

**American Council for an Energy-Efficient Economy (ACEEE) Response to  
DOE RFI on IRA Home Efficiency and Electrification Rebate Programs**

**March 3, 2023**

**A. Respondent Contact Information**

*1. Please provide your contact information, including your name, organization, type of organization (state government, non-profit/community organization, individual, etc.), phone number, and email address.*

Lowell Ungar, Jennifer Amann, and Steven Nadel,  
American Council for an Energy-Efficient Economy, non-profit organization,  
(202)507-4000, [LUngar@aceee.org](mailto:LUngar@aceee.org), [JAmann@aceee.org](mailto:JAmann@aceee.org), [SNadel@aceee.org](mailto:SNadel@aceee.org)

We also refer throughout to the responses submitted by the National Housing Trust in association with other organizations and by the Energy Efficiency Strategy Group (EESG).

**B. Accessible and Equitable Program Design**

*2. What best practices can program administrators and other relevant stakeholders (e.g., retailers, contractors, or community-based organizations) use to ensure that disadvantaged communities and low-income households are aware of and have easy access to the Home Energy Rebate programs?*

DOE and the states should work with community-based organizations that serve various low-income and disadvantaged communities in the design and implementation of the rebate programs and should compensate the CBOs for their participation. It will be important to design the programs to meet the needs of low-income homeowners and affordable rental units (*for the latter see the many recommendations in the comments of the National Housing Trust*).

Per question 22, states should also consider set-asides for multifamily buildings and for low-income and other disadvantaged communities to ensure the programs serve those markets—even if they are less ready immediately to take advantage of them.

*3. How can DOE encourage program administrators to design their rebate programs to align with the Justice40 Initiative, which commits to delivering forty percent of the overall benefits (home improvements, jobs, etc.) from certain federal investments to disadvantaged communities that are marginalized, underserved, and overburdened by pollution?*

*See our answer to Q2*

*4. How can DOE and program administrators ensure that community-based organizations, residents of disadvantaged communities, renters, and marginalized groups such as low-*

*income residents, residents of color, rural residents, and Tribal residents are meaningfully engaged for the Home Energy Rebate programs? What other groups should be included?*

*See our answer to Q2*

*6. What types of program design approaches, guidelines, tools, savings analyses, policies or reviews can help discourage contractors from using rebates for upgrades that will likely result in higher annual household energy bills, particularly for low-income households?*

Higher bills are only likely to be an issue for rebates for heat pumps that replace gas furnaces and that are not part of broader home retrofits that reduce heating load (or for heat pumps that provide air conditioning in homes that had been without it). Programs should encourage or require broader retrofits (which may be sequential) that at least ensure good insulation and air sealing along with heat pumps in order to reduce bills. However, skilled installation of both heat pumps and insulation is important to obtain the efficiency benefits and prevent other problems, and often contractors are not trained and certified to do both. Programs may need to provide training, encourage contractors to work together, and require appropriate certifications in order to provide beneficial electrification under the Home Electrification Rebates.

Consumer education also is important to avoid energy bill surprises. DOE should consider providing a web-based tool to estimate changes in energy bills for heat pumps replacing furnaces. Similar to a Home Energy Score but with less detailed information required, contractors could enter the location, basic home information, existing heating information, existing fuel bill, and proposed new heat pump model (and perhaps information on existing and new insulation and air sealing if those are changed), and the tool could use that information and local utility rates to provide a rough estimate of energy bill impacts to inform homeowners considering electrification. While likely not as accurate as a home energy audit, this should provide some consumer protection from unforeseen energy bill increases for projects without more detailed home modeling.

*7. What types of policies or requirements can be used to ensure that owners of rental properties receiving rebates targeted for low-income households continue to offer affordable rents for a reasonable time after improvements are made? How might DOE also incentivize multifamily affordable housing property owners to participate in these programs?*

The balance between encouraging rental unit owners to upgrade properties and protecting low-income renters from rent increases is tricky and should be considered in state plans. We would suggest that for rebates above a threshold amount, states require landlords to continue for a period of time the affordability provisions they used to qualify for the rebates. Thus, if a landlord demonstrated meeting the rebate income caps by their participation in a federal or state assistance program, they commit to continuing to meet the requirements of that program. If a landlord not under rent restrictions demonstrated meeting the caps with rental rolls (per answer to question 37), they would commit to keeping their rental rolls within the limitations for a period of time. Home Efficiency Rebates without the LMI adder and thus with no income cap would have no such restrictions.

The period of affordability restriction could be based on the amount of the rebate. For example, no restriction for rebates up to \$2,000 per unit; for rebates above that amount, one year for every \$2,000 per unit (e.g., four years for an \$8,000 per-unit rebate and seven years for \$14,000 per unit).

*10. For federally subsidized, low-income housing, what specific program design parameters are necessary to ensure rebates can be used at these properties?*

*See National Housing Trust response*

*11. What quality control measures are needed to ensure that contractors practice safe and healthy homes best practices, and that projected savings are achieved?*

Contractor certifications provide assurance that contractors have completed training and passed skills assessments to perform quality home efficiency and electrification projects. DOE should provide states with a list of approved certifications for contractors participating in the Home Energy Rebate programs. Approved certifications for the rebate programs should align with certifications approved for the IRA-funded Contractor Training Program. *See the Energy Efficiency Strategy Group responses to Q6 for more specifics on criteria for certification programs.*

Certification requirements support adequate preparation for delivering best practices that align with standard work specifications. Post-installation data collection as well as inspections on a sample of completed projects are needed to ensure project savings are achieved. Site inspections can catch and address fraud and abuse while also providing a mechanism for identifying underperforming contractors who would benefit from additional training and recertification. DOE could support quality control and assurance by providing states with guidelines for establishing an effective system. Effective systems would include inspections on a percentage of completed projects (including remote inspection options where feasible), project tracking, data collection and reporting, and contractor retraining. DOE could also develop (or approve vetted private software) designed for tracking key project data to allow national tracking of project outcomes.

#### **D. Designing Programs for Maximum Impact**

*17. What evaluations of similar programs exist that can provide lessons learned and recommendations for effective program guidance, support, and best practices?*

**Transparent and well-defined program standards:** This [case study](#) of the Arizona Public Service Home Performance Program highlights how the use of standard work specifications along with data collection and transfer standards (HPXML) increases project quality and consistency, simplifies program processes, and improves contractor performance and satisfaction.

**Customer engagement and program access:** This [case study](#) of the Fort Collins Utilities Efficiency Works Homes Program provides valuable lessons learned for engaging homeowners and simplifying the process of home energy retrofits by offering streamlined services that increase project completions and energy savings.

**State-level consumer rebates:** [Program evaluations](#) for the ARRA-funded State Energy Efficient Appliance Rebate Program provide valuable insights into experience from this program, which provided nearly 1.8 million rebates across the country.

*18. How should DOE, states, tribes, and territories measure success? Examples may include high customer satisfaction, measured or estimated benefits (e.g., impacts on energy, bills, emissions, health, or peak demand), quality job creation, valuation of home upgrades or overall efficiency, etc. What specific data is needed to evaluate progress toward these recommended metrics of success?*

DOE guidance should include requirements for data collection on priority program objectives as well as recommendations for tracking data on additional objectives aligned with state program objectives. Data required for priority objectives include:

- Program participation: total projects completed under each program and projects completed in disadvantaged communities; measures included in each project
- Estimated energy, energy bill, and emissions savings: post-installation savings for Home Efficiency Rebate projects or deemed savings values for Home Electrification Rebate projects
- Job creation: complement USEER tracking with state reports on documented job creation results
- Customer satisfaction and related benefits: require states to provide participant contact information to DOE for independent surveys on customer satisfaction and related customer benefits and attributes
- Market transformation effects: metrics to track longer-term market transformation including sales of products by efficiency level, growth in number of contracting businesses, and leveraged investment.

DOE could support longer-term tracking of program outcomes by providing a uniform data reporting tool (or guidance for compatible data tools) using HPXML to facilitate state-level reporting, national impacts tracking, and cross-state comparisons.

*19. What data should program administrators and DOE collect throughout the program for the purposes of evaluation? What evaluation protocols should program administrators and DOE put into place before program implementation begins?*

*a. How often should program administrators be required to evaluate program performance? How often should DOE evaluate the program?*

*b. What specific data is needed to evaluate program success in reaching disadvantaged communities?*

See answer to Q18. States should report basic data to DOE on an ongoing basis or at least every six months. DOE should plan on a process evaluation after one year and more comprehensive evaluations every two years.

*20. How should these programs be designed to spur durable market demand for efficient and electrified homes? How can program designs best assure continued funding and financing for home efficiency and electrification improvements even after these funds have been depleted?*

Helping to train and develop the retrofit workforce will contribute to a sustainable industry. This includes training contractors on best practices for selling efficiency and electrification retrofits, as well as in choosing the best measures for a home and in doing quality work.

Integrating retrofits into home improvements that owners undertake for other reasons will help create a continuing source of demand, including replacement of HVAC and water heaters at end of life, at time of home purchase or refinancing, and in home renovation projects. For affordable multifamily buildings, project refinancing and capital needs assessments provide a key opportunity (*see the National Housing Trust response to Q28 for additional details*). At these times the home/building owner has already decided to take action and might be amenable to expanding the boundaries of the action or to choosing better products. State programs should seek to become integrated into these decision points so that home energy retrofits start to become standard business practice at these times.

In addition, even while there is substantial IRA funding, programs should seek to integrate it with other funding (e.g., utility incentives and loan financing) not only to fill in gaps and complement the federal funding but also to encourage these funding flows so they can continue when the IRA funds are used up.

We recommend that DOE ask states to include as part of their plans how they will spur durable market demand. In addition, DOE should require states to report annually on what they have done to leverage other funding and the success of those efforts.

*21. Based on past successes, what practices and/or policies should program administrators use to drive higher energy savings per rebate dollar invested (e.g., measure bundling, order of installation, home characteristics, or sizing equipment after insulation/sealing)?*

In general, states should develop programs that tailor the strategies listed for their housing market, housing stock, climate, etc. Some programs have achieved greater bundling by offering incentive bonuses for more comprehensive projects. While IRA establishes specific incentive levels, it does give states flexibility to increase incentives for affordable housing. States could be encouraged to use this flexibility for bundled/comprehensive retrofit projects. States can also encourage phased projects where first one retrofit is done and then perhaps a year later a follow-up project is done. Ideally the efficiency retrofit should be done first to enable subsequent HVAC electrification without increasing energy bills and with a smaller sized and thus lower cost system. However, if there is a backup heating system the reverse could be done, with a heat pump coming first and then the efficiency retrofit to reduce loads and increase the share of heat coming from the heat pump.

*22. Should program administrators establish set-asides or limits concerning the distribution of the rebates (e.g., bundled packages, disadvantaged communities, income or other definitions, incumbent heating fuel in the home, high-impact measures)?*

*See National Housing Trust response*

*25. How can programs ensure effective consumer education and outreach? What types of tools and/or materials should DOE develop to support consumers in understanding how to maximize the benefits of these programs?*

DOE can prepare guidelines and model materials that states can use and brand. Key materials include worksheets and calculators to help contractors and consumers identify all of the federal funding/programs for which they qualify. These tools should be easily customizable so states can add other funding sources (e.g., state tax incentives, financing programs, utility incentives, etc.). All materials should be available in high-quality translations to serve the needs of non-English speakers.

*26. What program design requirements are necessary to support increased investment in new business models, with the long-term goal of sustained financial and market investment and accelerated market adoption?*

States should allow both modeled and measured savings approaches to encourage development and growth of a variety of project delivery models. Guidance should be focused on program/project outcomes while leaving adequate flexibility to encourage innovation. See EESG comments for details on supporting development of promising measured savings business models.

*27. While the electrification rebates allow for application in both new construction and existing buildings, are certain uses more likely to deliver greater benefits? For example, should electrification rebates focus primarily on existing buildings where such improvements are less likely to happen without additional funds? Are there important other applications (e.g., new construction of affordable housing, other?)*

We recommend that state promotion efforts target existing buildings and affordable housing new construction as these are where the funds are most needed. DOE should encourage states to target these uses. However, under the law states may make all new construction eligible even if promotion efforts do not target these homes.

## **E. Integrating Existing Incentives & Programs**

*28. How can DOE encourage program administrators to build on and coordinate these funds with existing networks and programs to maximize impact? Other programs may include state energy efficiency Revolving Loan Funds (RLF), utility energy efficiency programs, U.S. Department of Health & Human Services Low Income Home Energy Assistance Program (LIHEAP), Weatherization Assistance Program (WAP), tax incentives, among other funding sources.*

*a. What guidance is needed from DOE to make this successful?*

*b. How should DOE encourage program implementers to design and implement rebate programs to leverage other resources and/or provide seamless services (e.g., through housing finance agencies (HFAs), state RLFs, WAP, or other complementary programs)?*

*c. What concerns and risks should DOE be aware of in introducing these programs into existing programs and networks? How can program administrators prevent the layering of federal, state, and local incentives whose combined value is greater than that of the product being purchased?*



See EESG response

*29. What are potential barriers to effective program energy savings attribution? Are there best practices to address these barriers?*

In our view, seeking to divide credit for savings between the federal programs and other factors is not worth much effort (though it may be necessary for evaluation of utility programs that add incentives for the same projects). What is worth some effort is identifying the types of applications where “free rider” levels are high and seeking to move promotion efforts away from these applications and towards applications where additional funding will have a greater impact because free rider levels are lower (free riders are program participants who would have taken an efficiency or electrification action even if there were no incentives). There will be some free riders, but promotion efforts should seek to reduce the proportion of free riders.

*30. What safeguards can DOE and/or program administrators put in place to ensure that low-income households are optimally served through various available programs (e.g., Home Energy Rebates, WAP, or other low-income weatherization programs)?*

States should be required to make referrals to the WAP program for income-eligible customers. For WAP-eligible customers, the WAP grant will often be a better deal for home energy retrofits since WAP pays 100% of costs and Home Efficiency Rebates are capped at 80%. However, many states have waiting lists for WAP, and therefore for some households participation in the Home Energy Rebate programs will be preferable to waiting a long time for WAP services. Joint marketing to and income verification for low-income households, and partnerships with community-based organizations, could also help ensure low-income households use the best programs for their needs. In some states the community action agencies and contractors that implement WAP could also be a delivery vehicle for Home Energy Rebates, and WAP could be used for different measures in the same home (e.g., a heat pump and envelope improvements) in order to carry out more comprehensive improvements.

*31. What safeguards can program administrators put in place to ensure local utility rebates and other local funding that existed before the Home Energy Rebates are not decreased in response to the availability of the Home Energy Rebates?*

States should not use federal funding as an excuse to reduce total state and utility energy efficiency funding or simply to displace local funds—that would be against the purpose of the federal programs. Utility and local funding will often be useful to complement the federal grants, and DOE should encourage states to identify gaps and seek to fill them with state, utility and local resources. That said, DOE should not bar all cutbacks to residential retrofit programs; some states and utilities may move energy efficiency funds to other important energy efficiency objectives. State plans should include plans on coordination with existing state, utility, and local programs and intent on future funding.

## **F. Opt-In Tools, Resources, Technical Assistance, and Partnerships**

34. *Are there any program components that DOE should provide nationally to avoid duplication of effort and/or encourage consistency?*

Work on income verification will be very helpful, as discussed in Q37.

Reporting templates for program and project outcomes as discussed in Q18.

Consumer education and guidance as discussed in Q25.

## **G. Income Verification**

37. *What types of documentation should be considered sufficient for rebate applicants to demonstrate that they meet income eligibility requirements (e.g., prior year tax return, verification of other federal benefit program eligibility, or recent paystubs)?*

a. *What are common barriers to effective income verification for LMI households and what industry practices are less effective or should be avoided?*

b. *How long should a household's determination of eligibility last?*

c. *Are there examples of programs that have demonstrated high levels of compliance while allowing self-attestation to establish income eligibility?*

d. *Some programs determine income eligibility by address, such as if 80 percent of more of the census tract has a certain income. What are the benefits and drawbacks of this approach?*

e. *How can program administrators prevent duplicative document or verification requirements?*

This is an issue of great concern to program implementers; income verification must be easy if the programs are going to work. However, income verification by contractors may be unreliable and raises privacy concerns. No single approach will work in all cases, and thus we recommend that DOE pre-approve multiple methods and that states use a combination. New Jersey utilities have adopted a common approach:

- Homeowners in census tracts in which most residents meet the income cap can self-certify based on a table of qualifying incomes in that area. A program could also use Qualified Census Tracts under the LIHTC program, though that may be unduly restrictive, or zip codes instead of census tracts to ease identification.
- Homeowners can demonstrate that they have qualified for income-based programs with similar or more restrictive qualification levels, such as the Weatherization Assistance Program, Low-Income Home Energy Assistance Program, Supplemental Nutrition Assistance Program, Temporary Assistance for Needy Families, Section 8 Housing Assistance, and Supplemental Security Income. Data sharing between these programs and the rebate implementer could facilitate verification that homeowners have qualified for them. But implementers in some states may be prohibited from asking about federal assistance.
- Homeowners in neither of the above categories can document their individual income. This might best be done with a federal or state online system using the previous year's tax return if available, pay stubs, or documentation similar to that required for other assistance programs; it would be facilitated if the system has real-time access to tax returns (like the FAFSA student aid form). The building



contractor could only see whether or not the household was verified as meeting the requirements.  
However, states with other systems that can provide the needed income verification should be able to use them.

Multifamily buildings with federal or state assistance should easily be able to show that they are in a program that requires tenants to meet the income qualifications. As documenting resident income may be impossible for other multifamily buildings, they should be able to qualify based on rents being affordable for tenants at the income qualification levels. The National Housing Trust comments include additional details on this pathway.

*38. If DOE established a national income qualification system that program administrators could opt into using, what features would be most useful? What features would be duplicative of existing systems?*

*See response to Q37*

*39. What are successful approaches for determining income qualification for a household in existing state and tribal programs?*

*a. Are any of these applicable to varied levels of income (e.g., less than 80% area median income (AMI); 80-150% AMI)?*

*b. Is it possible to easily modify existing approaches/tools to verify income at new levels (e.g., 80-150% AMI)?*

*c. What eligibility criteria exist that DOE should consider as categorically eligible?*

*d. Within existing multi-family programs, how is income verification required to be provided or confirmed by the building owner?*

*See response to Q37*

## **H. Estimating and Measuring Energy Savings**

*40. For the Home Efficiency Rebates, how should DOE support program implementers in selecting, developing and implementing the modeled and/or measured energy efficiency path? What factors will drive decisions to implement a modeled program, a measured program or both programs?*

To support robust and durable long-term market transformation, DOE should encourage states to implement both modeled and measured performance paths. See *EESG response to this question for recommendations on DOE guidance and support.*

*41. What have evaluations found to be key drivers of success in accurately modeling or predicting energy savings?*

Calibration of models to actual energy bills has been shown to significantly improve the accuracy of predicted energy savings; see <https://www.aceee.org/blog/2015/10/lower-savings-predicted-try>. At the very least, modeled savings programs should be required to calibrate models to actual energy bills following ANSI/BPI-2400 where applicable.

44. Do you have any recommendations for applying BPI 2400 per the legal requirements of the Home Efficiency Rebates?

See National Housing Trust's comments on multifamily housing until added to BPI 2400.

### **I. Eligible Technologies for Rebates**

47. The Home Electrification Rebates specifies that qualified electrification projects must include the purchase and installation of certain equipment or materials. Should other related improvements (e.g., smart thermostats, sensors and controls, LEDs) be allowable as part of a qualified electrification project for the purposes of calculating total project costs which can in turn affect the final rebate amount?

We support including smart thermostats, sensors, and controls in qualified electrification projects as an important part of the installation of specified equipment such as heat pumps. For example, for hybrid heat pump/furnace systems, sophisticated controls are needed to optimize which of the two systems operate at a given point in time. LEDs are not an electrification measure and, given federal minimum standards for general-service lighting, installation of LED lighting should not be included as part of qualified projects.

48. Should rebates be allowed in instances where use of the rebate-eligible equipment or measure is already required by local code?

DOE should not bar rebates based on state or local codes. This is a different situation than utility programs that focus on above-code measures. States and local governments should be encouraged to set stronger codes, not have their citizens be penalized under a federal program because they adopted a stretch code. In addition, for single-family and low-rise buildings the codes are preempted from regulating most of the incentivized equipment anyway (e.g., HVACs, water heaters), and ASHRAE Standard 90.1-2019 generally does not require such equipment at rebate-eligible (ENERGY STAR) levels. Because codes have multiple pathways, it also can be difficult to determine what they do require for specific equipment or components. And states may want to encourage retrofits that would not otherwise occur, including bringing a home up to code.

However, we would recommend that states not waste Home Electrification Rebate funds on insulation, air sealing, electrical work, and possibly other measures in new homes that are required under prescriptive state codes. There is no clear reason to incentivize typical building practices for new homes in an area, so incentives would be better spent only on above-code measures such as additional insulation. States should be able (and encouraged) to include such a restriction.

### **K. Compliance and Quality Assurance**

52. What types of quality assurance and/or quality control should DOE and program administrators require? What are recommendations for best practices?

See response to Q11