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Building Performance Association (BPA) RFI Response

Additional submitted attachment is included below.

January 26, 2024

Commissioner J. Andrew McAllister
California Energy Commission
715 P Street
Sacramento, CA 95814

Re: Docket No. 23-DECARB-01: BPA Response to RFI on the Inflation Reduction Act Home Energy Rebates

Dear Commissioner McAllister:

Thank you for the opportunity to respond to the California Energy Commission's (CEC) Request for Information (RFI) on the Inflation Reduction Act (IRA) Home Efficiency Rebates Program (HOMES). The Building Performance Association (BPA) is a 501(c)(6) membership-driven industry association dedicated to advancing the home and building performance industry. BPA members will play a pivotal role in implementing the rebate programs, since contractors represent the primary source of information and advice for most homeowners performing energy efficiency improvements – and because of their direct work in homes to reduce household energy costs.

The CEC should consider the following priorities during implementation of the HOMES program:

- **Prioritize Energy Efficiency** – CEC should maximize efficiency across all HOMES projects. Properly installed efficiency upgrades (insulation, air sealing, and more) reduce household energy use, utility bills, greenhouse gas emissions, and grid impacts. These measures can also increase home comfort and support successful corresponding equipment upgrades, including electrification projects.
- **Implement Performance-Based Rebates** – The CEC's proposal to incorporate HOMES into the Equitable Building Decarbonization Program (EBD) and potentially provide rebates based upon cost – rather than energy savings – would drive increases in project expenses and undo the program's performance-based benefits, potentially diminishing emissions reductions and failing to protect low-income families from rising energy bills. The CEC should implement a performance-based HOMES rebate program and solidify California's position as a pay-for-performance policy leader, using measured energy usage or modeled savings calibrated to prior energy bills and weather data.
- **Support Equity** – Low-income households face both high energy burdens and challenges accessing funding for energy-efficiency upgrades, and the CEC should leverage the HOMES programs to reduce barriers to energy efficiency improvements for low-income households. The CEC's HOMES program should be mindful not to leave homeowners with higher energy bills, post retrofit.

BPA's full, detailed comments are enclosed with this letter. Thank you again for the opportunity to provide these comments, and we look forward to working with you on successful

implementation of these crucially important programs for our industry to draw down emissions and decarbonize the residential sector.

Kara Saul Rinaldi
Chief Policy Officer
Building Performance Association

1. Braiding HOMES funding with the EBD Direct Install Program would support building decarbonization for additional low-income residents while streamlining implementation and minimizing administrative costs by utilizing the same set of administrators and regional infrastructure. In the braiding scenario, CEC would seek approval from DOE to cover 100 percent of project costs for low-income households in alignment with the EBD Direct Install Program. The HOMES requirement for portfolios of projects to realize certain thresholds of energy savings would only apply to federally funded projects.

a. Share any best practices for braiding federal and state funds for highly effective rebate, incentive, and/or direct install programs aimed at households in disadvantaged communities or meeting low-income guidelines.

We recommend the CEC stand-up the HOMES rebates as a true whole-home energy savings program as envisioned by Congress, with increasing incentives for higher energy savings – while maintaining the goal of covering 100% of project costs for low-income households – for the following reasons:

HOMES Rebates Can Expand Rebate Access to Communities Not Served by EBD: The EBD program will require program administrators to identify initial community focus areas for EBD direct installations, potentially leaving many other low-income communities unserved by the program. The HOMES rebates provide an opportunity to deploy energy efficiency measures in more low-income communities across the state, ensuring the broadest possible eligibility and participation.

Additional HOMES Rebate Program Requirements Would Delay EBD Implementation: U.S. Department of Energy guidance for the HOMES program establishes numerous data and process requirements for all projects; integrating HOMES into EBD would add significant administrative burdens to EBD implementation. In particular, the HOMES program requires an energy audit consistent with BPI-1100/1200 standards, which is not consistent with industry standard practices and could significantly limit the pool of contractors willing to participate in the EBD program.

Relying on a Drafting Error Creates Regulatory and Legal Risk: In the HOMES language, the words "the lesser of" were unintentionally left out of the measured path, though they were included in the modeled path, accidentally removing the cap from the measured rebate. Using this error to provide rebates as a percentage of cost – not energy savings – is contrary to the intent of Congress and could cause legal and regulatory delays, and/or require dramatic programmatic changes if the drafting error is fixed in subsequent legislation. This could impact the speed at which Californians receive IRA HOMES funding and slow progress on achieving the state's rightfully ambitious climate goals.

A Pay-For-Performance Approach Achieves the Same Goals as EBD: A performance-based approach to the HOMES program would accomplish many of the same objectives as the EBD program – targeting households and communities with the greatest savings potential, driving down project costs, and providing a whole-home approach to decarbonization. Rather than

relying on program implementors to manage and trade-off all of these factors, the performance-based approach allows contractors and aggregators to handle these functions, driven by market incentives to achieve the highest energy savings at the lowest cost.

- The CEC could still require similar packages of measures for HOMES projects as the EBD program.
- To avoid additional administrative costs, the CEC can utilize the same implementer for the HOMES and EBD Programs; however, the HOMES Program will need to be separate from the EBD to ensure that it is a performance-based program.

Performance-Based HOMES Programs Can Cover 100% of Project Costs: The HOMES measured savings programs should still strive to cover 100% of project costs for low-income households by setting appropriate incentive rates, including bonus incentives under the *time, location, and greenhouse gas incentive* provisions of the HOMES program. The CEC should leverage the HOMES program, in coordination with contractors, aggregators, and community-based organizations to gather data on average project costs and energy savings for low-income households. Using this data, CEC can set incentive rates to ensure that the rebates are sufficient to cover 100% of project costs for the vast majority of low-income households; this data will also be valuable to support the EBD program administrators in implementing mechanisms to control costs, such as cost analysis, competitive bidding, and standard pricing for eligible measures.

2) In the situation where CEC does not incorporate/braid HOMES program funding into the EBD Direct Install Program, respond to the following questions to inform CEC's HOMES program design and application to DOE.

a. Overall program design:

i. How can HOMES funds that are awarded to deliver residential whole building energy efficiency retrofits, be best utilized to support the state's decarbonization and electrification goals?

Home Energy Modeling and BPI-2400 Implementation: The congressional intent of the HOMES modeled pathway acknowledged that, while all energy models have challenges, energy models that are calibrated using household energy usage data are more likely to be accurate. The requirement to utilize the BPI-2400 standard for HOMES modeled projects therefore helps to ensure that contractors do not overpredict savings estimates.

Historically, modeled savings estimates have had difficulty accurately predicting energy savings, as:

- Energy models struggle to capture many complex factors that determine energy savings, including household behavior or modifications made to home since their construction.
- Inputs to energy models can often be subjective such as the R value of existing insulation levels, particularly in areas of existing homes that are not easily accessible.

The BPI-2400 standard aims to ensure that contractors do not overpredict when making savings estimates. In addition, BPI-2400 requires the use of prior energy data, which helps to establish how that individual home uses energy and models the upgrade to correspond to that actual usage.

There are areas where "deemed savings" (estimates of energy savings based on the type of house and installed measure) approaches may be needed. These should be targeted, limited, and require proof that the energy data is inaccessible, such as a homeowner who has lived in the home less than a year or the homeowners use bulk fuels and cannot access their fuel bill data.

Any flexibility must be narrow to meet both the legal requirements of the statute that explicitly requires historical use data and ensure wide access to the program by all homeowners. This includes clear guidance to contractors that they must calibrate the baseline energy use of a home to that home's historical energy use, utilizing BPI-2400 or an equivalent methodology that utilizes the energy bills, unless those narrow exceptions are met and documented.

In implementing the modeled approach, CEC should approve modeling software that is designed to be calibrated with historical energy data, in a process equivalent to BPI-2400 as required in the statute. CEC should ensure access to training on the use of these software tools so that contractors can easily incorporate them into their business models. Furthermore, CEC should review the data as part of their evaluation measurement, and verification (EM&V) process to ensure that contractors that are habitually "over predicting" or "under predicting" receive additional training or are removed from the program. CEC-sponsored webinars that explain the program, the concerns about over predicting, and the need to support accurate savings will help ensure effective contractor implementation of the requirements.

Home Assessments and Energy Audits: In designing the HOMES program requirements, CEC should recognize that the current requirements for home energy audits consistent with BPI-1100/1200 contained in DOE guidance are not consistent with current industry best practices. The IRA statute was deliberately flexible and did not specifically require home energy audits or collection of significant data, as it intentionally used the proxy of historical energy usage (using measured savings or via BPI-2400 for modeled savings). Subsequent revised guidance from DOE has sought to mitigate burdens placed on contractors required to comply with BPI-1100 and BPI-1200 by providing an exception for blower door test requirements, but the overall requirements remain. These DOE home assessment data requirements will ultimately impact the level of participation among the home performance contractor workforce, especially high-quality, high-volume contractors that are key to market transformation.

Many of the data requirements currently reflected in the guidance from DOE do not represent standard practice at either the program or contractor levels, and this will lead to significant costs and programmatic challenges. These costs are also unnecessary to achieve consumer protection and market transformation, as more limited data sets, including historical energy usage, can provide similar assurances with significantly lower administrative and operational burdens. CEC should be prepared to support contractors in adjusting to these difficult and atypical requirements to ensure sufficient participation in the HOMES program.

Weatherization Prerequisites for Heat Pump Installation: CEC should adopt DOE's envelope-first Home Energy Rebate recommendations to protect consumers from significant

increases in energy bills.[1] Per DOE's Program Recommendations page, "DOE strongly recommends states require that [weatherization] need[s] be met before any mechanical or appliance upgrades are considered. For example, states should consider requiring all cost-effective envelope upgrades prior to the installation of efficient equipment." One of the best ways to ensure that projects result in lower energy bills is to promote comprehensive retrofits that combine energy efficiency and electrification.[2] CEC should consider requiring homes installing a heat pump under the HOMES program achieve a blower-door test ACH of no greater than 3 ACH50 to indicate a semi-airtight home. This requirement should include reasonable exceptions for homes built recently, which have received insulation and/or building envelope air sealing upgrades within the last 10 years, or which previously used electric resistance heating (which should see energy bills decrease regardless of insulation upgrades).[3] These safeguards will protect low-income and disadvantaged rebate recipients who, as noted below, bear disproportionately large energy burdens.

Home Certifications: The certification requirement for HOMES rebates under IRA Sec. 50121(b)(4) is one of the most important tools that states can use to create market demand for energy efficiency upgrades that will endure after the program dollars are expended. Properly designed high-performing home certifications are designed to ensure that high-performing homes are appropriately valued at time of sale – this is particularly important to support wealth building in low-income communities. Low-income homeowners typically own energy-inefficient homes and bear the burden of high energy bills. The Home Energy Rebate programs have the potential to transform these homes, significantly reducing energy costs while increasing comfort.

Improved homes should command a price premium on the market, because there are real benefits for an income-constrained buyer to purchase a home that has low, stable energy costs, and is comfortable as well. This clearly benefits the seller: a price premium in the typical range of 2% to 6% found in studies can be particularly valuable for a low-income owner.[4]

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[1] DOE Program Requirements and Application Instructions, dated October 13, 2023, allows states to "require envelope upgrades prior to the installation of mechanical or appliance upgrades." p. 35-36. DOE's Envelope-First Home Energy Rebate recommendations are available at https://www.energy.gov/scep/slsc/home-energy-rebate-program/maximizing-home-energy-performance-when-using-home-energy.

[2] Emily Levin, VEIC. "Equitable Electrification: Solving the Affordability Catch-22 for LMI Households that Heat with Natural Gas." https://www.veic.org/clients-results/reports/equitable-electrification-solving-the-affordability-catch-22-for-lmi-households-that-heat-with-natural-gas.

[3] U.S. Energy Information Administration, "U.S. households' heating equipment choices are diverse and vary by climate region." https://www.eia.gov/todayinenergy/detail.php?id=30672; U.S. Department of Energy, "Heat Pump Systems." https://www.energy.gov/energysaver/heat-pump-systems.

[4] Of the many studies on the link between home value and home certification or labeling, research sponsored by The Institute for Market Transformation, Freddie Mac, Redfin, and Pearl Certification, are particularly relevant; see, respectively, Adomatis 2015: https://www.imt.org/wp-content/uploads/2018/02/HighPerformance_Home_Valuation_Report_Sept2015.pdf, Argento, Bak, and Brown 2020: https://sf.freddiemac.com/content/_assets/resources/pdf/fact-sheet/energy_efficiency_white_paper.pdf, Redfin 2016: https://www.redfin.com/blog/the-top-10-neighborhoods-for-green-homes-in-2016/, Pearl Certification 2017: https://pearlcertification.com/files/reports/Valuation-Study-of-Pearl-Certified-Homes-final.pdf and Pearl Certification 2022: https://pearlcertification.com/real-estate-pros/appraisal-study-4state; see also Brookstein 2020 for discussion of how high-performing homes that are *not* certified do not typically achieve price premiums https://www.elevatenp.org/wp-content/uploads/2022-EE-realizing-the-value-paper-v1.pdf.)

Buyers will also benefit in these circumstances because the sale price premium is likely to be closely related to the monthly flow of energy savings, i.e. the higher monthly mortgage cost should be offset by lower energy bills.

Third party certification is the crux of a viable market for high performing homes and required for the HOMES program by the statute. As part of the Home Energy Rebate programs, CEC should incorporate home certifications which:

- Provide information about the home's specific energy efficient and high-performing features in a form that is accessible and engaging to homeowners and home buyers;
- Communicate the benefits of these features in accessible language;
- Include an asset-based miles-per-gallon metric generated with software based on NREL's residential energy modeling tools. The Home Energy Score should be considered a best-in-class solution in this space, but similar metrics that are based on the same models but require fewer data points should also be acceptable;
- Can demonstrate acceptance from the real estate sector where value is transferred. During the past decade opposition from real estate associations has hindered adoption and implementation of home labeling (not the same thing as home certification) initiatives in several states. It is crucial that the home certifications adopted through IRA be actively and broadly supported by real estate, as the benefits of certification are generated through its use in the real estate transaction.

ii. Aside from ensuring that program participation is a simple process from the resident's point of view and the need to avoid cash outlays, how should the program be structured to support widespread access and uptake in households located in disadvantaged communities or with a low income? How could CEC structure HOMES's pay-for-performance option to reach low-income communities more effectively?

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.[5] This high energy burden correlates closely with race, as well. 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.[6] These vast energy burden gaps will be critical to address via the Home Energy Rebate programs.

Though low-income households face the largest energy burdens, substantial upfront costs make home performance and electrification upgrades extremely challenging. When facing equipment failure during a heat wave or a cold snap, low-income homeowners are often forced to use high-interest credit cards or payday loans for a unit replacement to cover upfront costs for replacements, making high-efficiency, higher-end equipment unattainable.

Low-income households, by definition, lack financial resources. But low-income and disadvantaged households aren't just short on funds–they're also short on time, access to

[5] American Council for an Energy Efficient Economy, "How High are Household Energy Burdens?" September 2020. https://www.aceee.org/sites/default/files/pdfs/u2006.pdf.
[6] Ibid.

technology, reliable transportation, and social supports, all of which help households navigate complex application processes. CEC should engage with existing local community and neighborhood organizations, nonprofits, and trusted local media sources to spread the word about programs, including for non-English speakers

Disadvantaged Community Incentives: The HOMES program includes a $200 rebate per home for contractors completing projects in disadvantaged communities.[7] To maximize contractor project uptake, CEC should ensure there is no cap on these installer rebates. According to the AnnDyl Policy Group Contractor Survey, 23 percent of respondents noted these incentives would directly cause them to pursue more work in low-income and disadvantaged areas–but an additional 36 percent responded it potentially would, depending on if there was a cap on how many times benefits could be claimed.[8]

iv. Leveraging and stacking:

a) CEC has gathered feedback on how electrification incentives could best be leveraged and stacked with existing programs. Are there additional considerations for best leveraging and stacking residential whole house efficiency rebates, like HOMES with existing programs?

Braiding with Weatherization Assistance Program: CEC should work with the Department of Community Services and Development to braid Weatherization Assistance Program (WAP) funding with the Home Energy Rebates to ensure there is maximal coverage and no overlap between the energy measures used for the programs. WAP has a decades-long histories in communities and knows the populations well, including disadvantaged communities. The WAP also has outreach structures in place that the CEC can leverage to ensure the target audience is aware of Home Energy Rebate programs.

d) Which existing program quality assurance, quality control, workforce, or other implementation standards or best practices should be taken into consideration or used as a model?

Contractor Qualifications and Certifications: Quality work begins with an organization's ability to support its workforce. Contractor firms should be evaluated based on their ability to manage the project's sales, design, scheduling, installations, and job close-out processes. Specific credentials of individuals will be dependent on job roles, the types of measures that the contractor firm is qualified to design and install, and the internal systems that the contractor has established to perform quality control and quality assurance.

Contractor certifications are invaluable tools to ensuring consistent quality in home performance and electrification projects. The AnnDyl Policy Group Contractor Survey provided contractors

[7] Per IRA Sec. 50121(b)(5) and Sec. 50122(c)(5)(A)(i).
[8] AnnDyl Policy Group Contractor Survey (conducted November 15, 2022-January 6, 2023). https://anndyl.com/wp-content/uploads/2023/09/AnnDyl-Contractor-Survey-Initial-Results.pdf. 24 percent responded that these incentives would not move the needle—even with that benefit, they believe there are still too many barriers.

across the country with a list of certifications and asked to select all that they would favor to be required of contractors to perform HOMES and HEAR projects. A majority of contractors surveyed (61 percent) noted they believed BPI Building Science Principles, Building Analyst, Infiltration, and Duct Leakage certifications should qualify contractors to perform HOMES and HEAR projects, while 30 percent selected ACCA and/or NATE certification for HVACR and 25 percent selected RESNET Home Energy Rating Specialist and Rating Field Inspector. Other responses included Home Energy Score assessor (18 percent), HEP Energy Auditor and Quality Control Inspector (18 percent), and Healthy Home Evaluator (13 percent).[9]

The vast majority of residential home performance, general construction, HVAC, or plumbing are small non-union businesses.[10] 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, utility providers, workforce development programs, community action agencies, and others can convene to communicate and fill gaps.

For more information, see the Building Performance Association's response to the U.S. Department of Energy's workforce RFI here, co-signed by over 150 other companies and organizations.[11]

Workforce Training: The 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.[12] Occupations that will be responsible for delivering HOMES and EBD projects are already in immediate need of technicians and qualified help. Contractor companies and building owners/managers report the following occupations as in the greatest demand:

- Energy Auditor[13] (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

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[9] AnnDyl Policy Group Contractor Survey (conducted November 15, 2022-January 6, 2023). https://anndyl.com/wp-content/uploads/2023/09/AnnDyl-Contractor-Survey-Initial-Results.pdf.

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

[11] The Building Performance Association (BPA) and Home Performance Coalition (HPC) submitted joint comments to DOE related to DE-FOA-0002885. Full comments available at https://building-performance.org/wp-content/uploads/2023/01/1.26.23-BPA-HPC-DOE-Workforce-RFI-Response.pdf.

[12] 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.

[13] 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.

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 E4TheFuture's 2022 Energy Efficiency Jobs in America Report, 76 percent of energy efficiency businesses nationwide featured fewer than 20 employees.[14] 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 energy efficiency exceeds the median hourly wage across the US economy ($19.14) by about 28%.[15] 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.[16] More senior positions requiring additional knowledge, competency, and skill sets feature higher wage rates.

Home 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%).[17]

CEC should therefore ensure workforce funding dollars support an "all-of-the-above" approach to provide maximum flexibility to 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

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[14] E4TheFuture, 2022 Energy Efficiency Jobs in America Report. https://e4thefuture.org/wp-content/uploads/2022/12/EE-Jobs-in-America_All-States_2022.pdf.
[15] 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.
[16] 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/.
[17] AnnDyl Policy Group Contractor Survey (conducted November 15, 2022-January 6, 2023). https://anndyl.com/wp-content/uploads/2023/09/AnnDyl-Contractor-Survey-Initial-Results.pdf.

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.

Examples of Successful Programs

Minnesota – The Center for Energy and Environment[18] 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.

New York - NYSERDA[19] 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.

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/

b. Rebate determination approach and rebate values.

i. What are the advantages and drawbacks of program design using the fixed costs versus pay-for-performance method? Can the pay-for-performance method effectively serve low-income households?

[18] https://www.mncee.org/career-training

[19] On-the-Job Training for Energy Efficiency and Clean Technology (PON 3982) , https://portal.nyserda.ny.gov/CORE_Solicitation_Detail_Page?SolicitationId=a0rt000000MdOBsAAN

A performance-based approach – as both the modeled and measured pathways under the HOMES program are designed – maximizes the energy savings benefits of the program for individuals and communities. Pay-for-performance methodologies ensure that contractors are incentivized to ensure that homeowners save energy, resulting in lower energy bills and stronger results – in energy saved, emissions avoided, and potentially the number of households receiving benefits – than fixed cost models.

ii. What are the options to manage and allocate performance risk and financing costs during the 9 to 12-month post-installation period prior to issuing the rebate? Options should consider at a minimum that: low-income households are not required to utilize personal funds to pay for rebated work, the inability for many contractors, installers, or small businesses to "float" rebate costs, and the cost of capital for aggregators (or some designated entity) to float those costs.

Measured and Modeled Pathways Provide Flexibility for Contractors and Homeowners: CEC should offer both the measured and the modeled energy savings pathways to provide maximum flexibility for homeowners and contractors. The measured energy savings pathway[20] aligns incentives for homeowners, contractors, and aggregators because of the accountability for work quality and accurate savings predictions taken on by aggregators. It also allows for potentially higher rebates for homes with the highest energy usage, such as leaky, poorly-insulated homes. The modeled program complements the measured pathway by providing alternatives which can more easily braid with HEAR rebates for all appliances. Both pathways leverage historical energy data to ensure accuracy. To maximize program uptake, CEC should implement both programs.

Under the measured pathway, households receive rebates from aggregators at the point of sale, while program administrators pay program aggregators over a year or more based on actual performance of a portfolio of projects. If aggregators do not achieve energy savings for low-income households, they do not get paid. Adopting the measured energy savings pathway will ensure third-party aggregators take on performance risk, aligning key incentives to support utility bill reductions for homeowners.

CEC should consider open source methodologies such as CalTRACK and open source software such as OpenEEmeter, which have been used by program administrators to calculate energy savings and associated impacts, including peak energy reductions and greenhouse gas emissions reductions. Open source methodologies and software will also enable homes that participate in the HOMES program to become part of large Virtual Power Plant ("VPP") networks, with price signals being sent to aggregators based on peak energy consumption times.

Utility Data Access is Critical to Support Contractors, Aggregators, and Homeowners: Access to utility data will be critical to both the measured and modeled pathways under the HOMES program. BPA refers CEC to consider draft guidelines from Mission:Data that affirm a customer's right to share their energy data with any entity they wish, while simultaneously adopting common-sense measures such as uptime requirements to prevent bad-faith actors from

[20] As laid out under IRA Sec. 50121(c)(2)(A)(iii), Sec. 50121(c)(2)(B)(iii), and Sec. 50121(c)(2)(C)(iii). For more information on the Measured Savings Pathway, see comments from Sealed, Inc. and Recurve.

pretending to implement Green Button Connect while undermining its operation in practice. The guidelines are linked here.[21]

d. Income Verification.

i. What approaches should CEC consider to verify individual household income that are efficient and accurate, safeguard information, and create a minimal burden for residents? Please provide examples of other programs and why you consider them effective models?

Many existing low-income programs (e.g. SNAP, LIHEAP, LIHWAP, TANF) are administered by the Department of Social Services and the Department of Community Services and Development - so California already has an excellent resource for identifying and certifying households that are low-income and should be deemed categorically eligible for higher-value HOMES rebates. Duplicative verification requirements can be mitigated by relying on categorical eligibility for already existing income-qualified programs. Categorical eligibility makes it easier for customers and contractors to be certain of rebate eligibility as well.

Allowing households to self-attest to their program eligibility and income level is a powerful tool to simplify the application process, avoiding the single most onerous requirement of most means-tested programs, which is providing documentation to prove income. The prompt to upload documents generally causes the vast majority of applicant drop-off in online applications.

- As an example, in many areas, a household with only Social Security income would fall under 80% of the AMI, even if that household receives the maximum benefit. Administrators should be thoughtful about designing these kinds of shortcuts and allow as many applicants as is reasonable to self-attest to statements like "My only income is Social Security" that would automatically qualify them for rebates.
- Because programs allowing self-attestation require applicants to certify under penalty of perjury, and retain the right to audit and obtain documentation later, they are able to keep fraud low while dramatically reducing the burden of applying. The US Water Alliance published a case study on the success of a relief program in Louisville, KY that used self-attestation of income and was able to dramatically speed the distribution of funds as a result.[22]

[21] http://www.missiondata.io/s/20230209-Missiondata-DOE-data-portability-guidelines_final.pdf.
[22] US Water Alliance, "Modern, Effective, and Compassionate Billing: How Louisville Made an Overdue Upgrade to Assistance Programs and Improved the Utility Customer Relationship," 2021, https://uswateralliance.org/wp-content/uploads/2023/09/FINAL-Louisville-case-study_1.pdf