

**U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585**

January 26, 2023

Re: DE-FOA-0002885 - “Preparing Workers and Businesses to Deliver Energy Efficiency and Building Electrification Measures”

Dear Secretary Granholm,

Thank you for the opportunity to provide comments pertaining to workforce development programs contained in the Inflation Reduction Act (IRA) of 2022 (P.L. 117-169) and the Infrastructure Investment and Jobs Act (IIJA) of 2021 (P.L. 117-58). Below, please find responses to the Request for Information (RFI) issued by the U.S. Department of Energy’s (DOE) Office of State and Community Energy Programs (SCEP).

This RFI provides an important opportunity to provide insights and feedback **on behalf of the Energy Efficiency Strategy Group (EESG)**. The following response to the RFI was developed collaboratively and should not be attributed solely to any of the organizations listed below.

Below, please find our responses to the questions contained in DE-FOA-0002885. In some cases, questions are grouped, since our responses often address overlapping questions in multiple categories. If you have questions, or wish to discuss anything further, please reach out to Kara Saul Rinaldi (Kara@AnnDyl.com; 202-276-1773; 221½ E St. NE, Washington, DC 20002).

Category A: Respondent Type

A1. What type of entity is the organization (e.g., non-profit, state government, company, local government, etc.)?

A2. In what city(ies) and state(s) do you live or operate?

The Energy Efficiency Strategy Group (EESG) is an informal coalition of national energy efficiency organizations and related groups, including Advanced Energy United, Alliance to Save Energy (ASE), American Council for an Energy-Efficient Economy (ACEEE), ASHRAE, Building Performance Association (BPA), E2 (Environmental Entrepreneurs), E4TheFuture, Energy and Environment Study Institute (EESI), Federal Performance Contracting Coalition (FPCC), Institute for Market Transformation (IMT), International Code Council (ICC), Midwest Energy Efficiency Alliance (MEEA), National Association of Energy Service Companies (NAESCO), National Association for State Community Services Programs (NASCSP), National Association of State Energy Officials (NASEO), Natural Resources Defense Council (NRDC), RMI, Sierra Club, World Resources Institute (WRI), and U.S. Green Building Council (USGBC). As noted above, the following information in response to the RFI was developed collaboratively and should not be

attributed solely to any of the above-listed organizations. Many of these groups will be submitting separate comments that highlight individual organization priorities, and we encourage DOE to review each submission.

Category B: Workforce and Business Characteristics

B1. What job categories in the energy efficiency and residential buildings-focused electrification industries/technologies are the most in demand (e.g., the types of jobs hired most frequently or employers' highest-priority vacancies)? What is driving this demand?

- i. What job categories are the hardest to find qualified candidates for (i.e., the types of jobs most difficult to fill)?**
- ii. What are the key characteristics of these hard-to-fill jobs? For example, is it difficult to retain workers in these jobs (i.e., is there high turnover)?**
- iii. What hourly wages and/or annual salaries (or ranges) are associated with these occupations?**

The building and home performance industry faces widespread workforce shortages. According to the 2022 U.S. Energy and Employment Report (USEER), 91% of respondents working in construction-related energy efficiency jobs indicated it was “very difficult” or “somewhat difficult” to find employees.¹ Occupations that will be responsible for delivering HOMES and High Efficiency Electric Home Rebate (HEEHR) projects are already in immediate need of technicians and qualified help. In commercial buildings, there are notable gaps in the skills required to retrofit and operate high-performance efficient buildings.²

Contractor companies and building owners/managers report the following occupations as in the greatest demand:

- Energy Auditor³ (certified with a credential from ASHRAE, RESNET, or BPI)
- Quality Control Specialists (certified with BPI)
- Building Technicians and Building Science Principles (certified with BPI)
- Administrative Support
- HVAC/Heat Pump Technicians and Installers
- Energy Managers
- Building Commissioning Professionals
- Building Performance Diagnostician⁴

These jobs have historically been hard to fill - even before workforce challenges stemming from the COVID-19 pandemic - because pathways for energy efficiency careers are not nearly as well established as other trades, making attracting new workers more challenging. According to

¹ U.S. Department of Energy, 2022 U.S. Energy and Employment Report. https://www.energy.gov/sites/default/files/2022-06/USEER%202022%20National%20Report_1.pdf. 138.

² Srivastava, R., J. Amann, and M. Awojobi, 2021. Training the Workforce for High-Performance Buildings: Enhancing Skills for Operations and Maintenance. www.aceee.org/research-report/b2003

³ This could also be classified as “energy specialist” - contractors who execute on project design, management, and functions outlined in the [NREL Energy Auditor Job Task Analysis](#).

⁴ IREC 2022. [Green Buildings Career Map](#)

E4TheFuture's 2022 Energy Efficiency Jobs in America Report, 76 percent of energy efficiency businesses nationwide featured fewer than 20 employees.⁵ Many of these businesses have enough work to hire new employees—but small companies often do not have the resources necessary to train these workers. In addition, the Department of Labor does not have a standalone standard occupation classification (SOC) code for any occupation in the energy efficiency industry, including professions related to residential energy efficiency and electrification. This has led to a lack of federally- and state-recognized training, pre-apprenticeship, and registered apprenticeship programs for the industry and has historically created significant barriers for energy efficiency business owners trying to access federal and state funds for workforce development and training. These factors, among others, have led contractors to repeatedly report extreme difficulty finding qualified employees, both at the entry level and beyond.

Energy efficiency jobs pay well. According to E4TheFuture's 2021 Energy Efficiency Jobs in America Report, the median hourly wage of \$24.44 for EE exceeds the median hourly wage across the US economy (\$19.14) by about 28%.⁶ Because of industry-wide workforce shortages, as well as often-strenuous working conditions, entry level starting wages have continued to rise in a competitive labor market.⁷ More senior positions requiring additional knowledge, competency, and skill sets feature higher wage rates.

iv. What are the entry qualifications—educational background, related experience, training, skills, and/or certifications—necessary to fill these positions?

Despite the fact that extensive formal training and experience is not required to enter the energy efficiency industry, attracting new workers has proved difficult. Many jobs only require a high school diploma, since additional training and certification is often provided by employers (when they have resources to provide training). Employers often seek candidates with basic math and writing skills and a readiness for physical labor. Senior level positions such as Energy Specialist, Energy Auditors, and Quality Control Inspectors do require a higher bar of competency, however, and are also needed urgently to meet market demand.

Core courses that cover building science principles and energy efficiency retrofit best practices (such as basic construction) can be offered as a supplement to trade education (HVAC, insulation installation, electrical and plumbing) and can support the job market for building upgrade programs.

v. Are there promotion opportunities within these jobs? Are these jobs part of broader career pathways?

Opportunities for advancement are embedded across all sectors of energy efficiency jobs, including building systems, maintenance, and occupancy. Once employed, workers can begin

⁵ E4TheFuture, 2022 Energy Efficiency Jobs in America Report. <https://e4thefuture.org/wp-content/uploads/2022/12/EE-Jobs-in-America-All-States-2022.pdf>.

⁶ E4TheFuture, 2021 Energy Efficiency Jobs in America Report. <https://e4thefuture.org/wp-content/uploads/2021/10/Energy-Efficiency-Jobs-2021-All-States.pdf>. Page 8.

⁷ Some entry-level home performance jobs are unpleasant, dirty, and laborious requiring excess physical exertion. Wage data for traditional weatherization practitioners can be found at the <https://nascsp.org/wap-wage-survey/>.

sequentially stacking industry-recognized certifications as part of a pathway to promotion, with employer support (both financial and with employee time). According to the AnnDyl Policy Group Contractor Survey, home performance employers are very supportive of these chances to pursue outside certifications, in particular - a plurality of contractors (38%) surveyed noted they were willing to allow employees to take up to one week to pursue outside certification, with an additional 10% supportive of their employees taking up to two weeks.⁸ Similar opportunities for upskilling and advancement are available in the commercial sector if the resources are available.

B2. In what locations do you project the greatest demand for workers? What trends and Factors are driving that demand? Please provide any available data and sources.

Workforce shortages are felt deeply across all 50 U.S. states and the District of Columbia. As noted above, per the nationwide USEER, 91% of respondents working in construction-related energy efficiency jobs indicated it was “very difficult” or “somewhat difficult” to find employees.⁹ Rural areas and states with under resourced efficiency programs, in particular, lack on-the-ground training options.

Many State Energy Offices, workforce development boards, and training institutions are under-resourced to deliver programs in support of contractors. Underserved communities, particularly in States that have not historically participated in energy efficiency savings programs from utility companies, weatherization programs, or training programs, should be key targets for EAT, CST, and CTP training dollars.

B4. What types of contracting firms should DOE target for workforce development and business owner training (e.g., general contractors, home performance contractors, HVAC or electrical contractors, etc.)? What skills and knowledge are most pressing for these contracting firms to have? How do the needs of contracting firms vary based on the size of each business?

The Contractor Training Program (CTP) is designed to support the HOMES and HEEHR rebate programs, per IRA Sec. 50123(a). Therefore, DOE should ensure CTP funds focus on residential contractor firms to support understanding the savings of whole-house, performance based upgrades as well as electrification rebate implementation. Small businesses frequently have difficulty marshaling resources to invest in the education of their crews—and if workers leave, they lose their investment. CTP funds can support these small businesses and target this underserved workforce population. DOE should ensure CTP funds support training that helps contractors understand how to access the rebates, use software and certification applications, and provide the metrics needed to meet State Energy Office requirements.

Category C: Workforce Development and Business Owner Training Strategies

⁸ AnnDyl Policy Group Contractor Survey (conducted November 15, 2022-January 6, 2023).

<https://www.anndyl.com/wp-content/uploads/2023/01/AnnDyl-Contractor-Survey-Initial-Results.pdf>.

⁹ U.S. Department of Energy, 2022 U.S. Energy and Employment Report.

https://www.energy.gov/sites/default/files/2022-06/USEER%202022%20National%20Report_1.pdf. 138.

C1. What education and training (i.e., workforce development) strategies are most effective, and why, for **incumbent workers and contracting firms in the energy efficiency and residential buildings-focused electrification industries (e.g., online learning, classroom and lab instruction, on-the-job training, hybrid models)? Are there effective training models that target incumbent workers and contracting firms? Who is best positioned to administer these programs?**

C2. What education and training (i.e., workforce development) strategies are most effective, and why, for **new workers in the energy efficiency and residential buildings-focused electrification industries (e.g., online learning, classroom and lab instruction, on-the-job training, hybrid models)? Are there effective training models that target new workers?**

C4. What education and training (i.e., workforce development and business owner support) are most effective, and why, for **contracting firms? Why and when do contracting firms participate in training, amidst other competing priorities? What business owner training strategies for contracting firms exist?**

Building performance contractors - both employers and employees - strongly support on-the-job training as a pathway to educating new and existing employees. According to the AnnDyl Contractor Survey, the plurality of home performance and electrification contractors (46%) surveyed ranked on-the-job training (wage subsidies for the expense of time dedicated from senior technicians) as their first choice preference, ahead of in-person outside certification courses and testing (25%) and online outside certification courses and testing (24%).¹⁰ Still, DOE should ensure workforce funding dollars support an “all-of-the-above” approach to provide maximum flexibility to states, contractor companies, and contractors themselves. The ability for new and existing workers to take control of their own success through staged accomplishments, with the support of their contracting firms, will foster a more sustainable workforce.

Since the COVID-19 pandemic, the home performance industry (like many other industries) has seen a significant shift to online learning. Customized training solutions that include short videos, slide shows, and sample exams enable learners to work at their pace while accommodating a variety of learning styles. In the case where field training cannot be provided on the job by an employer, an existing accredited network of training providers provide solutions like mobile applications. Of course, field and practical training are an essential part of the learning process, and most credentials do require both a written and field exam. Other key in-person training options include community colleges, trade schools, and local utility training centers.

Strategies for commercial building workforce training include continuing education and certification programs as well as degree programs and formal on-the-job training. Continuing education and certifications are provided by utilities, unions, state energy offices, trade associations, and other third parties (e.g., [Building Operator Certification](#) and [GPRO Training](#)). Degree and on-the-job programs are offered by universities, community colleges, and apprenticeship programs.

¹⁰ AnnDyl Policy Group Contractor Survey (conducted November 15, 2022-January 6, 2023).
<https://www.anndyl.com/wp-content/uploads/2023/01/AnnDyl-Contractor-Survey-Initial-Results.pdf>.

C3. Is there a need for programs to train the trainer? If so, what strategies are most effective for programs that train the trainer? Who is best positioned to administer these programs?

Yes - DOE should ensure federal workforce funding supports “train the trainer” programs, in addition to subsidies for training itself. Financial incentives offered under a nationwide mentorship program, coupled with leading trade and industry associations, could help companies and individuals during the clean energy transition. Making ongoing investments in on-the-job training and educating contractors on new technology development are important to ensure key skills are passed on and new skills are developed—a trademark of the construction industry critical to the success of an expanded efficiency workforce.

C5. Which certifications or credentials should the EAT, CST, and Contractor Training Program prepare participants for? Please specify the program in your response.

Energy Auditor Training (EAT):

- The following certifications are eligible to be included in state EAT program plans, per IIJA 40503(a)(1):
 - BPI HEP Energy Auditor;
 - ASHRAE Building Energy Assessment Professional (BEAP) certification;
 - Association of Energy Engineers (AEE) Certified Energy Auditor; and
 - RESNET Home Energy Rating Specialist.
- Per IIJA Sec. 40503(a)(1)(E), DOE may recognize other certifications. We recommend the following:
 - BPI Building Analyst Technician/Professional;
 - BPI Home Energy Technician and Crew Leader;
 - RESNET Rating Field Inspector;
 - ASHRAE Operations and Performance Management Professional; and
 - Additional classes and credentials as determined by State Energy Offices.

Career Skills Training (CST):

CST does not list specific certifications or credentials. We recommend DOE designate the following credentials as eligible, beyond the on-the-job training specified in statute per IIJA Sec. 40513(b):

- BPI Building Science Principles Certificate, or other similarly-approved program administered by BPI, RESNET, or ASHRAE for the purpose of inclusion in new or existing Pre-Apprenticeship training programs;
- Association of Energy Engineers (AEE) Certified Energy Manager (CEM);
- Building Operator Certification (BOC);
- Green Professional Building Skills (GPRO);
- ASHRAE Building Commissioning Professional Certification; and
- Additional classes and credentials as determined at the State level to respond to state- and locally-specific workforce needs.

Contractor Training Program (CTP):

The CTP does not list any certifications or credentials. States should have flexibility to ensure that credentials that meet their workforce needs are included in the training, and that training and testing fees can be covered by their programs. States should also have flexibility to support credentials and on-the-job training for their residential retrofit programs, which may include training in whole-building energy consumption, carbon footprint, and/or occupant health.

- The course criteria that was included in the HOPE for HOMES Act of 2021, H.R. 3456¹¹ offered several considerations that DOE should offer for state programs:
 - 30 hours in total course time;
 - Training provided by a provider accredited by the Interstate Renewable Energy Council (IREC);
 - Alignment with relevant NREL Job Task Analysis;
 - Established learning objectives; and
 - Assessment of learning objectives (including a final exam), either on-site, remote, or in-field.
- DOE should also allow State Energy Offices to set other additional criteria, as needed.

C6. What obstacles prevent access to training for workers and contracting firms? What type of incentives or return on investment would workers and employers need to invest in the training?

E1. How can DOE design the EAT, CST, and Contractor Training Program to include and best serve individuals from disadvantaged communities and underserved populations in workforce development and economic inclusion programs? How can DOE design these programs to reach rural community members and businesses?

F2. What are the barriers and challenges to creating high quality energy efficiency and residential buildings-focused electrification jobs and businesses? Are these barriers and challenges different for those from disadvantaged communities?

DOE should ensure that training initiatives under EAT, CST, and CTP meet individuals and contractor firms where they are, in a way that works for them. Contractors frequently highlight the following as frequent obstacles preventing access to training for workers and contracting firms:

1. People cannot miss work or income to attend long classes, and also face barriers related to transportation and support services (including child and elder care).
2. Smaller contractor companies cannot use or fund training opportunities if they interfere with business operations or revenue.
3. Many organizations and individuals are wary of participation in outside programs they are unfamiliar with.
4. Maintaining quality and preparing individuals “beyond the credential” is critical to ensuring success.
5. Newer technologies, especially electrification technologies that connect with electrical, internet, and other systems, may require more time, intensive study, and safety considerations than training programs and approaches used in the past.

¹¹ HOPE for HOMES Act of 2021, H.R. 3456. <https://www.congress.gov/bill/117th-congress/house-bill/3456/text/>

6. People with differing genders, abilities, ethnicities, and backgrounds are more likely to face harassment or barriers to learning in programs or on-the-job training.

The obstacles listed above are frequently felt even more acutely in disadvantaged communities and underserved populations. To mitigate these concerns, DOE should (as noted) prioritize program funding, particularly CTP funding, for on-the-job training and independent certification programs (both in person and online), with priority for participants in underserved communities historically left out of the home performance industry. This will help federal funding flow to the communities IJJA and IRA programs were designed to serve and prioritize.

DOE must also ensure that CST, EAT, and CTP funding supports investments in youth-focused workforce training programs, particularly in underserved areas and historically marginalized zip codes, to ensure the next generation of leaders are prepared to enter these emerging markets. Even before the onset of the COVID-19 pandemic, the home performance industry faced major challenges finding qualified workers (as noted under Category B of this response). In order to properly serve disadvantaged and historically marginalized communities, program design for the EAT, CST, and Contractor Training Program should be inclusive, accessible, modular, and provide a sense of community ownership.

C8. How can DOE-funded workforce programs support career ladders for individuals to ensure they continue to acquire skills and advance their career and wages over time?

DOE-funded programs can support contractor advancement and professional development by ensuring training dollars support subsidies for outside certification. Contractors who obtain broadly market-recognized certifications enjoy excellent career advancement opportunities that pair well with on-the-job experience. Apprenticeship programs (DOL sponsored or industry-led) can also provide an opportunity for time-based and hybrid progression through a series of credentials and industry experience while maintaining active employment. Structured wage schedules can be added to programs, so salaries increase when a candidate achieves Journey person, or Master, while also achieving additional credentialing, increased experience, and career growth.

To ensure a more welcoming environment and opportunities for growth in the home performance industry for people with minority identities or disabilities, DOE can encourage program recipients to partner with training providers and employers who adopt high-road labor practices, support workplace mentorship programs, and have DEI commitments.

C9. How can DOE-funded workforce programs best help connect trainees with employment opportunities?

DOE-funded programs can support turnkey trainee career paths through cooperative organization and funding between state agencies, workforce development programs, community advocate groups, nonprofit associations, training organizations, and contractor communities. Ensuring program ownership at the local level, alongside canned technical support (including online engagement) will maximize market opportunities for workers and contractors and on-the-ground connections with employment opportunities. The combination

of partners, resources, and standardized implementation both nationally and at the state and community levels will result in increased funding opportunities and optimized Federal spending.

Recognizing that significant levels of energy efficiency funding and incentives will flow through State Energy Offices, DOE can host—and support non-profit partners to host—forums to connect trainees with state and local policymakers and program implementers. These forums would provide educational opportunities for contractors to learn about funding opportunities, program designs, financing options, and state and local policy priorities.

C10. How could the EAT, CST, and Contractor Training Program most effectively work together?

States are eligible to receive funding for both EAT and Contractor Training Program dollars. DOE could support states in coordinating the funding streams in a way that is responsive to their unique stakeholder, market, and workforce system needs and priorities.

C12. What are examples of effective existing workforce development programs that meet the purposes set forth for the EAT, CST, and Contractor Training Program?

West Virginia – WV has used State Energy Program funds for over three years to provide Building Science Principles Certificate training to a wide range of audiences including WV Association of Realtors, Wood County Technical High School, WV Home Building Association, Southern Appalachian Labor School, Coalfield Development Corporation, and 84 Lumber employees, among others. This baseline foundation of learning can be expanded to include Mt. Olive Correctional Institute under their technical re-entry program, WV Jobs in Hope program for individuals with substance abuse disorder, and [WV Trade Adjustment Assistance Program](#) providing wrap-around services for new and incumbent workers.

Pennsylvania – [The Energy Coordinating Agency \(ECA\)](#) provides ground-up technical trade skills trainings for disadvantaged individuals starting with Youthbuild type programs learning basic construction and building science to more advanced credentialing training and wholesale training support for other providers. Since 2010, ECA has maintained a steady pipeline of individuals through a program that is directly coupled to community outreach, Registered Apprenticeship, and Alumni support. Through partnerships with other training institutions, Utility programs, Nonprofit Associations, and contractor direct engagement ECA has produced an end-to-end supply chain of services from career seeker to consumer.

Minnesota – The [Center for Energy and Environment](#) has a full circle workforce development program that recruits, trains, interns, and places workers in clean energy career pathways to serve the state’s demand for workers. They have partnered with [Migizi](#) Youth Build program to provide recruitment and wrap-around services to conduct 4-5 week paid internship programs leading into an additional 16 week Internship with an employer host that ultimately leads to job placement. Their first cohorts in early 2022 yielded a total of 30 participants, with 93% of trainees identifying as BIPOC and 25% identifying as women. In total, 97% passed the Building Science Principles Certificate exam, 10 students enrolled in internships, and 2 interns were hired into full time jobs.

Tennessee – The [Appalachian Electric Cooperative](#) serves over 45,000 customers just west of the Blue Ridge Mountains in a predominantly rural area. The member-owned utility provides a residential energy efficiency loan program through a network of trained and certified contractors. In an effort to support their contractors in training, the Cooperative was able to utilize the neighboring [Kentucky Housing Corporation](#) to provide credential and business mentorship support for the group of 14 contractors participating in their program.

Delaware – The Delaware Department of Labor has registered Pre-Apprenticeship program criteria similar to what is being adopted in many States across the Nation. The program is driven in part by the [HELP Initiative](#) nonprofit, a team of energy efficiency practitioners including contractors, the [Delaware Skills Center](#), several vocational technical schools, local law enforcement, and career placement organizations to prepare diverse candidates for placement into employment.

Massachusetts – Massachusetts' [Clean Energy Pathways Program](#) aim is to help grow and diversify the energy efficiency workforce. Job seekers are offered paid training and hands-on experience in energy efficiency weatherization and HVAC jobs with 9-month fully paid internships that provide skills, job placement assistance and ongoing support, and mentorships.

New York - [NYSERDA](#) began offering its on-the-job training program in collaboration with the New York State Department of Labor as part of its Clean Energy Workforce Development effort. The program offers financial incentives to eligible energy efficiency and clean technology businesses to hire and provide on-the-job training to new workers. Eligible applicants are provided with the support needed to assess their workers' skills and to develop on-the-job training plans. The program offers funding for workers to acquire technical skills, credentials, and training in clean energy technology so that they are capable of designing, installing, operating, and maintaining in-demand systems and gain field experience that cannot be obtained via classroom instruction. Funding is available on a cost-share basis at two levels depending on the size of the businesses or if they hire a priority participant group that includes veterans, Native Americans, individuals with disabilities, low-income individuals, and 18- to 24-year-olds participating in work preparedness programs. The program offers an even higher incentive for businesses hiring workers to install heat pumps.¹²

Conclusion

EESG looks forward to working with DOE on implementation of these key workforce development programs. Again, if you have questions or need additional information, please do not hesitate to contact Kara Saul Rinaldi, kara@anndyl.com.

¹² For additional examples, see a joint resource created by E4TheFuture and the National Association of State Energy Offices (NASEO): "Program in a Box: Workforce Development." <https://infrastructure.naseo.e4thefuture.org/model-programs/workforce-development/workforce-development-design/>

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This RFI provides an important opportunity to provide insights and feedback **on behalf of [E4TheFuture](#)**, a 501(c)(3) that collaborates with industry stakeholders to provide expert policy education and advocacy to advance residential clean energy and energy efficiency solutions. E4TheFuture is pleased that several other industry leaders have signed on to submit these comments: Energy Efficiency Strategy Group (EESG).¹³

Below, please find our responses to the questions contained in DE-FOA-0002885. In some cases, questions are grouped, since our responses often address overlapping questions in

¹³ The Energy Efficiency Strategy Group (EESG) is an informal coalition of national energy efficiency organizations and related groups, including Advanced Energy United, Alliance to Save Energy (ASE), American Council for an Energy-Efficient Economy (ACEEE), ASHRAE, Building Performance Association (BPA), E2 (Environmental Entrepreneurs), E4TheFuture, Energy and Environment Study Institute (EESI), Federal Performance Contracting Coalition (FPCC), Institute for Market Transformation (IMT), International Code Council (ICC), Midwest Energy Efficiency Alliance (MEEA), National Association of Energy Service Companies (NAESCO), National Association for State Community Services Programs (NASCSPP), National Association of State Energy Officials (NASEO), Natural Resources Defense Council (NRDC), RMI, Sierra Club, World Resources Institute (WRI), and U.S. Green Building Council (USGBC). Information submitted in response to the RFI was developed collaboratively and should not be attributed solely to any of the above-listed organizations. Many of these groups will be submitting separate comments that highlight individual organization priorities, and we encourage DOE to review each submission.

multiple categories. If you have questions, or wish to discuss anything further, please reach out to Kara Saul Rinaldi (Kara@AnnDyl.com; 202-276-1773; 205 Newbury Street, Framingham, MA 01701).

Category A: Respondent Type

A1. What type of entity is the organization (e.g., non-profit, state government, company, local government, etc.)?

A2. In what city(ies) and state(s) do you live or operate?

As noted above, E4TheFuture is a national 501(c)(3) based in Framingham, MA that collaborates with industry stakeholders to provide expert policy solutions, education, and advocacy to advance residential clean energy and energy efficiency solutions.

Category D: Accessing Federal Funding

D1. What information can DOE provide in the FOA that would be helpful to applicants?

DOE should clearly delineate approved third-party training accreditation options in the upcoming FOA for a streamlined application process. DOE should also support more streamlined data collection. Being able to verify how many people were trained per state is one potential metric.

D3. How can the EAT, CST, and Contractor Training Program dollars enhance funds from other federal, state, local, utility, and private sources? How can DOE encourage applications that draw on non-federal resources to leverage federal funds for maximum impact?

Leveraging funding is different from matching requirements found in statute for CST, IIJA Sec. 40513(c). Proper application of Federal training dollars between programs can be highlighted in guidance to specifically identify the types of allowable expenditures under each aspect of the program meant to be administered in part or in whole. Additional funding sources from state, local, utility, or private sources should be accounted for at the State level when applications are made, and commonalities between states can be previously identified as part of program design.

Ensuring flexible Federal funding will be essential for State level design and implementation. There will be several different training elements needed to support federal, state, or utility sponsored programs which may be reliant upon funding from different sources. For example, a single overall program design that includes field training may offer the opportunity for that training to be covered as on-the-job training under the Contractor Training Program, and in another state that field training may need to be provided by a third party, which would be covered by EAT. This is again why flexibility is key so that the state can meet the contractors and programs where they are and braid them accordingly.

D4. What is the minimum award size to be meaningful for EAT, CST, and Contractor Training Program funding recipients?

D5. Should DOE deliver the Contractor Training Program funds to states using a formulaic or

competitive approach? Why?

DOE should deliver Contractor Training Program funding to states via the State Energy Program (SEP) formula. This will likely ensure no state or territory receives less than \$1 million each for workforce development, while larger states with greater needs receive more funding.

For competitive programs (EAT and CST), DOE should ensure dollars are deployed to support maximum impacts. The value of a dollar spent on energy efficiency training can vary as dramatically as the wages themselves. DOE should weigh award sizes directly against the cost of implementation given the conditions on the ground. An HVAC installer in Portland, Oregon does not need to drive far to install a mini-split, but it is not uncommon for that same type of installer to drive two hours in South Carolina to perform the same job. Local conditions must be accounted for when trying to deliver a set spending program meant to serve everyone. Any minimums or maximums DOE institutes should incorporate these considerations, accounting for regional and state flexibility for activities like testing fees, on-the-job training reimbursement, and administrative expenses.

D6. How much would the activities funded under these programs cost on a per-participant basis and for a program-level budget? Please be as specific as possible.

The costs associated with training assistance may vary from place to place, but certain line items will likely remain the same, including training hours, credentials, and required participants. In guidance, DOE should lay out cost processes for States and nonprofits to use to ensure standardized local design and cost-effective implementation.¹⁴

First Year Estimated Example Prices of Credentials (per student)¹⁵:

Credential	Classroom Training	Online Training	Field Training	On The Job Training	Test Fees	Average Admin Cost/training
BPI HEP Energy Auditor	\$1,950 -\$2,500	\$800	\$1,250-\$2,500	\$18,750 wage reimbursement, other credentials	\$1,150	\$2,500
RESNET HERS Rater	\$2,320 - \$3,500	\$2,725	\$1,500-\$2,500	**	\$525	\$2,500
ASHRAE BEAP	\$850-\$1,500	\$520	\$500-\$1,000	**	\$595	\$2,500

Estimated Examples of State Program Cost differentials:

	National	New York	West Virginia	Montana	Vermont

¹⁴ Low Income weatherization agencies in Mississippi use RESNET Certified practitioners in the performance of their work, when most everyone relies upon standards and credentials from BPI. ASHRAE standards are embedded into each residential credential while maintaining training certifications for those looking to migrate from residential into commercial practicing similar job duties.

¹⁵ Estimates provided by contractor training experts at the Building Performance Association (BPA).

Nonprofit Partners	10% avg	5%	15%	20%	10%
Training	\$5,000 avg	\$2,500	\$7,500	\$10,000	\$5,000
Wage Reimbursement	\$20,000 avg	\$10,000	\$30,000	\$40,000	\$20,000

Equity, Partnership, Diversity, Inclusion

Category E: Equity and Partnerships

E1. (answered above under Category C)

E2. What are examples of successful existing nonprofit partnerships between nonprofits, industry, and labor organizations? What is needed to develop more partnerships, particularly to reach disadvantaged communities and underserved populations and provide access to career-track training?

F3. What existing workforce education and training efforts (e.g., specific registered apprenticeship programs, labor management training programs, community college or technical school programs, pre-apprenticeship programs, etc.) are preparing displaced, underrepresented, and historically disadvantaged workers for energy efficiency and residential buildings-focused electrification jobs? How can those efforts be best supported or augmented to ensure the success of the EAT, CST, and Contractor Training Program? What training pathways are needed, or already exist, to address these needs?

The [Green Generation](#) program, piloted in the South Side suburbs of Chicago, Illinois, provides transformative experiences to youth through immersive training on leadership, advocacy, and technical aspects of home energy performance and urban sustainability. Program training offers early exposure and engagement to emerging markets for students from under-resourced communities. The program operates as a partnership between the Community Economic Development Association of Cook County, and the University of Illinois' Indoor Climate Research & Training group, an Interstate Renewable Energy Council-accredited training center, and Urban Efficiency, LLC, a minority-owned home energy performance firm and Building Performance Institute (BPI)-certified trainer. Upon high school graduation, students completing the program secure six Building Performance Institute certifications, qualifying them to enter the residential home performance workforce immediately if college is not the plan after high school. DOE profiled the program in December 2021.¹⁶

The [Mountain Association](#) invests in people and places in Eastern Kentucky to advance a just transition to a new economy that is more diverse, sustainable, equitable and resilient. Locally, coal built towns across Eastern Kentucky and brought hundreds of thousands of immigrants through the hills who left indelible marks on the culture. But the coal industry has also left a

¹⁶ U.S. Department of Energy. "Building a Green Generation in Chicago." December 29, 2021. <https://www.energy.gov/eere/wipo/articles/eere-success-story-building-green-generation-chicago>.

legacy of environmental, community and economic damage that now must be reckoned with since the industry's near total collapse. That's why investment in a just transition away from coal and toward more sustainable forms of energy production, as well as energy efficiency, is so important. Over more than a decade, Mountain Association has invested programmatic resources to help grow the clean energy sector by building an internal energy team with strong expertise; developing a workforce through our New Energy Intern program; and, providing capital, education and marketing for business, organizations, and homeowners.

EAT and CST are DOE Justice40 covered programs and we support DOE maximizing these goals.¹⁷ Examples listed above¹⁸ can be replicated across the country by encouraging specific program partners from community workforce organizations that focus on minority career support, Justice-involved and substance abuse disorder reentry programs, and rural community action agencies. DOE can foster more partnerships like these by supporting competitive funding opportunities with state energy program design for CTP and encourage state energy offices to set goals that ensure training dollars reach underserved and historically marginalized communities. Funding should support administration of these programs along with end-goal implementation.

Recognizing the importance of wraparound support in opening access for underrepresented cohorts, DOE should consider creative solutions or funding flexibilities to potential barriers such as transportation, job readiness, and childcare/eldercare.¹⁹

E3. What degree of industry representation is needed to ensure that the partnership is developing a strategy that is broadly responsive to industry need within a given region or Locality?

Contractor representation and partnerships will be critical to successful federal and state workforce training strategies under CST, EAT, and CTP. The vast majority of residential home performance, general construction, HVAC, or plumbing are small non-union businesses.²⁰ The residential retrofit market has been particularly distanced from union activities due to lack of mutual benefit. Unions serving the commercial building space rely upon sets of standards, training practices, and credentials that are common across the country. Small businesses lack the resources to afford union participation, and there are no large "union only" jobs available to be bid on. Nonprofit industry associations (like the Building Performance Association) serve as centralized locations where contractors, advocates, trainers, State Agency representatives,

¹⁷ Department of Energy, "DOE Justice40 Covered Programs." <https://www.energy.gov/diversity/doe-justice40-covered-programs>.

¹⁸ For additional examples, see: [Coalfield Development Corporation](#); [Migizi](#); and [Southface Institute](#).

¹⁹ For reference on approximate costs of such services around the country, see "Opportunities for State and Territory Energy Offices to Prioritize Job Quality and Broaden Access in the Clean Energy Workforce." National Association of State Energy Officials (NASEO) & Markle State Clean Energy Workforce Initiative, https://www.naseo.org/data/sites/1/documents/publications/IIJA%20and%20IRA%20Funding%20Opportunities_Published.pdf.

²⁰ E4TheFuture, 2021 Energy Efficiency Jobs in America Report. https://e4thefuture.org/wp-content/uploads/2021/10/Energy-Efficiency-Jobs_2021_All-States.pdf.

utility providers, workforce development programs, community action agencies, and others can coalesce to communicate and fill gaps.

E6. How can DOE use funds to expand business ownership in energy efficiency and electrification fields for people of color, women, individuals with disabilities, veterans, and other disadvantaged communities and underserved populations?

DOE should encourage energy efficiency training and workforce development dollars to incentivize gender and racial diversity and equity, including by providing best practices. Like many trades, the EE industry has historically been a white, male-dominated industry. According to the E4TheFuture 2021 Energy Efficiency Jobs in America Report, just 25 percent of energy efficiency workers industry-wide were women, and Black and Hispanic workers were underrepresented relative to national workforce averages.²¹ Residential energy efficiency businesses – the vast majority of which have fewer than 25 employees – are crucial to communities across the country, providing local jobs that cannot be outsourced. They know how to do more with less and should have equal access to funding sources to bring on local workers and train them for growing demands.

Low awareness of home performance career opportunities is currently a barrier to broader workforce participation in underserved communities. In order to connect with hard-to-reach populations, we must first listen to them. To do otherwise stymies information sharing and exacerbates the divide between those participating in the fight to address climate change and those forced to remain on the sidelines.

Underserved communities bear the brunt of poor home performance. According to a 2020 report published by ACEEE, low-income households spend 8.1% of their income on energy costs, on average, in comparison to 2.3% for non-low-income households.²² This high energy burden correlates even more closely with race. Nationally, Black households spend 43% more of their income on energy costs than their white, non-Latinx counterparts; Latinx households spend 20% more; and Native American households spend 45% more.²³ This vast energy gap will be critical to address, including via key DOE Home Energy Rebate Programs—but strongly inclusive home performance workforce development training will also be critical to help ensure these communities needs are met. It is not enough for these communities to just be at the table. Their perspectives should inform and influence program creation and implementation in a way that is equitable, from federal to state to local and small business programs and partnerships for CTP, EAT, and CST alike.

²¹ E4TheFuture, 2021 Energy Efficiency Jobs in America Report. https://e4thefuture.org/wp-content/uploads/2021/10/Energy-Efficiency-Jobs_2021_All-States.pdf. 9. These rates remained largely steady in 2022—see U.S. Department of Energy, 2022 U.S. Energy and Employment Report.

https://www.energy.gov/sites/default/files/2022-06/USEER%202022%20National%20Report_1.pdf. 131.

According to the 2022 USEER, the concentration of veterans in the energy efficiency industry is higher than the national average (8% compared to 6% nationally).

²² American Council on an Energy Efficient Economy, “How High are Household Energy Burdens?” September 2020. <https://www.aceee.org/sites/default/files/pdfs/u2006.pdf>.

²³ Ibid.

DOE should support on-the-job training under the Contractor Training Program to provide end-to-end business support for pre-qualified entrepreneurs in disadvantaged communities. Habitat for Humanity in Providence, RI has a Home Performance Contractor [incubator program](#) that provides a five-year experience into business for a qualified individual that has the knowledge, experience, and means to succeed. In addition to all training costs being covered, the contractor is paid the first 1,000 hours of field training while working with crews, in the field, under different capacities. DOE should offer states flexibility to use funds from the CTP in support of similar programs at the state level.

E7. Are there currently organizations (for profit, nonprofit, trade, labor organizations, etc.) or networks comprised of or supporting disadvantaged communities and underserved populations that should be engaged in this effort of economic inclusion?

Yes, there are a number of organizations that should be closely engaged in these discussions. At the state and local level, workforce boards (for the commercial workforce) and community-based organizations are best-positioned to support economic inclusion and representation. At the national level, [Emerald Cities Collaborative](#),²⁴ [NAACP](#), [Citizens Action Group](#), [Habitat for Humanity](#), [AmeriCorps Vista](#), [Service Year Alliance](#), and [The JPI Group](#) all provide workforce services within different states at different capacities. DOE should ensure program dollars support “inclusion by design” and that states collaborate with partners that have a demonstrated record serving their specific communities.

E8. How can DOE ensure that workers from disadvantaged and underserved communities have access to good quality union jobs? What evidence-based models can DOE deploy to hire, recruit, retain, and develop a diverse workforce while also eliminating gender, race, and disability-based pay gaps?

Small residential energy efficiency businesses are excellent vehicles for workforce funding—they know how to do more with less. Supporting small contractor businesses, especially minority- and women-owned business enterprises (MWBEs) will generate economic growth and could help avoid unintentional exclusion of communities of color who have been historically overlooked by unions who may not have deep ties to these specific communities. This action can expand workforce diversity opportunities and allow local communities to build and maintain engaged, invested contractors.

Category F: Access to High Quality Jobs

F1. How can DOE best design these programs to support the direct and indirect creation of high quality, good-paying union jobs, especially in disadvantaged communities and for dislocated workers?

²⁴ ECC works with community organizations, government, the private sector, and directly with small MWBE firms to ensure that BIPOC and other underrepresented businesses/contractors benefit from major investments in clean energy. In addition to planning and technical assistance to improve public procurement systems, ECC offers training, coaching and support services so that these firms are committed to ECC’s high-road mission to strengthen the environment, economy and equity, especially within low-income communities of color.

The vast majority of residential home performance, general construction, HVAC, or plumbing companies are small non-union businesses.²⁵ The residential retrofit market has been particularly distanced from union activities due to lack of mutual benefit. Unions rely upon sets of standards, training practices, and credentials that are common across the country. Small businesses lack the resources to afford union participation, and there are no large “union only” jobs available to be bid on.

Notably, both Congress and the Biden Administration have recognized this important distinction. The Inflation Reduction Act and corresponding [Treasury Department guidance](#) require commercial and multifamily building projects to meet prevailing wage and apprenticeship commitments to achieve full tax credit benefits—but the single-family residential sector is exempt from these requirements, given that the industry is primarily not serviced by union labor. We recommend that DOE maintain this important differentiation for single-family in any requirements it places on contractors receiving training.

Additionally, the Department of Labor does not have a standalone standard occupation classification (SOC) code for any occupation in the energy efficiency industry, including professions related to residential energy efficiency and electrification. This has led to a lack of federally- and state-recognized training, pre-apprenticeship, and registered apprenticeship programs for the industry and has historically created significant barriers for residential energy efficiency business owners trying to access federal and state funds for workforce development and training. These residential energy efficiency businesses are very small – 76 percent feature less than 20 employees.²⁶ Many of these businesses have enough work to hire many new employees, but they do not have the resources necessary to train these workers.

F4. How can DOE encourage diverse and inclusive entrepreneurship in the energy efficiency and residential buildings-focused electrification industries?

B3. What supports do workers need to overcome barriers to employment in these high-demand jobs (e.g., a criminal record, transportation, child and elder care, etc.)? Where possible, include data and examples of where supportive services have positively impacted recruitment, hiring, retention, and upskilling of underserved populations?

C7. How could DOE funding be used to support continued education, job placement, and supportive services (e.g., transportation, child and elder care) for the energy efficiency and residential buildings-focused electrification workforce? How can DOE ensure that workers have pathways for growth and well-paying careers within these industries?

Raising awareness of regional and national training institutions with industry leaders and community outreach can help support states looking to spur workforce expansion and engagement. DOE can help connect these dots. Direct DOE support of quality existing training programs, particularly via EAT funding, can be pivotal to enable those institutions to act as

²⁵ E4TheFuture, 2021 Energy Efficiency Jobs in America Report. https://e4thefuture.org/wp-content/uploads/2021/10/Energy-Efficiency-Jobs_2021_All-States.pdf.

²⁶ E4TheFuture, 2022 Energy Efficiency Jobs in America Report. https://e4thefuture.org/wp-content/uploads/2022/12/EE-Jobs-in-America_All-States_2022.pdf.

wholesale standardized curriculum delivery agents while maintaining industry training integrity through verifiable third-party oversight such as ANSI/ISO/IREC methods.

Examples include:

- [IREC Accredited Training Providers](#);
- [RESNET Training Providers Nationwide](#);
- [Energy Coordinating Agency](#) (Philadelphia PA);
- [Community Housing Partners \(CHP\)](#) (Blacksburg, VA);
- [Green Training USA](#) (Tysons Corner, VA);
- [Southface Institute](#) (Atlanta, GA);
- [Build Green Maine](#) (BGM);
- [ASHRAE](#)-led direct trainings (can be sponsored at the local level within their Nationwide network).

Training dollars must reach underserved communities to provide maximal benefits. In particular, DOE should encourage initiatives that direct training dollars to reach individuals in transitional, reentry, immigration, and worker rehabilitation programs across the country, as applicable. Developing partnerships with state resources to support services like child/elder care, food/clothing allowances, transportation, and mental health solutions are important to maximize participation from those struggling with these barriers to stable employment. Online and on-the-job training resources adopted by employers through and partnered with existing support infrastructure can be managed at the State level to document and verify performance of programs and incentives. DOE should encourage innovative technology resources and programs that make it quick and easy for prospective contractors, current contractors, and contractor companies to break down impediments to participation while using financial incentives to change owner mindset and behaviors relative to worker recruitment with better retention.

[Coalfield Development](#) (Huntington, WV) has a “33-6-3” model for retraining displaced energy workers in Southern West Virginia. Workers are offered a 2.5-year contract consisting of 33 hours per week of paid work, 6 credit hours of higher education and 3 hours of personal development mentorship.

Conclusion

E4TheFuture looks forward to working with DOE on implementation of these key workforce development programs. Again, if you have questions or need additional information, please do not hesitate to contact Kara Saul Rinaldi, kara@anndyl.com.