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RE: DOCKET NO. [QO23100733](#) - IN THE MATTER OF THE IMPLEMENTATION OF FEDERAL INFLATION REDUCTION ACT HOMES (HOME EFFICIENCY REBATES) AND HEEHR (HOME ELECTRIFICATION AND APPLIANCE REBATES) PROGRAMS

Dear New Jersey Board of Public Utilities,

Thank you for the opportunity to comment on the BPU's approach to implementation of the Inflation Reduction Act's Home Energy Rebates. My name is Jamal Lewis, and I am a Director of State and Local Policy for Rewiring America, the leading electrification nonprofit working to help families and communities achieve energy efficiency, improve health, and save money while tackling nationwide emission goals. I would also like to acknowledge my colleagues Alexandria Herr, Sage Briscoe, and Noah Goldmann for their assistance in developing these comments and recommendations.

Key Recommendations:

- Utilize measured savings for the Home Efficiency Rebate program, where possible.
- Expand the number of DOL registered apprenticeship and direct entry pre-apprenticeship placements available, particularly for HVAC and electric workers
- Bundle projects to a size that makes it feasible for high-road and union contractors to bid on projects (\$500,000 or more) can attract high-road contractors that can pay prevailing wage and benefits to their workers as well as support training pathways such as registered apprenticeship programs.
- Target Home Energy Rebates to low-income households
- Design programs to respond to emergency appliance replacement
- Coordinate with Pennsylvania, Delaware, and/or New York to boost the electrification workforce in the region

- Enhance registered apprenticeship programs and direct entry pre-apprenticeship programs for plumbers, HVAC, and electricians
- Work with and resource trusted CBOs to develop thoughtful and intentional targeted community engagement and outreach plans that center the needs of low-income and DAC members
- Explore the establishment of a one-stop shop and “Energy Navigator” program, administer a universal application, simplified intake, robust financing solutions to maximize consumer benefit, standardize agreements to support integration across programs, and streamline processes for applying for and receiving rebates, as well as for income verification.
- Prevent contractors from using rebates to install upgrades that result in higher annual energy bills, particularly for low-income households, by (1) promoting holistic upgrades that include electrification, building-level efficiency, and connections to renewable energy, (2) targeting households with high energy burdens, especially with the home efficiency rebates, (3) adopting energy affordability policies and programs that can be administered alongside the home energy rebates, and (4) using approved contractors lists.

Thank you for your consideration of these ideas and recommendations.

Best,

A handwritten signature in black ink, appearing to read "J. Lewis".

Jamal Lewis

# Comments on New Jersey's Rebates RFI

## Optimal pathway to calculating rebates delivered to the customer between modeled versus measured approaches recommended by U.S Department of Energy (DOE)

The IRA's Efficiency Rebates include two pathways for households to qualify for incentives: measured energy savings of at least 15% or modeled energy savings of at least 20%. We believe that BPU should prioritize the measured savings approach.

1. **The measured pathway can drive real energy savings.** Modeled energy savings — which have long been the status quo in energy efficiency programs — lack accuracy and accountability. Because modeled energy savings do not compare actual energy usage before and after renovations, they are making (at best) educated guesses. These guesses are historically inaccurate and tend to overestimate the real energy savings. Worse still, modeled energy savings do not hold energy modelers and/or home performance contractors accountable to the estimates they produce (i.e., there are rarely repercussions if the retrofits fail to deliver the energy savings they were promised).

Measured energy savings, on the other hand, have a built-in accountability mechanism. With a measured system, a middleman financier (or “aggregator”) estimates the total value of renovations, pays the contractor almost immediately, and earns the money back in rebates only if the improvements actually save energy.

2. **The measured pathway can spur market innovation.** The measured savings pathway is built on data. This data — whether from utilities or otherwise<sup>1</sup> — will provide the necessary confidence and information for private-sector markets to value energy efficiency and electrification upgrades like they value new clean energy generation resources (like wind, solar, and batteries). It can also create a foundation for additional private-sector investment through models like Pay As You Save (PAYS), carbon offset protocols, and demand response revenue streams.

Within the measured savings pathway, the “aggregator” role can also spur market innovation. Aggregators can take on the cost, hassle, payment, and project performance risks of program participation from contractors (and consumers). Aggregators may also provide marketing, customer education, and financing services. In doing so, they can (1) enable HVAC contractors to focus on quality installations and (2) aggregate demand at scale to lower soft costs. These interventions can lead to better, cheaper, and more retrofits.

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<sup>1</sup> Including third-party data providers (e.g. Arcadia, UtilityAPI), customer utility bills and delivery records, and/or in-home sensors.

3. **The measured pathway can deliver larger incentives to low-income households.**

The Efficiency Rebates' modeled savings pathway has a cap of \$4,000 for non-low-income households or \$8,000 for low-income households. Under the measured pathway, the only real cap is how much energy can be saved<sup>2</sup> — and the value of rebates for low-income homes could be more than twice the modeled program limit. If a low-income household could achieve 90% in actual energy savings, they could get ~\$18,000 in measured-energy rebates. Retrofit projects are expensive, especially for older housing stocks in historically under-invested communities. These buildings may face basic health and safety issues like lead, mold, asbestos, roofing deficiencies, lack of insulation and dangerous wiring — all of which prevent electrification and even weatherization. Each of these barriers also costs money to remediate, and, together, they can regularly double project costs to \$50,000 or more. With this context in mind, a \$15,000 Efficiency Rebate under the measured pathway does not seem overly large.<sup>3</sup> In fact, such a rebate might be the difference between a home retrofit that pencils out and one that does not.

If the entirety of the Efficiency Rebates funding is claimed by low-income households who achieve 90% energy savings under the measured pathway, a lot fewer homes will be served. However, this is unlikely to be the case: most states will include both the modeled and measured pathways, much of the funding will not be claimed by low-income households, and few retrofits will achieve 90% measured energy savings.

It's also important to maintain a sense of scale: no matter how large or small the incentives are, the Efficiency Rebates will only serve a tiny fraction of eligible households. (For example, even if the entirety of the Efficiency Rebates were directed to low-income households, the program would only be able to reach 1-3% of eligible homes.) At the same time, larger incentives can unlock significant benefits for low-income households.

Measured energy savings is not the right pathway for every scenario. In particular, the measured path may be less accessible to the multifamily housing sector, which can struggle to access the data required to measure real energy savings.

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<sup>2</sup> Under both the modeled and measured pathways, the rebate cannot exceed 50% of project costs for non-low-income households or 80% of project costs for low-income households.

<sup>3</sup> It's also important to keep in mind that only low-income households (<80% AMI) can access incentives this large. Non-low-income households that pursue the Efficiency Rebates' measured pathway, for example, would hit a cap of ~\$9,000 for a 90% reduction in energy usage.

## Developing a clean buildings workforce to deliver the HOMES Program and HEEHR Program funding, from the perspective of establishing long-term jobs

Investments in building electrification will produce job growth and opportunities in the building and construction trades. Retrofitting each building with electric alternatives to gas appliances will require electricians to rewire panels, plumbers to install heat pump water heaters, HVAC workers to install heat pumps, and energy auditors to assess home energy needs and shell improvements. Licensure requirements for electrification-relevant trades in New Jersey are listed below:

Trade	License offered	Licensure Requirements
Electrical	Journeyman, Electrical Contractor	<p><b>Journeyman:</b> 8,000 hours work experience, 576 hours classroom training</p> <p><b>Electrical Contractors:</b> 5 years work experience, three pathways: 1) Earning a bachelor's degree in electrical engineering and two years of field work, 2) Completing a four-year apprenticeship program, with one year of hands-on experience, 3) Obtaining a journeyman electrician license, along with one year of additional on-the-job experience</p>
Plumber	Master plumber license, Journeyman and apprentice registration	<p><b>Master Plumber:</b> Five years experience, with one year as a journeyman plumber. Four years of the five years must have been spent in a United States Department of Labor approved plumbing apprenticeship program OR Bachelor's degree in mechanical, plumbing or sanitary engineering from an accredited college or university in the United States plus one</p>

		year of experience as an apprentice or journeyman plumber.
HVAC	Master HVACR contractor license	<b>Contractor:</b> bachelor's degree in HVACR and 1 year of experience, a bachelor's degree in a related field with 3 years of experience, or a completed vocational or trade program and 2 years experience, or 4 years as an HVAC apprentice with 1 year of experience

On top of these licensure requirements, additional certifications are often useful for ensuring quality installation of electric appliances. Low quality installation of HVAC systems is widespread in the residential market – a 2008 study by the California CEC found that up to 85% of replacement HVAC systems were installed incorrectly, producing a gap between promised and realized energy savings and potential hazards to consumers. To combat the prevalence of low-quality installation, other quality assurance (QA) mechanisms and certifications are useful to ensure compliance with high-quality labor and installation practices, as well as compliance with basic licensure and permitting requirements. Examples of such QA mechanisms could include [EPA's Energy Star Verified HVAC Installation](#), the ACCA's [QA Contractor](#) accreditation, contractors affiliated with union labor such as SMACNA/SMART, or accreditations provided by OEMs, such as Mitsubishi's Diamond Contractor program.

Many electrification-related trades are experiencing worker shortages. The annual United States Energy and Employment Report (USEER) found hiring difficulty across energy efficiency employers. Ninety-one percent of energy efficiency construction employers reported finding hiring “somewhat” or “very” difficult, citing the primary reasons as a small applicant pool and insufficient skills or training (Keyser et. al. 2022). Expanding the electrification workforce to meet the needs of today and the future requires both training new workers in the relevant building trades and training experienced contractors in installing and servicing electric technologies. In order to accomplish the former, we recommend expanding the number of DOL registered apprenticeship and direct entry pre-apprenticeship placements available, particularly for HVAC and electric workers. For experienced contractors looking to gain expertise with electric technologies, technology-specific training and certification provided by OEMs are useful training pathways.

Finally, attracting and retaining talent in the electrification trades also requires providing high-road job outcomes, particularly within the residential building electrification sector. Compared to the commercial electrification sector, the residential electrification sector is highly competitive and price driven, and has low union density. This market structure has a direct

impact on job quality; in California, construction workers in the residential market earn 33 percent less per year than workers in the non-residential market (Jones et. al 2019). One mechanism of increasing job quality in the residential sector is through project aggregation – due to the costly and time-consuming nature of bidding for small projects, high road or union contractors often do not work in the residential space. Bundling projects to a size that makes it feasible for high-road and union contractors to bid on projects (\$500,000 or more) can attract high-road contractors that can pay prevailing wage and benefits to their workers as well as support training pathways such as registered apprenticeship programs.

Electrification jobs can be an engine for wealth creation and a pathway to family-sustaining jobs. But if women, communities of color, and environmental justice communities do not have access to electrification jobs, it will only reify existing structures of racial and gender injustice. The goal of building the electrification workforce should be to ensure job quality and job access at the same time (American Cities Climate Change 2021). Proactive planning, policy, and measurement is needed to promote job access while ensuring job quality among historically excluded talent pools.

Demographics of the current energy workforce are tracked in the annual United States Energy and Employment Report (USEER). The 2022 USEER finds that the energy efficiency workforce is disproportionately male (74 percent), and that Black and Latino workers are underrepresented (8 percent of the energy efficiency workforce compared to 12 percent of national workforce and 16 percent of the energy efficiency workforce compared to 18 percent of national workforce respectively).

Gender and racial disparities in the workforce start with the training pipeline. An analysis conducted by Luke et. al. found that Black and AAPI (Asian American Pacific Islander) apprentices were underrepresented in electrician apprenticeships data in California; similarly, electrician apprenticeships were overwhelmingly male, with only 2 percent of electrician apprentices identifying as female. Growing diversity in the building trades will require aggressive measures to improve access to training programs such as apprenticeship and pre-apprenticeship among historically excluded talent pools.

Improving access to electrification jobs is particularly important because even with lower educational barriers (and thus financial barriers) to entry, clean energy jobs have higher wages than the national average by 8-19% (Muro et. al. 2019). Muro et. al. found that the average hourly wage in the energy efficiency sector was \$25.90, compared to a national average of \$23.86. Over 50 percent of energy efficiency workers' educational attainment is high school or less – and yet these workers earn more than their counterparts with similar educational backgrounds in different sectors.

To increase access to electrification jobs, thoughtful policy must be employed to recruit underrepresented talent pools at all stages of the workforce training pipeline. These policy levers include:

- Targeted hire requirements in apprenticeship programs: Requirements that contractors must hire a certain percentage of workers from underrepresented talent pools (Muro et. al. 2019).
- Community workforce agreements: Community workforce agreements can be a tool for setting local targeted hire requirements on construction projects (Zabin et. al. 2020)
- Pre-apprenticeship: Paid pre-apprenticeship programs, especially when partnered with high schools, community colleges, and other community-based organizations, can recruit underrepresented talent pools to the skilled trades.
- Removing employment barriers: Removing barriers to employment for those marginalized by citizenship status or history of incarceration.

## Integration of the HOMES Program and the HEEHR Programs with existing energy efficiency and low- and moderate-income programs

It is well-recognized that low-income households will need more financial support to participate in the clean energy and electrification transition. Thus, BPU should do everything within its power to ensure that low-income New Jerseyans have access to resources to perform necessary building electrification and building efficiency upgrades.

With the approval of the Triennium III Building Decarbonization programs for non-low-income households and delivered fuels, there remains a need for additional funding to support improvements to buildings in low-income households across the state. We recommend that BPU limit the IRA rebates to serving low-income households. The Home Electrification and Appliance Rebates and the Home Efficiency rebates are finite, meaning that New Jersey will be allocated \$91,307,380 and \$91,840,040 to run the programs.

Of the ~295,900 households using delivered fuels in New Jersey, ~205,300 households qualify for Electrification Rebates.<sup>4</sup> Assuming the average household utilizes 80% of the maximum federal rebates,<sup>5</sup> ~8,200 homes would be covered by Electrification Rebates and ~14,300 homes would be covered under Efficiency Rebates. These ~22,500 homes account for ~11% of eligible households on delivered fuels in New Jersey.

Non-low-income households should utilize the 25C tax credit for qualifying upgrades. The 25C tax credit provides a \$2,000 tax credit for qualifying investments in heat pumps and heat pump

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<sup>4</sup> Low- and moderate-income households using delivered fuels are eligible for the Electrification Rebates.

<sup>5</sup> The estimate of an average 80% household utilization of federal rebates is based on a Rewiring America forecast for typical rebate funding spent on equipment upgrades, contractor payments, and administrative expenses. For example, a heat pump and heat pump water heater upgrade could itself exceed 80% utilization, or \$11,200 in Electrification Rebate spend.



water heaters. This credit is unlimited, meaning that there is no limit to the number of New Jersey residents who can take advantage or to the amount that can be claimed by New Jersey residents. The 25C tax credit is also non-refundable, meaning that only households with sufficient tax liability can take advantage of it, which often excludes low-income households.

Integrating the HOMES and HEAR programs with existing energy programs could lead to numerous benefits, such as increased engagement from residents and contractors; improved implementation efficiency; more comprehensive, beneficial upgrades for residents; and a more stable and effective program structure that will outlast any specific incentive or rebate.

While the HEAR rebates cannot be combined with other federal grants or rebates for the same appliance, the program can still be braided with other federal, state and local programs to bring the cost of electric appliances to parity with gas appliances. The HEAR program specifically should be designed to integrate with New Jersey's other energy efficiency programs including DOE's WAP, Comfort Partners, and other low-income energy efficiency and healthy homes funding.

## Ensuring efficient delivery of these programs with respect to income verification, outreach and customer experience

Many appliance replacements only occur in an emergency setting, once the incumbent machine breaks. In these situations, the homeowner will likely call a contractor to get their appliance replaced as quickly as possible. The contractor is likely to recommend a like-for-like replacement since oftentimes that is the quickest option. Thus, it is important for BPU's rebate programs to be designed in a way that can intervene quickly during these situations such that the replacement is an efficient electric version instead of a gas appliance replacement.

In addition, while some homeowners will shop for a replacement themselves, many homeowners will rely on their contractor to recommend appliances to them. Thus, it is also important for BPU to work with contractors to ensure that they are aware of the rebate programs and understand that there are better, more efficient machines on the market that they can recommend to homeowners. BPU can use the contractor training program to engage contractors on the concept of electrification.

In addition, BPU can coordinate with Pennsylvania, Delaware, and/or New York to boost the electrification workforce in the region by 1) standing up a regional training center, 2) improving access to existing training, 3) engaging with existing contractors to gauge their interest in participating in BPU's electrification programs, and 4) developing and implementing a cross-state contractor licensing program.

In addition, BPU can focus on enhancing registered apprenticeship programs and direct entry pre-apprenticeship programs for plumbers, HVAC, and electricians that can help to meet the growing demand for residential, commercial and large building energy efficiency and electrification caused by the IRA tax credits and state and local laws. New Jersey needs more

contractors that can do this work but they don't all need to be journeypersons right away. Focusing on apprentices could increase the pool by which existing contractor firms can hire from to meet the existing demand. Eventually, many apprentices will become journeypersons who can start their own businesses.

Currently, if a household wants to improve their home's energy efficiency, address health and safety hazards, seek energy bill assistance, or electrify, they often have to separately seek out and apply to a combination of different programs. This is true in New Jersey and across the nation, and can be both inefficient and inaccessible to overburdened communities while discouraging contractor engagement and workforce development. As BPU ramps up the new rebate programs, it should streamline and simplify the application process to the greatest extent possible. This could include steps like:

- Establishing a single intake form or 'universal qualifier' across as many programs as possible;
- Cross-checking eligibility between programs to ensure eligible residents benefit from all available resources; and
- Maintaining a list of households that have verified income-eligibility within the past year, to allow them to access other income-qualified programs without requiring another verification process.

Competing or conflicting appliance model requirements can also burden households and contractors alike, discourage program uptake, and unnecessarily prevent stacking rebates to maximize benefits. BPU should establish a uniform list of qualified appliance models across programs to reduce the complexity around determining whether or not a specific model qualifies for a given incentive. One option would be to utilize ENERGY STAR's current, real-time list of qualified appliances.

In order to ensure low-income and disadvantaged communities are aware of, have access to, and participate in the Home Energy Rebate programs, BPU should partner with community-based organizations (CBOs) that have developed relationships and successfully implemented projects in disadvantaged communities (DACs). CBOs will need resources to support their capacity and opportunities to influence decisions about program design and implementation.

Working with and resourcing trusted CBOs will help program administrators develop thoughtful and intentional targeted community engagement and outreach plans that center the needs of low-income and DAC members. Often, community engagement looks like a few Zoom webinars hosted during traditional work hours. Engaging with trusted CBOs will ensure targeted community engagement and outreach takes place at times and spaces that are most convenient and accessible for community members and effectively resonate with community priorities.

In addition to working with and resourcing trusted CBOs, best practices to ensure accessibility to immigrants, refugees, and other individuals with Limited English Proficiency include providing robust provisions for language access, including interactive interpretation.

Coordination with other successful service providers that engage with DACs regularly will both improve program efficiency and provide more targeted and holistic results. Therefore, BPU should explore the targeting of and coordination with current outreach efforts under existing assistance programs. This may include LIHEAP, WAP, or other complementary and locally relevant public assistance programs that have proven more effective because they are tailored to hyperlocal needs.

LIHEAP requires that states agree to use the funds to: “conduct outreach activities and provide assistance to low-income households in meeting their home energy costs, particularly those with the lowest incomes that pay a high proportion of household income for home energy.” LIHEAP further requires states to conduct outreach with other programs to ensure that communities are aware of LIHEAP and other low-income assistance programs. LIHEAP participation rates are generally low with an average of only 16-17% of income-eligible households being served by the program from 2016 to 2020. Research has shown that BIPOC and low-income communities experience less access to residential energy-saving appliances and other energy efficiency upgrades. Increased coordination across assistance programs can help ensure that low-income households and DACs are aware of and can access these rebates along with other assistance programs.

Another way to improve accessibility for LI/DACs is to reduce administrative burden by providing a central resource and training expert advisors to help households and property owners navigate these rebate programs, along with state-, local-, or utility-provided energy assistance programs, rebates, and other incentives to comprehensively retrofit homes. We recommend that BPU explore the establishment of a one-stop shop and “Energy Navigator” program. We recommend a universal application, simplified intake, robust financing solutions to maximize consumer benefit, standardized and privacy agreements to support integration across programs, and streamlined processes for applying for and receiving rebates, as well as for income verification.

New Jersey can prevent contractors from using rebates to install upgrades that result in higher annual energy bills, particularly for low-income households, by (1) promoting holistic upgrades that include electrification, building-level efficiency, and connections to renewable energy, (2) targeting households with high energy burdens, especially with the home efficiency rebates, (3) adopting energy affordability policies and programs that can be administered alongside the home energy rebates, and (4) using approved contractors lists.

- **Promoting holistic upgrades that include electrification, building-level efficiency, smart load management systems, and onsite renewable energy:** Particularly for low-income households, improving building level efficiency, installing efficient electric appliances, and connecting those appliances to renewable energy sources and battery

storage can help to maximize energy burden reductions. For the Home Electrification rebates, New Jersey should consider administering a portion of the rebates through existing building efficiency programs such as WAP and Comfort Partners, such that recipients can also receive the installation of efficient electric appliances. For the Home Efficiency rebates, this includes electrifying any appliances supported by the program. For both programs, the BPU should encourage connecting recipients with renewable energy sources such as the Solar for All program or the 48(e) Low-Income Bonus Credit Program to further maximize energy burden reduction.

Often, low-income households occupy older, substandard housing with the presence of health and safety hazards and other deferred maintenance that can prevent the installation of building efficiency and electrification measures. BPU should explore pathways to braid and stack funding for health and safety upgrades including roof repair, toxic chemical removal, and ventilation improvements, especially for low-income households. To encourage program coordination, the BPU should list the various programs in the state that can be braided and coordinated with the rebates. These programs include WAP, utility energy efficiency programs, health and safety programs, and home repair programs. BPU should also connect with rooftop and community solar developers that can take advantage of other incentives, like the Section 48(e) low-income adder tax credit. BPU can also align, braid, and coordinate funding by providing resources on one-stop-shops and energy navigators, which are both helpful ways to coordinate programs. To the extent possible, BPU should encourage building-level efficiency and weatherization prior to electrification to maximize energy burden reduction.

- **Targeting households with high energy burdens, especially for the Home Efficiency Rebates:** BPU can ensure that upgrades installed through the rebate programs reduce energy burdens by targeting households with high energy burdens to be prioritized in the deployment of rebates. Given the energy savings measurements and projections required for the Home Efficiency Rebates, BPU should require contractors to also perform an energy burden analysis for the household receiving the upgrades. For both rebate programs, BPU can also target households using delivered fuels or households using electric resistance heating, which are both known to be inefficient heating sources causing households to have among the highest energy burdens of any fuel type. BPU should ensure the installation of efficient electric appliances to replace delivered fuels and electric resistance heating, including low voltage heat pumps and appliances, where possible, to reduce operational costs and potentially mitigate the need for costly electrical panel upgrades.
- **Adopting energy affordability policies and programs that can be administered alongside the home energy rebates:** BPU can also ensure that energy bills are reduced by adopting energy affordability policies or connecting rebate recipients to energy assistance programs.

BPU should explore prioritizing households that already receive LIHEAP or other forms of energy assistance, and ensure that these households are able to maintain such assistance after the upgrades, if needed. BPU can also prioritize distributing rebates to participants in state or utility energy assistance programs.

We further urge BPU to adopt tenant protections in addition to energy bills in considering economic impact to disadvantaged communities.

- **Using approved contractors lists:** Using approved contractors lists can help state energy offices better guard against price gouging and help ensure quality installations. While this mechanism can't prevent contractors installing upgrades that could increase energy bills, approved contractor lists can help BPU more easily track and enforce their program policies. BPU should require that approved contractors receive training on: cultural competence, using energy modeling software to inform upgrade design to avoid energy bill increases, and teaching households on the efficient operation of new equipment. This training should include how to right-size systems to avoid costly panel upgrades or unnecessary operating costs. To further protect against price gouging for qualifying upgrades, BPU should publish a database of equipment and installation costs and make that information publicly available to increase market transparency of costs.<sup>3</sup>