Quality Installation in the Home Energy Rebates Program (IRA Sections 50121 and 50122)

October 30, 2024

Introduction

The Inflation Reduction Act includes two provisions authorizing $8.8 billion in home energy rebates: Section 50121: Home Efficiency Rebates ("HOMES") and Section 50122: Home Electrification and Appliance Rebates ("HEAR"). Together, these provisions are referred to as the Home Energy Rebate Programs.[1] They provide an unprecedented opportunity to help American households improve energy efficiency and upgrade to clean energy equipment, with an overarching goal of accelerating the transition to more affordable, efficient, resilient, and low carbon homes. However, proper installation of rebated products (i.e., appliances and building materials) will be essential to ensuring that households realize the energy bill savings, improved comfort, and improved air quality that these upgrades can provide. As part of the federal HOMES and HEAR Program requirements, states and territories ("states")[2] who will design and implement these programs are required to develop and continually improve their quality installation ("QI") and quality assurance or quality control ("QA/QC") procedures.

Establishing an Effective Approach

Per Program Guidance, states **must** address the following:

- **Qualified Contractor Enrollment:** For many of the eligible product categories, installation must be completed by a contractor on the state's qualified contractor list.[3] To that end, each state will be responsible for detailing the minimum requirements (e.g., certifications, licenses, training) for inclusion on their state's qualified contractor list and for developing an approach to attracting and engaging contractors that are able to implement high-quality home upgrades and collect the necessary data associated with each install. For example, states may choose to enroll contractors trained as part of their Training for Residential Energy Contractors ("TREC") Program.[4] Ultimately, each state will be responsible for establishing and executing participation agreements with qualified contractors who commit to complying with the program's QI and QA/QC requirements.[5]
- **Installation Standards by Product Type:** In addition to ensuring that all rebated work complies with local and state laws, permits, and codes, states are responsible for establishing minimum QI standards for

[1] See Program Requirements. https://www.energy.gov/scep/articles/home-energy-rebate-programs-requirements-and-application-instructions
[2] For the purposes of this document, "states" means, collectively or individually, the 50 states, the District of Columbia, the Commonwealth of Puerto Rico, the U.S. Virgin Islands, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands.
[3] See Program Requirements, Sections 3.2.5 and 4.2.5.
[4] See TREC website. https://www.energy.gov/scep/training-residential-energy-contractors-grants-formula
[5] See Program Requirements, Sections 3.2.5 and 4.2.5, and the Consumer Protection Plan Required Elements and Sample Responses. https://www.energy.gov/scep/articles/home-energy-rebates-ira-sections-50121-and-50122-consumer-protection-plan-required

rebated products.[6] States should clearly communicate these standards to their qualified contractors, as well as other program participants, and must enforce them via QA/QC processes that allow the state to verify and document compliance.[7] Notably, some eligible HEAR product categories allow for do-it-yourself ("DIY") installation.[8] States should carefully consider creating QI guidance for DIY consumers as well as increased oversight for these projects.

- **Program Oversight via Photos & Inspections:** Establishing a strong QA/QC protocol is key to protecting consumers and delivering real energy, cost, and emission savings. Both the HOMES and HEAR programs require states to ensure independent oversight[9] of rebated upgrades by collecting geotagged photos of installed rebated products [10] and conducting installation inspections to verify proper installation.[11]
- **Continuous Improvement:** As with all aspects of program delivery, states should plan to evolve their QI and QA/QC protocols over time[12] based on program participant and market feedback, post-installation inspection results,[13] consumer satisfaction surveys,[14] and other factors.

While designing HOMES and HEAR programs, DOE **recommends** states consider the following practices:

- ✓ **Start with a strong understanding of the program requirements.** HOMES and HEAR federal requirements may differ significantly from those established for other state-run programs. States should consider beginning all QI planning activities with a thorough review of the requirements listed here and in program guidance documents (e.g., Program Guidance & Application Instructions, Consumer Protection Plan Required Elements, Data & Tool Requirements Guide).[15]
- ✓ **Leverage the knowledge and resources of existing program administrators and their implementers.** Many utility-administered energy efficiency programs have QI protocols that have evolved based on market feedback and lessons learned over the course of many years. In addition to sharing best practices, coordination with existing program administrators can help states maximize opportunities for QI education (e.g., via existing webinars and newsletters) and minimize duplicative QA/QC efforts (e.g., multiple inspections of the same household).
- ✓ **Trust and incorporate market feedback.** As technical experts with a vested interest in the long-term success of clean energy products, manufacturers and distributors can become invaluable partners to states who seek their perspective on QI standards and resources. States should consider seeking the input of supply chain partners and should consider working with these critical market actors to amplify messages regarding program expectations, to plan and co-lead contractor trainings, and to help address any negative installation trends identified during inspections.

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[6] See Program Requirements, Sections 3.2.5 and 4.2.5. https://www.energy.gov/scep/articles/home-energy-rebate-programs-requirements-and-application-instructions
[7] See Program Requirements, Sections 3.2.5 and 4.2.5.
[8] See Getting Started: Launching a Retail-Focused Home Electrification and Appliance Rebates Program (IRA Section 50122) Section Program Design Flexibility. https://www.energy.gov/scep/articles/getting-started-launching-retail-focused-home-electrification-and-appliance-rebates
[9] See Program Requirements, Sections 3.2.5, 3.2.6, and 4.2.5.
[10] Where a retailer or distributor is reimbursed with a rebate, a state program can comply with post-install photo requirements by either collecting and retaining geotagged photo(s) of product delivery or by requiring an agreement by the household that received a rebate to provide photos upon request. See Program Requirements, Section 4.2.5.
[11] See Program Requirements, Sections 3.2.5 and 4.2.5
[12] States must review their Consumer Protection Plan at least every two years, adjust based on lessons learned, and communicate changes to contractors, aggregators, third-party inspectors, and DOE, as noted in the Consumer Protection Plan Required Elements and Sample Responses. https://www.energy.gov/scep/articles/home-energy-rebates-ira-sections-50121-and-50122-consumer-protection-plan-required
[13] See Program Requirements, Sections 3.2.5 and 4.2.5.
[14] See Program Requirements, Sections 3.2.5 and 4.2.5.
[15] See Home Energy Rebates Application Guidance homepage. https://www.energy.gov/scep/home-energy-rebates-application-guidance

- ✓ **Be clear! Contractors don't like surprises.** Simplified QI messaging and materials can help ensure that everyone reviews and understands program expectations. States should consider leveraging field-based tools that walk contractors through required steps and/or developing simple QI checklists that can be used throughout program delivery (i.e., posted to publicly to the website, provided to contractors as a part of participation agreements, and used by independent third-party inspections post-installation). Clear, straightforward resources can help ensure consistency in the messaging of expectations across market actors.
- ✓ **Prioritize consumer education.** In addition to ensuring the Consumer Protection Plan is readily accessible, states should consider the importance of making standalone QI resources available to consumers. Clearly messaging the value and limitations of utilizing the state's qualified contractor list, promoting best practices for working with contractors (e.g., via a "Questions for Your Installer" resource), providing QI guidance for DIY product installations, and highlighting health and safety considerations will be essential to empowering consumers to make informed decisions. States should consider how the DOE's Consumer Bill of Rights template can serve as a starting point for consumer education and be used as a tool to deliver crucial QI messaging.
- ✓ **Take full advantage of promotional opportunities.** Post-installation inspections and photos can be used as powerful tools to identify installation best practices, understand current training needs, and address issues with individual contractors. States should consider how they can use this critical information to drive long-term improvements, including by reviewing and sharing out installation tips via program newsletters, webinars, and direct meetings with participating contractors.
- ✓ **Explore innovative approaches.** The energy efficiency and electrification markets are evolving; new approaches (e.g., remote assessments, virtual HVAC system sizing software) have the potential to help improve the quality of installation while driving down the necessary time and costs. States should consider how an increased focus on supporting the workforce can serve broader market transformation efforts.

Leveraging Federal Resources

Energy Skilled Credentials

Interested states may consider requiring one or more DOE-recognized credentials for Heat Pump Installation, Heat Pump Comfort Advising, Heat Pump Water Heater Installation and/or Home Energy Audit during qualified contractor enrollment. Training and certification programs recognized as Energy Skilled™ prepare workers for meaningful and in-demand jobs in building energy efficiency. The list of Energy Skilled-recognized credentials expands on a rolling basis, offering many options for states. More information can be found here: Energy Skilled Recognition | Building Science Education.

PNNL Quality Install Tool

Interested states may consider utilizing the Pacific Northwest National Lab ("PNNL") Quality Install Tool to help standardize QI verification and documentation processes. This optional tool uses photo-based prompts throughout installation and automatically generates a Quality Install Report PDF that can be saved, emailed, or printed. A sample view of the tool is shown below in Figure 1. More information can be found here: Quality Install Tool | PNNL

Key Features for Consideration:

- **Customizable**: The PNNL Quality Install Tool operates as a publicly accessible open-source web app that runs on any device with a modern browser. States can work with DOE and PNNL to develop their own version of the tool, adding or removing products based on program focus, include state-specific language, account for regional and market differences, and more. Interested states should contact their Project Officer to request time to discuss modifications.

- **Photo-Driven**: The tool is primarily driven by photo prompts that guide contractors to document install details and test results. This feature can provide states a means to clearly communicate pre- and post-installation photo expectations and to securely capture and store geotagged photos.
- **Maintained and Updated**: PNNL continuously improves and updates the tool to keep it current to industry needs and make it expandable to include new upgrade technologies. Users can sign up for announcements to stay up to date on new version releases here: Quality Install Tool Mailing List | PNNL .

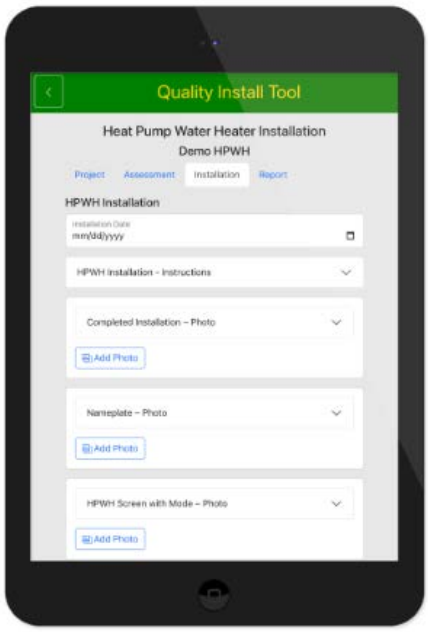

Image by Edward Louie | Pacific Northwest National Laboratory

Figure 1. Sample View of Quality Install Tool

Additional Resources for Consideration

- Building Science Education | Building Science Education (energy.gov)
- ENERGY STAR HVAC Quality Installation Program Fact Sheet
- Home Improvement Expert™ Home | Building America Solution Center (pnnl.gov)
- Quality Work Plan: Standard Work Specifications Requirement | Department of Energy
- Weatherization Assistance Program (WAP) Workflows