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*Comment Received From: Chiara Arellano
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Bay Area High Road Training Partnership Contractor Training RFI Comments

Additional submitted attachment is included below.



Planning and Development Department
Office of Energy and Sustainable Development



September 5, 2023

California Energy Commission

Re: Docket No. 23-DECARB-01

Via Electronic Commenting System

Re: Docket No. 23-DECARB-01; Comments of the Bay Area High Road to Building Decarbonization Partnership, led by Rising Sun Center for Opportunity, on the California Energy Commission California Request for Information on Inflation Reduction Act Contractor Training

The Bay Area High Road to Building Decarbonization Partnership (the Partnership) respectfully submits our responses to the California Energy Commission (CEC) *Request for Information on Inflation Reduction Act Contractor Training*. The Partnership is joined by the Building Electrification Institute, the Building Decarbonization Coalition (BDC), City of Berkeley Office of Energy and Sustainable Development, City of San Francisco Environment Department, the Construction Trades Workforce Initiative (CTWI), Emerald Cities Collaborative, and Rising Sun Center for Opportunity in these comments.

Background and Introduction

High Road Training Partnerships ([HRTPs](#)) are regional, industry-based, worker-focused partnerships supported by the CA Workforce Development Board that address critical issues of equity, job quality, worker voice, and environmental sustainability and build skills for California's high road employers. The vision of our Bay Area Partnership is to develop a residential building decarbonization industry that

supports equitable access to quality jobs, attracts a qualified workforce, and provides stable career pathways for disadvantaged workers while simultaneously reducing greenhouse gas emissions and building more resilient communities.

The forthcoming federal investments spurring the residential decarbonization industry will require a robust workforce. Yet the current residential construction industry is largely defined by 'low road' practices including majority unpermitted work, lack of standardized skill training for workers, low wages, lack of worker benefits, and low rates of worker organizing. We are appreciative of the resources available via the IRA to ensure that this workforce transition is well-supported in order to elevate skill development, advancement pathways, and equitable access to high-road decarbonization construction careers.

Due to the focus of our partnership, our responses largely pertain to the 9 County San Francisco Bay Area region and to opportunities to advance upward economic mobility for disadvantaged workers through access to and employment with high-road contractors.

General Recommendations:

1. The Partnership recommends **differentiation between four critical groups** of actors, to better clarify responses to each question:
 - a. **Contractors** - individuals with a contractor license, who may or may not employ workers,
 - b. **New workers** - individuals entering the construction field for the first time; potentially, but not exclusively, via an established training pathway,
 - c. **Incumbent workers** - individuals who currently work in the residential construction industry predominantly performing energy efficiency or electrification measures, *or* individuals working in other areas of the construction industry who need specific skill transition training or upskilling to perform residential decarbonization work.
 - d. In certain sections, we have identified a fourth category: **training institutions**. Supporting the organizations that provide training with the most up-to-date resources to teach to the necessary competencies of this evolving industry is key for success.
2. **Partner with union labor** - Many of the training pathways needed for this work currently exist, and have been extensively developed by the union trades relevant to these project scopes. Three of the predominant trades relevant to residential decarbonization work are Sheet Metal Workers (SMW), International Brotherhood of Electrical Workers (IBEW), and Plumbing and Pipefitting (UA) unions, with additional trades potentially including Laborers, Carpenters, Roofers & Waterproofers, Glaziers, and Insulators. As the trade representatives of our Partnership have expressed, the training infrastructure is already in place for workers. However, there are not enough high road projects generated in the residential space, thus leading trainees to self-select towards high road jobs in commercial construction instead. An investment in creating high road work in the residential space via the IRA has the power to change that, and partnerships with labor can help ensure that the training pathways already built out and stably self-funded by union members are leveraged, optimized, and adequately adjusted to the holistic approach

needed in the residential sector. To increase equity and fill current gaps in these existing pipelines, it is critical to invest in equitable on-ramps to make these career pathways accessible for workers, such as resourcing pre-apprenticeship programs offering wraparound services that recruit and train minority and historically excluded communities.

3. **Partner with contractors** - Consultation with the contractors who are currently operating in the residential construction space, particularly with small, minority, and underrepresented contractors, is critical to ensure that the solutions developed play out successfully in actualization. While there is a forthcoming contractor shortage, there is also a gap in the resources needed to uplift the existing contractors in the space. Due to the rapid turnaround of this RFI, the Partnership was not able to adequately reference our contractor network. We recommend that the CEC invest in either convening a table of contractors (paid for their time and expertise) or working in collaboration with partnerships or Contractor Associations who have built a trusted network of contractor relationships that can be consulted. The Bay Area Partnership offers itself as one such resource, and we encourage collaboration with the California leaders of the [National Association of Minority Contractors](#).
4. **Focus on competencies-based training** - The CEC should invest in convening stakeholders to map the competencies needed for each trade within residential decarbonization scopes of work, as competencies are measurable and enable cohesive career pathway development. An example of this type of competencies-based mapping for HVAC specifically can be found in the [HVAC Excellence Competencies](#),¹ which include Heat Pump competencies that are required to be taught in every [HVAC Excellence Accredited training program](#),² and the [NATE Knowledge Areas of Technician Expertise \(KATEs\)](#).³ When determining which trainings and certifications are most relevant to invest in, the Partnership recommends that the CEC work in collaboration with organized labor and the California Workforce Development Board to do so, based on such competency matrices while also determining how to make them scalable, equitably attainable, standardized, and aligned with [DOE industry curriculum](#).⁴
5. **Focus on creating linkages in the market** - The Partnership recommends investing in collaboration through Regional Workforce Conveners (see [slide 37](#) of the Partnership's Draft Workforce Guide for a model) to create clear and accessible next steps for disadvantaged workers to enter and advance in a residential decarbonization career. This will enable connecting employers with existing training resources, including high school and community college Career Technical Education programs, pre-apprenticeship, and apprenticeship programs to support competency-based training aligned to the evolving knowledge, skills, and abilities (KSAs) needed by residential decarbonization contractors and customers.

RFI Responses

¹<https://docs.google.com/spreadsheets/d/1z0vCM2mzwhh4j10pUIJCGt8zQgheLFL/edit#gid=911136425>

² <https://www.escogroup.org/accreditation/>

³ <https://natex.org/technician/take-an-exam/kate>

⁴ <https://bsesc.energy.gov/>

1. Please provide information on available state and federal residential energy contractor training and similar programs in California, including a list of organizations currently providing training, credentialing, and/or wrap around services.

As expressed in General Recommendation #1, responses to this question vary depending on which category of worker or contractor being referred to. Training pathways for new workers are distinct from those for incumbent workers already established in the residential decarbonization field, and there is variance within incumbent workers for those who currently perform decarbonization work and those who work in the residential sector, but need to build skills or transition into decarbonization measures. We have distinguished responses to this question by each of these categories.

Additionally, the Partnership is in the process of preparing a more comprehensive [Workforce Training & Access Guide](#)⁵, mapping such resources across the Bay Area Region, which is currently in Draft form and will be finalized soon.

New Workers

- Pre-apprenticeship programs - In order to build a diverse, equitable, and inclusive workforce, pre-apprenticeship programs, especially those with wrap-around services (see examples of such services under Q3, New Workers response), are critical to support new and underrepresented workers in accessing on-ramps to high-quality career pathways in the construction industry.

Examples of such programs in the Bay Area include:

- Rising Sun Center for Opportunity, Opportunity Build program
- Cypress Mandela
- City College Apprenticeship Programs
- Richmond Build
- SF City Build
- North Bay Trades Introduction Program
- Santa Clara Trades Orientation Program
- Plumbing, Heating & Cooling Contractors Association (PHCC)

Here is a [Pre-Apprenticeship Directory](#) for the state of California

- Additional regional training programs:
 - Adult Schools (see a directory of Adult Schools [here](#)⁶)
 - Career Technical Education (CTE) Programs - both nonprofit and high school-based
 - Regional Occupational Centers & Programs ([ROCP](#))⁷
- Community College Training Avenues:
 - Career Technical Education (CTE) Programs in community colleges are well-invested in and widely accessible. Many partner with union apprenticeship programs to provide college credit while students learn and earn, such as [Diablo Valley College](#) and [Foothill College](#). Community college programs such as the Laney College [Environmental Controls](#)

⁵ <https://docs.google.com/presentation/d/16ATrxvHqM3bD3eg0IQJaUoWryBfvKIYSjaWZzHotO6c/edit#slide=id.p45>

⁶ <https://caladulthood.org/FindASchool>

⁷ <https://www.cde.ca.gov/ds/si/rp/>

[Technology](#) and [Electrical](#) programs provide technical training pathways into decarbonization careers or apprenticeships.

Incumbent Workers

For incumbent workers, trainings and certifications are often trade- or scope of work-specific. We recommend initiating conversations with the relevant trades to build a map of which certifications, competencies, and trainings pertain to each respective trade relevant to the IRA. Some examples of existing training infrastructure include:

- Joint Apprenticeship Training Committees (JATCs)
- International Certification Board (ICB) Certifications - offers certifications for contractors, supervisors, and technicians
- Testing, Adjusting, and Balancing Bureau (TABB) Certifications - trainings for both contractors and technicians
- The Partnership would like to uplift the comments submitted by the Construction Workforce Trades Initiative (CTWI), which provide further clarification on the opportunities available via these entities.

Contractors

In contrast to worker credentialing, much of the core competencies of contractors required to perform their work is obtained via their licensing process. Additional contractor certifications also exist. It is important to distinguish between required certifications and many of the additional, opt-in trainings available for contractors, and determine which of these is most aligned with IRA program goals and thus should be baseline requirements.

- Buildings and Construction Trades Contractors Associations provide contractor training and support services for signatory contractors.⁸
- Emerald Cities Collaborative [E-Contractor Academy](#)⁹ is a free 7-week workshop series that builds the capacity of small, disadvantaged, and local construction contractors to successfully do business in climate-critical fields such as energy efficiency, renewable energy, and electrification.
- BayREN Home+ offers trainings for existing contractors, including several mandatory on-demand trainings when a contractor enrolls to cover program requirements and the basics of building science, as well as a [library of on-demand trainings](#)¹⁰ on specific technologies that provide continuing-education hours.
- Community Choice Aggregate Contractor Support Programs
 - MCE's [Green Workforce Pathways](#)¹¹ provides stipends for qualifying contractors and their crews to attend heat pump manufacturer training, as well as financial assistance to help hire and train new staff.
 - Silicon Valley Clean Energy FutureFit Fundamentals Contractor Training¹²

⁸ <https://www.smca.org/>, <https://www.necanet.org/>, <https://ua.org/our-projects/contractors-and-owners/>

⁹ <https://e-contractor-bayareafall23.my.canva.site/>

¹⁰ <https://bayren.learn.clearesult.com/>

¹¹ <https://www.mcecleanenergy.org/contractors/#Resources>

¹² <https://svcleanenergy.org/futurefit-fundamentals/>

- The [National Association of Minority Contractors](#) (NAMC)¹³ provides support and training resources for their contractor network. They currently are working with PG&E to administer their on-demand trainings in person for upskilling, as well as to work with pre-apprenticeship to apprenticeship pathways.
- TECH Clean California Training Hub sponsors trainings at low or no cost for participating contractors. Contractors can also find useful trainings on equipment manufacturers and industry partners to keep their businesses up-to-date.¹⁴
 - Energy Star Manufacturers Action Council (ESMAC) in partnership with TECH offers HPWH Trainings, which covers a range of HPWH features, applications, benefits, best practices, maintenance, etc.
 - The Association for Energy Affordability (AEA) provides a variety of trainings, including Foundational Building Courses, Introduction to Electrification, as well as more in-depth, hands-on training experiences.
 - National Comfort Institute offers a range of trainings for TECH contractors including Airflow Testing and Diagnostics, Refrigerant Side Performance, Residential System Performance & Electrification, and High Performance HVAC Design and Redesign for Electrification.
- PG&E provides an extensive database of on-demand trainings for contractors and workers. This is an example of optional additional upskilling training that contractors can seek out, but for which there is not necessarily a standard.
- Manufacturer- and distributor-led trainings are one of the more successful training intervention points to ensure both contractors and workers are equipped to install new and developing decarbonization technology.

1a. Residential (single-family and multifamily) and commercial energy auditor availability and readiness

The [Home Energy Professional \(HEP\) Energy Auditor certification](#)¹⁵ is offered by BPI, and is supported by the U.S. Department of Energy (DOE) and its National Renewable Energy Laboratory (NREL).

In 2026, BayREN will be launching a statewide Home Energy Score program, expanding on the current Home Energy Score program offered in the Bay Area. The statewide program will train certified Assessors to conduct Home Energy Scores, an energy assessment developed by US DOE, on single-family residential properties (and potentially multifamily if the US DOE expands the eligibility requirements).¹⁶

¹³ <https://namcnational.org/>

¹⁴ <https://switchison.org/contractors/training-hub/>

¹⁵ <https://www.bpi.org/certified-professionals/energy-auditor>

¹⁶ More information on Home Energy Score can be found at www.homeenergyscore.gov and updates about the Home Energy Score California program will be posted to www.homescoreCA.org

2. If IRA Contractor Training funds are used to supplement existing workforce development programs in California, which programs are most closely aligned with the goals of the IRA Contractor Training Program?

New Workers

We strongly support the resourcing of and partnership with pre-apprenticeships. As stated above, pre-apprenticeship programs are critical actors to increase equitable access for underrepresented and historically excluded job seekers, such as women, BIPOC, and system impacted individuals. Multicraft Core Curriculum (MC3) pre-apprenticeship programs for the building trades are designed to provide foundational knowledge and skills, along with supportive services to address barriers to employment that allow individuals to choose a trade and succeed in union apprenticeship, which then teaches industry- and trade-specific technical skills in an earn-and-learn model.

We also recommend supporting high school CTE programs in the building and construction trades, and facilitating coordination and collaboration to connect graduates of these programs to pre-apprenticeship and community college programs, and learn-and-earn opportunities.

Incumbent Workers

JATCs provide workforce training union apprenticeship programs for workers (both new and incumbent) on a self-funded basis, as well as further training opportunities for contractors. Union programs further the IRA's programmatic goals as they align with the prevailing wage and apprenticeship utilization that is included in the Act. We recommend making strategic use of these well-funded, high-value training assets by investing in strategies to grow the number of workers that benefit from this training resource. A tactic to do so is to enact labor standards in the CEC's publicly funded residential decarbonization programs, such as the Equitable Building Decarbonization program, to shift the residential decarbonization sector to the high road (see Rising Sun and the Partnership's previous comments in docket 22-DECARB-03).

Then, we recommend investing in linking clear, accessible, and supportive recruitment and training steps from high school, community college and pre-apprenticeships into apprenticeship and existing industry recognized credentials for workers that will support them in accelerating their career progression and improving their quality of work. Investing in existing, competency-based credentials that are recognized by the DOE will help create consistency and standardization across the industry. We recommend paying workers for their training time and costs.

Contractors

Buildings and Construction Trades Contractors Associations provide built-out contractor training infrastructure.

Training Institutions

Accreditations such as [HVAC Excellence](#)¹⁷ programmatic and faculty accreditations are critical to create a standardized and consistent training landscape. Investing in such accreditations for each trade is recommended.

3. What gaps in existing workforce development programs in California can be addressed through the IRA Contractor Training Program? What is the current supply of qualified skilled energy efficiency workers compared to the projected future demand?

Again, this question varies depending on the target audiences we have identified. One overarching element, however, is the need for structured, standardized skill competencies and training curricula within each trade. Additionally, in bolstering a high-road residential construction industry specifically, focus is needed on building holistic skillsets that cross multiple trades (for example plumbing, electrical, carpentry, HVAC, etc.). Residential retrofit work is holistic, unique, and complex. One example of where this comes into play is in heat pump installation, which requires specialties from multiple disciplines.

New Workers

The Bay Area High Road Training Partnership is currently conducting an Industry Analysis, which will provide data estimates on the projected demand for, and shortage of, residential decarbonization workforce in the Bay Area region. This data is forthcoming, and the Partnership welcomes future conversations with the CEC upon its development. However, previous studies indicate there will be a growing demand for workers in this sector of the construction industry.¹⁸ The Partnership believes, however, that rather than a simple labor shortage, there is a *connectivity* issue between moving individuals through training and into actual job placements, as well as a *job quality* issue that is making it challenging to recruit workers into this industry. For example, there is a pipeline of union workers waiting to be put to work, but there isn't currently enough demand for high road labor in the residential market in the absence of minimum labor standards to raise the floor on job quality. While we have shared that pre-apprenticeship and registered apprenticeship programs are strong on-ramps to high quality careers in the construction industry, a current gap is that often pre-apprentices and apprentices end up in commercial or new construction rather than the residential sector. Bolstering high road projects in the sector will help union trades be able to support the proliferation of additional residential specific apprenticeship pathways. Strong partnership with labor and establishment of Project Labor Agreements (PLAs) that include Targeted Hire or Community Workforce provisions can prioritize trainees from priority communities. However, PLAs only work when there is a single project owner or aggregator. We encourage the CEC to explore options for creating PLAs to build worker pipelines directly from pre-apprenticeship programs and directly onto IRA projects, specifically in the case of aggregated direct install and large multi-family retrofits and/or affordable housing.

As job placements develop, pre-apprenticeship programs must be further resourced, and new programs are needed across the state specifically in disadvantaged communities to ensure accessibility beyond

¹⁷ <https://www.escogroup.org/accreditation/default.aspx>

¹⁸ See slides 7 through 33 of the [Partnership's Draft Workforce Guide](#) for research performed by Inclusive Economics on the projected labor demand to meet the Bay Area's residential decarbonization needs

urban centers. Resources for supportive services are critical for helping new workers entering the field to be able to progress through their training. These include paid training ('earn while you learn') during the pre-apprenticeship phase, support for childcare, transportation, work attire and tools, case management, and emergency needs allowances to support workers until they are income stabilized in their permanent job placement. We recommend providing at least one year of case management support to help facilitate economic mobility into stable self-sufficiency so that one unexpected car repair bill doesn't derail a worker's career pathway into future leadership in the residential decarbonization sector.

Incumbent Workers

Certain skills are needed for workers to be able to interact and operate in a residential space. Often workers on larger commercial or new construction projects do not have the same level of customer or resident interaction. Skills related to this setting might include English as a Second Language (ESL), use of tablets/technology, and customer relations.

Additionally, required upskilling and certain credentials varies by trade and are evolving with new technologies developing. Resources to support paid work hours lost to complete trainings is critical. One such avenue to do so is to support union workers, for whom contractors are required to invest in their training and development.

Contractors

According to certain labor partners, a central challenge is likely to be increasing the supply of high road contractors (businesses) who can bid and project manage this work. Specifically, there is a forecasted shortage in contractors with relevant residential decarbonization expertise. Workforce development has historically focused on new and incumbent worker resources, and these categories do need continuous support, particularly pre-apprenticeship and new worker training avenues which do not have the same self-sustaining funding structure as apprenticeship programs. Yet the demand for workers (employees of contractors) can be filled by existing California Registered Apprenticeship Programs, which have capacity to increase supply if more work becomes available, and to modify or add to the training they provide to meet the demand of contractors who participate in their JATC.

However, to ensure there are jobs for workers, we must also invest in contractors. Resources for technical support, business administrative resources specially tailored to small-and-medium businesses (SMBs), assistance in cash-flow financing, compensation for both training and certification costs and work-hours lost while completing training for themselves and their workers, resources for workers who would like to build a pathway to become contractors themselves, assistance for existing contractors to begin practicing high-road employment practices or to become union signatory, and supports to help high road contractors compete in this market are all critical gaps. Partners with contractor networks performing residential decarbonization work have noted the following needs:

- Funding to cover trainings/certifications for themselves and their workers

- Funding to assist upfront investment of training new hires before they begin adding profit returns for the business
- Streamlining rebate/program paperwork to diminish administrative burden on contractors
- Funding for community- and trust-building via in person events with programs administrators: well-planned, efficient information sessions where residential contractors are able to convene.
- Supporting Minority, Women, & Disadvantaged Business Enterprise contractors (MWDBEs) -
 - While certifications exist for small and MWDBEs, these businesses can face barriers to obtaining these designations. Assistance to become certified will help ensure these lists are more representative, and will help uplift more of these contractors.
 - Many systemic barriers have been identified for MWDBEs, including limited capacity, discrimination in bidding, lack of cash flow, lack of capital, and more. Programs such as Emerald Cities Collaborative's E-Contractor Academy and contractor associations such as the National Association of Minority Contractors are working to equip MWDBEs with the knowledge and resources they need to remediate these systemic inequalities. Support for these and similar initiatives is critical.
- There are gaps for contractors to learn the benefits of becoming high road contractor, and assistance elevating their business practices to meet these standards. This is a core goal of both the Partnership and regional labor partners, with specific actions including: workshops to raise awareness and educate contractors on the benefits of becoming signatory, hands-on assistance connecting contractors to the proper trades they would become signatory with, and technical assistance on the process of doing so. We recommend investing in such training and support.
- Contractors have expressed that they face challenges in hiring administrative and office staff, as well as business development, marketing, sales, and financial analysis training. Training on how best to market and accurately inform residents of the measures and cost savings associated are also essential for program success. More flexible funding, stipends, and incentives to cover general costs of business such as office staff to research incentives, assist with hiring, and other back end support would be beneficial for smaller contractors who do not have this capacity.
- We recommend connecting contractors directly with CBOs and workforce training programs serving disadvantaged populations and communities in order to build strong, direct pipelines for qualified graduates from training into job positions.
- There is a potential shortage of contractors with relevant language skills and cultural competencies to serve home and appliance upgrades for BIPOC and immigrant residents. Addressing this gap is necessary to ensure home electrification and appliance rebates are accessible to historically disadvantaged and environmental justice communities. We recommend that contractor instruction be offered in multiple languages; promotional, application, and registration materials be provided in several languages; and that funded programs partner with community-based organizations in limited-English-proficiency communities to recruit and place participants with contractors. Additionally, invest in the above MWDBE resources to assist those contractors who do have these strong language and cultural competency skills to be able to complete IRA projects in their communities.

- IRA incentives for deed-restricted affordable housing will necessitate prioritizing contractor training for affordable housing projects/units. These projects will require install training for unitary and central systems and will have the greatest impact on frontline tenants.
- Provide funding support to assist in the attainment of recommended or required certifications. Partners who have experience providing and compensating contractors to complete trainings note that simply covering the on-paper cost of any certification/training is often not enough for a small residential contractor to participate. Funding will need to be made available to cover loss of income for the time that contractors and their staff are spending to train, which is taking them away from generating work in the field.

Training institutions

In addition to each of the above groups, it is important to understand the supports needed by the institutions providing such trainings and credentialing. Assisting with covering costs to attend events such as the [HVAC Excellence Conference](#) for instructors by assisting with paying for their time, lodging, transportation, food, and credentials/exam fees can all help better support the training pipeline.

4. What certifications should be funded through contractor training for residential energy rebate programs in California to support the purpose of this funding and lead to good-quality jobs?

Certifications, licensing, and credentialing are each slightly different categories that, when combined, can help build a robust, standardized, and skilled workforce.

Credentialing and certification for workers is not one-size-fits-all, and should be structured so that the correct types of credentials are applied appropriately. This entails two parts: a) determining which industry competencies are necessary for different job scopes (e.g, installers do not need the same credentials as servicers, and thus they should not each be required to have the same credentials); and b) credential requirements should be differentiated appropriately for different career levels (i.e., some credentials are more appropriate for incumbent workers with relevant work experience than for entry-level workers with classroom training alone. Credentialing and certifications should be structured as a career advancement roadmap, not one-size-fits-all). Many credentialing options reflect this; for example, HVAC Excellence provides Employment Ready Certifications that validate that a student has retained knowledge necessary to secure an entry-level HVAC position, while also offering Professional and Master Level Certifications.

Workers will take different pathways through the trades, and the industry currently has many of these training avenues already built out. It is thus a matter of strengthening the connections to help workers better navigate their way through the ecosystem, and providing the resourcing and support to sustain them while they do so. We uplift the recommendation shared by the Rocky Mountain Institute (RMI) in which they advise against repeating practices of creating new energy-efficiency certifications, and instead recommend focusing on updating curriculum from trades that will perform energy efficiency

scope work. This will require using existing vetted JTAs/competency matrices and developing or updating for new skills in each relevant trade.¹⁹ See General Recommendation #4 and #5.

New Workers

Examples of entry-level certifications include:

- OSHA 10
- First Aid/CPR
- Multi-Craft Core Curriculum (MC3)
- Urban Green Council's GPRO [Fundamentals of Building Green Training Program](#)²⁰
- BPI's Building Science Principles, Infiltration and Duct Leakage, and Air Leakage Control Installer Certificates²¹
- HVAC Excellence [Employment Ready Certifications](#)²²
- [NATE Ready-to-Work Certification](#)²³

Incumbent Workers

Credentialing is dependent on trade. These are some examples, but per General Recommendation #4, the CEC should invest in mapping the most relevant competencies for each applicable trade.

- BPI Air Conditioning & Heat Pump Professional, Building Analyst Technician or Professional, Heating Professional, and Retrofit Installer Technician Certifications - These certifications are appropriate for workers that have more than entry level experience and are looking to advance their skills and career.
- [HVAC Excellence](#)²⁴
- [NATE HVAC Support Technician](#)²⁵ and [Professional Certifications](#)²⁶
- [NADCA Credentials](#)²⁷

Contractors

- **Example: Portland Clean Energy Fund (PCEF) Safe & Respectful Worksite Training** - This model requires all contractors, subcontractors, and workers (including apprentices) to complete a PCEF-sponsored or approved respectful workplace training. This requirement applies to all workers and supervisors on PCEF-funded projects, with an exemption allowed for those working less than 40 hours on the PCEF projects funded by this grant.²⁸

¹⁹ RMI Comments on CEC Docket 03-DECARB-01

²⁰ <https://www.urbangreencouncil.org/what-we-do/educating-building-professionals/gpro/gpro-fundamentals-of-building-green/>

²¹ <https://www.bpi.org/certification-grid>

²² <https://www.escogroup.org/certifications/employmentready.aspx>

²³ <https://natex.org/technician/take-an-exam/nate-certificates-and-certification-exams>

²⁴ <https://www.escogroup.org/certifications/default.aspx>

²⁵ <https://natex.org/technician/become-nate-certified/getting-started-2>

²⁶ <https://natex.org/technician/take-an-exam/nate-certification-pathways>

²⁷ <https://nadca.com/nadca-certifications>

²⁸ <https://drive.google.com/file/d/1DcTb1XfmAOG5xMyWGjILWMo-QQXgEjHA/view>

- **Example: [Seattle Community Power Works Workforce and Contractor Equity Agreement Hiring Standard](#)** - Each Contractor must ensure that 100% of New Entry-Level Hires are graduates of Qualified Training Programs.²⁹
- **The CEC should train contractors about and coordinate workforce development efforts across existing local, utility, state, and federal building decarbonization programs³⁰** - This can help maximize business opportunities for contractors if they are qualified to meet the requirements of several of these programs. This contractor training can also help them better advise customers on how to finance programs to reduce their costs, especially in disadvantaged and/or low income areas. Creating a centralized portal (or updating an existing one like [the Switch Is On](#)) can reduce contractor and customer confusion.³¹

Trainers + Training Institutions

- Resources are available to equip trainers to teach the necessary skills and competencies for each trade. One such example is DOE's [Energy Basics Training Tool](#), which provides training materials to bolster curriculum.³²
- HVAC Excellence Program Accreditation³³, Certified Subject Matter Educator (CSME) and Certified Master HVACR Educator (CMHE)³⁴ are further examples of educator credentialing. Equivalents for the other relevant trades should be identified.

5. What data is available to demonstrate that the proposed certifications in your response to Question 4 align with the skills and needs of California, meet energy workforce demands, and prepare that workforce to deliver energy efficiency, electrification, and clean energy improvements?

Several studies have shown that installation work by a skilled workforce leads to heightened quality assurance, less maintenance needed, and significantly higher energy savings. Thus certifications that help ensure proper installation are key.

The DOE does [recognize](#) NATE and HVAC Excellence Certifications, and SMART Local Union No. 265's Training Program for Heat Pumps and share recognition materials, so we recommend utilizing this data. The DOE also [recognizes](#) ASHRAE, HERS, BPI, and CEA Certifications for Energy Assessments. However, data in other areas of decarbonization is limited. We recommend the prioritization of research that can better track the success rates of existing certifications and trainings offered. Partnerships with the

²⁹ https://drive.google.com/file/d/1PQitEISjuQSCRhtCnIFtkjOltsCdO-Km/view?usp=drive_link

³⁰ A recent report by the Climate Center, Building Decarbonization Coalition, and AECOM contains a table on pages 9-15 with a list of existing building decarbonization programs in California. See "Building Decarbonization Policy Brief: Financing a Climate-Safe Future: Low- and Moderate- Income Residential Building Decarbonization" https://theclimatecenter.org/wp-content/uploads/2023/08/TCC-BDC-AECOM_Financing-a-Climate-Safe-Future_-Low-and-Mode-rate-Income-Residential-Building-Electrification-August-2023.pdf

³¹ See "The Switch is On" <https://switchison.org/>

³² <https://bsesc.energy.gov/energy-basics>

³³ <https://www.escogroup.org/accreditation/>

³⁴ <https://www.escogroup.org/certifications/credentialing.aspx>

California Workforce Development Board as well as research bodies such as the UC Labor Centers can support this data need.

6. What performance metrics and numerical targets should California use to measure impact throughout the 48-month period of performance of DOE funding sought by the CEC to provide contractor training for the IRA residential energy rebate programs?

Establishing clear definitions and prioritization of benefits can help guide the implementation and evaluation of the success of the program. As a starting point, Page 11 of the [Department of Energy's Justice40 Guidance](#)³⁵ has several example metrics of assessing benefits associated with job creation, contracting with MWDBEs etc. This process should be directly informed by labor and community groups.

Additionally, If the objective is to increase the pool of high-road, qualified contractors available to deploy residential IRA rebate programs, and to ensure that those contractors are providing high-road opportunities to targeted, disadvantaged workers, then the Partnership recommends the following metrics for consideration:

- Core Metrics
 - Demographics of “targeted workers” trained and/or receiving credentials (enrolled/graduated) - disadvantaged workers, low-income or low-wage workers, workers with barriers to employment, women, BIPOC, veteran, disabled, residing in disadvantaged communities (DACs), justice system-impacted, and/or formerly incarcerated - and as a percentage of all trainees
 - Number of workers trained overall
 - Number of contractors trained (enrolled/graduated); percentage of contractors trained that are MWDBE contractors
 - Number of certifications awarded to contractors (businesses/employers); % to MWDBE contractors
 - Number of credentials awarded to workers (individuals/trainees); % to targeted workers
 - Number of training hours offered
 - Number of training subsidies provided for both contractors, and for contractors to support training new staff and incumbent staff
 - Number of existing training programs supported (pre-apprenticeship, etc.) and the regional distribution of them to ensure statewide opportunities
 - Number of trainings provided in DACs
 - Number of participating contractors paying prevailing wages, holding partnerships with organizations that serve underrepresented communities, hiring from apprenticeship programs, becoming union signatories, etc. (pre/post training)
- Secondary Metrics (because we recognized the challenges inherent in collecting this data):
 - Percentage of individuals who graduated from training programs and obtained employment within 3-6 months (placement rate)

³⁵ <https://www.energy.gov/sites/default/files/2022-07/Final%20DOE%20Justice40%20General%20Guidance%20072522.pdf>

- Employment retention rate (6/9/12 months after graduating from training) of trainees
- Average wage on hire/job placement of trainees after credentialing/completion of training (alt: average hourly wages pre/post training)

In addition to quantitative metrics (which can also be set as goals or scoring criteria for applications), there's also value in qualitative data. This could include surveys on quality of training, anecdotal or case study information on what contractors and workers were able to accomplish due to their new training, contractor satisfaction surveys, measuring how prepared workers felt for new projects, challenges encountered, etc. Qualitative metrics can also inform reporting on Community Benefits Plans.

Establishing regular reporting intervals with a process for integrating feedback over the duration of the period is also recommended, as is creating streamlined methods for reporting and data collection that lessen the burden on contractors and workers. This could include collecting data during trainings, when contractors and workers are already present, as well as providing incentives or stipends for time spent on reporting and feedback. Metrics could be shared regularly on a publicly available website.

7. In the Community Benefits Plan required as part of the CEC application for DOE funding for contractor training for IRA residential energy rebate programs, how should the program ensure the delivery of measurable community and jobs benefits, and: 1) support meaningful community and labor engagement; 2) invest in America's workforce; 3) advance diversity, equity, inclusion, and accessibility; and 4) contribute to President Biden's goal that 40 percent of the overall benefits from certain federal investments flow to disadvantaged communities under the Justice40 Initiative.

The Partnership wants to uplift The Greenlining Institute's *Making Equity Real Framework* as a useful and relevant tool to ensure that equity is at the core of the entire program in every step of the Community Benefits Plan including the goals, process, implementation, and evaluation.³⁶

As discussed in our general recommendations, collaboration with and investment in union apprenticeship and pre-apprenticeship hold the answer to many of these questions. We recommend talking and working with existing MC3 pre-apprenticeship programs and with the union building trades apprenticeship programs to understand current training and curricula offered, any gaps and needs, and what can be scaled.

In addition, trainings through this program can specifically target disadvantaged workers (i.e., low-income or low-wage workers, workers with barriers to employment, women, BIPOC, veteran, disabled, residing in DACs, justice system-impacted, and/or formerly incarcerated workers), MWDBE

³⁶ Mohnot, S., Paykar, V., & Sanchez, A. (2019). Social Equity in California Climate Change Grants: Making the Promise Real. The Greenlining Institute. [https://greenlining.org/publications/2019/social-equity-in-california-climate-change-grants-making-the-promise-re al/](https://greenlining.org/publications/2019/social-equity-in-california-climate-change-grants-making-the-promise-re-al/)

contractors aiming for the high-road (at least 40% to create alignment with Justice40 goals), and existing high-road contractors. SMWBDEs and disadvantaged workers should be resourced adequately and compensated to attend required training and meet criteria set in the Community Benefits Plan.

To attract and reach these targeted workers and contractors, focused and prioritized outreach from trusted partners will be necessary and should be compensated. Working with training and workforce development organizations that already serve and are trusted by these populations is key. Training should be designed to meet trainees where they are, and resources should be dedicated to holistic workforce development - i.e., not just the training itself, but the supportive and wraparound services required to empower individuals with barriers to employment to succeed. Finally, training should be provided in-language and in accessible locations and directly within DAC and Justice40 communities - with a note that flexibility should be permitted in the definitions of “disadvantaged” communities that may not be captured under CalEnviroScreen or Climate and Economic Justice Screening Tool (CEJST), but still experience high pollution and economic burdens. (The Illinois Solar for All provides an opportunity for communities to apply to designate their communities if they are not captured by the mapping platform used).³⁷

We believe that a process for regularly obtaining and incorporating stakeholder feedback in the program could also be valuable. There is a need for relationship building and learning from a variety of community based organizations and advocacy movements. Issues such as citizenship status, impacts of the criminal justice system, gender and racial discrimination and more all intertwine to create systemic barriers for a variety of communities. To better understand steps needed to support them in accessing the quality jobs we are aiming to cultivate, intentional partnership is needed. This should include (fairly compensated) community-based, labor, worker, contractor, and workforce development organization perspectives on drafting and iterating upon the Community Benefits Plan and the program overall. This can ensure that stakeholder feedback is included throughout the process of the development and implementation of the program and allows the CEC to iterate continuously for improvement. This ongoing input mechanism can be coordinated with related programs, such as the Equitable Building Decarbonization program. The CEC should build a substantial and sufficient budget for including groups in developing and implementing the Community Benefits Plan, and should be prepared to request additional administrative funding if needed for this purpose.

8. Input on other topics welcome.

A core tenet of workforce development is to never train people for jobs that aren't there; a demand for workers is essential. There are many pieces of the workforce development puzzle, and training is just one of them: there's also ensuring that there are available jobs for trainees upon graduation, support is provided to secure those jobs, that graduates are positioned to succeed in those jobs, that graduates have equitable access to those opportunities, and that those opportunities provide pathways to real

³⁷ See “Illinois Solar for All Environmental Justice Communities,” <https://www.illinoisfa.com/environmental-justice-communities/>

economic mobility. Pairing high-quality, directly applicable training with access to true high-road career opportunities makes publicly-funded residential decarbonization programs a win for people and planet.

Sincerely,

Julia Hatton
CEO & President
Rising Sun Center for Opportunity

Beli Acharya
Executive Director
Construction Trades Workforce Initiative

Jordan Ackerman
Policy & Public Affairs Senior Manager
Construction Trades Workforce Initiative

Ericka Flores
Clean Energy and Equity Advocate
Natural Resources Defense Council (NRDC)

Jodi Pincus
Founder and Principal
nomada coaching & consulting

Jenna Tatum
Executive Director
Building Electrification Institute

Megan Leary
Community Engagement and Policy Manager
Emerald Cities Collaborative Northern California

Timothy Burroughs
Executive Director
StopWaste

Billi Romain
Manager of the Office of Energy and Sustainable Development
City of Berkeley

Cyndy Comerford
Climate Program Manager
San Francisco Environment Department