop in-person, via the internet (WebEx, see instructions below), or via conference call on the date and at the time and location listed below. Please call (916) 654-4381 or refer to the Energy Commission's website at www.energy.ca.gov/contracts/index.html to confirm the date and time.

Date and time: [TBD]

Location: California Energy Commission
1516 9th Street
Sacramento, CA 95814
[TBD]

H. QUESTIONS

During the solicitation process, direct questions to the Commission Agreement Officer listed below:

[TBD], Commission Agreement Officer
California Energy Commission
1516 Ninth Street, MS-18
Sacramento, California 95814
Telephone: (916) 654-[XXXX]
FAX: (916) 654-4423
E-mail: [TBD]@energy.ca.gov

Applicants may ask questions at the Pre-Application Workshop, and may submit written questions via mail, email, and FAX. However, all questions must be received by the deadline listed in the "Key Activities Schedule."

A question and answer document will be e-mailed to all parties who attended the Pre-Application Workshop and provided their contact information on the sign-in sheet. The questions and answers will also be posted on the Commission's website at: <http://www.energy.ca.gov/contracts/index.html>.

⁶ Pacific Standard Time or Pacific Daylight Time, whichever is being observed.

Any verbal communication with a Commission employee concerning this solicitation is not binding on the State and will in no way alter a specification, term, or condition of the solicitation. Therefore, all communication should be directed in writing to the assigned Commission Agreement Officer.

II. Eligibility Requirements

A. APPLICANT REQUIREMENTS

1. Eligibility

This solicitation is open to all public and private entities and individuals, except for Publicly Owned Utilities.

2. Terms and Conditions

Each grant agreement resulting from this solicitation will include terms and conditions that set forth the recipient's rights and responsibilities. By signing the Application Form (Attachment 1), each applicant agrees to enter into an agreement with the Energy Commission to conduct the proposed project according to the terms and conditions that correspond to its organization, without negotiation: (1) University of California terms and conditions; (2) U.S. Department of Energy terms and conditions; or (3) standard terms and conditions. The standard terms and conditions are located at <http://www.energy.ca.gov/research/contractors.html>. The University of California and U.S. Department of Energy terms and conditions are under negotiation and will be posted once finalized.

Failure to agree to the terms and conditions by taking actions such as failing to sign the Application Form or indicating that acceptance is based on modification of the terms will result in **rejection** of the application. Applicants **must read** the terms and conditions carefully. The Energy Commission reserves the right to modify the terms and conditions prior to executing grant agreements.

3. California Secretary of State Registration

California business entities and non-California business entities that conduct intrastate business in California and are required to register with the California Secretary of State must do so and be in good standing in order to enter into an agreement with the Energy Commission. If not currently registered with the California Secretary of State, applicants should contact the Secretary of State's Office as soon as possible. For more information, visit the Secretary of State's website at: www.sos.ca.gov.

B. PROJECT REQUIREMENTS

1. Market Facilitation Stage

Projects must fall within the "market facilitation" stage, which includes activities such as program tracking, market research, education and outreach, regulatory assistance and streamlining, and workforce development to support clean energy technology and strategy deployment.⁷

2. Project Focus

Energy efficiency is a critical strategy for reducing the state's energy costs and greenhouse gas (GHG) impacts. Realizing the potential energy savings from the building sector requires that clean energy workers have the skills to ensure that advanced energy efficiency equipment is properly installed and maintained, and that buildings are designed, constructed, and retrofitted consistent with best practices and technical specifications for energy efficiency.

Deployment sites must be located in California and within an electric IOU service territory.

⁷ See CPUC "Phase 2" Decision 12-05-037 at pp. 61-62 and 90, http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF.

This solicitation seeks applications for the following groups:

Group 1: On-the-job training for constructing high performance attics and walls for new homes constructed in a manner consistent with proposals for the 2016 building energy efficiency standards.

Projects funded within this group will provide on-the job training programs to construction superintendents and foremen on the proper installation of advanced energy efficiency measures and construction practices for new homes, specifically measures being proposed in the 2016 building standards. The 2016 standards will lead up to the 2019 buildings standards, which will include measures intended to meet the policy goal for all new residential housing to be zero-net energy by 2020.⁸ The training programs funded in this group should complement design assistance and training programs provided by other entities to architects and structural engineers designing high performance buildings. Training funded in this group is intended for those in the building and construction industries and will help ensure proper installation, recognizing new characteristics of the following advanced energy efficiency measures:

- High performance attics require technology-specific building practices different from standard attics to ensure advances in energy efficiency are achieved, while maintaining required levels of performance in roofing, indoor air quality, heating, ventilation, and cooling. For example, high performance vented attics include whole house fans, an efficient technology for cooling homes, but typically requires vents in the attic. High performance unvented attics require specialized techniques to avoid condensation and related health and roofing performance challenges.
- High performance walls also require specialized techniques, depending on the materials, framing design, and thickness of insulation. For example, exterior rigid insulation thicker than 1.25 inches may require a change in window and door specifications.

The Project Narrative (Attachment 4) should at a minimum include a discussion of the following:

- How the proposal will leverage existing state-approved or similar training programs that are widely accepted by the building industry to ensure trainees have adequate safety, electricity, and workmanship training before going out to job sites.
- How each proposal will identify and address the skills needed to install the advanced energy efficiency measures described above.
- Housing construction sites for on-the-job training to upgrade the skills of the trainees to install the technologies and systems targeted by the proposed training.
- How building practices and techniques learned through this training for advanced energy efficiency measures will be disseminated to other superintendents and foremen working in new home construction. Materials used to disseminate information should be prepared in all languages needed to communicate effectively with target audiences.

⁸ The CPUC Energy Efficiency Strategic Plan (2008) (<http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/eesp/>) and the 2007 Integrated Energy Policy Report (http://www.energy.ca.gov/2007_energy_policy/) set goals of zero net energy for new residences by 2020 and new commercial buildings by 2030. The 2013 Integrated Energy Policy Report (http://www.energy.ca.gov/2013_energy_policy/) updates the definition of zero net energy buildings and discusses related issues and options.

- As part of the measurement and verification plan, specify a team of qualified, independent performance testers with the expertise needed to conduct the following analysis as part of the proposal: 1) assess whether the technologies used in on-the-job training opportunities are installed and operating according to required designed specifications; and 2) measure the building energy use, determine actual energy savings resulting from the installations, and compare to the projected savings; and 3) make recommendations for installation improvement or additional training.
- Proposed plan to sustain the training beyond the term of the agreement.

The Technical Tasks in Part II of the Scope of Work (Attachment 6) must incorporate the following:

- Commissioning and performance testing to measure energy saving benefits of high performance attics and walls installed with support from this funding.
- A summary of lessons learned and best practices.
- Development of outreach materials, such as informational brochures or videos, to inform future construction teams of correct installation procedures and building practices going forward.

Group 2: Workforce training for installing advanced energy efficiency measures in existing buildings (residential/commercial/multifamily) in disadvantaged communities as defined by SB 535 (2012).

Proposals submitted for this group must seek to advance the goals of AB 758 (2009) by providing classroom and on-the-job training on the installation, maintenance, and operation of advanced energy efficiency technologies and measures in existing buildings, specifically in disadvantaged communities where electricity costs represent a higher percentage of living expenses. On-the-job training projects must be informed by the *Comprehensive Energy Efficiency Program for Existing Buildings Scoping Report (2012)* and related work at the Energy Commission and the CPUC to implement AB 758.⁹ Proposals must be structured to:

- Provide trainees with income while they learn new skills to enhance career development.
- Provide training and funding for workers to install advanced energy efficiency measures, such as:
 - High performance lighting and controls.
 - Advanced building envelope sealing technologies, such as use of aerosol mists to seal building leaks.
 - Information systems to identify when energy using equipment are operating sub-optimally.

The Project Narrative (Attachment 4) should at a minimum include a discussion of the following:

- The applicant's approach to recruit trainees from disadvantaged communities. This includes providing recruiting material and training in all languages needed to communicate effectively with trainees.

⁹ For more information on AB 758 implementation at the Energy Commission, see <http://www.energy.ca.gov/ab758/>. For more information on energy efficiency programs at the CPUC, see <http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/>.

- The advanced energy efficiency technologies, systems, and construction methods that will be the focus of the training, including the building and property types where they will be installed.
- How the applicant will ensure: 1) workers have applicable trade-related certifications to participate in on-the-job training; 2) workers are familiar with practices and procedures to maintain a safe work environment; and 3) the work product complies with applicable health and safety codes.
- Describe partnerships involved with the proposed training, such as commitments from equipment manufacturers to provide or donate equipment, information, and assistance to facilitate access to the best available information and feedback from the training locations to equipment manufacturers on installation practices and procedures for the advanced energy efficiency measures included in the training.
- The buildings and properties that will serve as the on-the-job training sites to upgrade the skills of the trainees to install the technologies and systems targeted by the proposed training. Projects must be located in disadvantaged communities (as defined by SB 535, statutes of 2012) within electric IOU service territories.¹⁰ These communities can be identified using the Office of Environmental Health Hazard Assessment's CalEnviroScreen tool (available at <http://oehha.ca.gov/ej/ces2.html>). This tool is a screening methodology that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution, including air and water pollution and other adverse environmental impacts.
- Proposals, where applicable, should also include training for building occupants on how to operate the systems and ensure sustained savings.
- As part of the measurement and verification plan, specify a team of qualified, independent performance testers with the expertise needed to conduct the following analysis as part of the proposal: 1) assess whether the technologies used in on-the-job training opportunities are installed and operating according to required designed specifications; and 2) measure the pre and post building energy use and determine actual energy savings resulting from the installations and compare to the projected savings; and 3) make recommendations for installation improvement or additional training.
- Proposed plan to sustain the training beyond the term of the agreement. This includes a description of how the applicant will recruit building owners to participate as project sites for future on-the-job training opportunities for advanced energy efficiency measures.

3. Ratepayer Benefits, Technological Advancements, and Breakthroughs

California Public Resources Code Section 25711.5(a) requires EPIC-funded projects to:

- Benefit electricity ratepayers; and
- Lead to technological advancement and breakthroughs to overcome the barriers that prevent the achievement of the state's statutory energy goals.

The CPUC defines "ratepayer benefits" as greater reliability, lower costs, and increased safety.¹¹ The CPUC has also adopted the following guiding principles as complements to the

¹⁰ Pacific Gas and Electric, San Diego Gas and Electric, and Southern California Edison.

¹¹ *Id.* at p. 19.

key principle of electricity ratepayer benefits: societal benefits; GHG emissions mitigation and adaptation in the electricity sector at the lowest possible cost; the loading order; low-emission vehicles/transportation; economic development; and efficient use of ratepayer monies.¹²

Accordingly, the Project Narrative Form (Attachment 4) and the “Goals and Objectives” section of the Scope of Work Template (Attachment 6) must describe how the project will: (1) benefit California electric IOU ratepayers by increasing reliability, lowering costs, and/or increasing safety; and (2) lead to technological advancement and breakthroughs to overcome barriers to achieving the state’s statutory energy goals.

4. Measurement and Verification Plan

Include a Measurement and Verification Plan in the Project Narrative (Attachment 4) that describes how actual project benefits will be measured and quantified, such as:

- Pre and post-project energy use (kilowatt hours, kilowatts) and cost. Any estimates of energy savings or GHG impacts must be calculated using the References for Calculating Electricity End-Use, Electricity Demand, and GHG Emissions (Attachment 12).
- Number of workers trained in correct installation and operation of advanced energy efficiency technologies targeted by the proposal.
- Rate of adoption of advanced energy efficiency technologies targeted by the proposal.
- Energy use and cost savings attributable to correct installation of advanced energy efficiency measures targeted by the proposal.

¹² *Id.* at pp. 19-20.