

Via Electronic Submission

March 3, 2023

The Honorable Jennifer Granholm
Secretary of Energy
1000 Independence Avenue, SW
Washington, DC 20585
E-mail: IRAHomeRebates@hq.doe.gov

RE: DE-FOA-0002981

Dear Secretary Granholm:

Thank you for the opportunity to respond to the Request for Information (RFI) in DE-FOA-0002981, "Request for Information on Inflation Reduction Act Home Efficiency & Electrification Rebate Programs" regarding the Home Efficiency Rebate Program (referred to in this response as the HOMES program, per IRA Sec. 50121), and the Home Electrification Rebate Program (referred to in this response as the High-Efficiency Electric Home Rebate Program, or HEEHR, per IRA Sec. 50122).

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

Below, please find our responses to the questions contained in DE-FOA-0002981.

RFI Comments

A. Respondent Contact Information

The Energy Efficiency Strategy Group (EESG) is an informal coalition of national energy efficiency organizations and related groups, including Advanced Energy United, Alliance to Save Energy (ASE), American Council for an Energy-Efficient Economy (ACEEE), ASHRAE, Building Performance Association (BPA), California Efficiency + Demand Management Council E2 (CEDMC), E2 (Environmental Entrepreneurs), E4TheFuture, Energy and Environment Study Institute (EESI), Institute for Market Transformation (IMT), International Code Council (ICC), Midwest Energy Efficiency Alliance (MEEA), National Association for State Community Services Programs (NASCS), Northeast Energy Efficiency Council (NEEC), Northeast Energy Efficiency Partnerships (NEEP), Northwest Energy Coalition (NWE), Southeast Energy Efficiency Alliance (SEEA), Southwest Energy Efficiency Project (SWEEP), World Resources Institute (WRI), and U.S. Green Building Council (USGBC). As noted above, the following information in response to the RFI was developed collaboratively and should not be attributed solely to any of the above-listed

organizations. Many of these groups will be submitting separate comments that highlight individual organization priorities, and we encourage DOE to review each submission.

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?

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 technology, reliable transportation, and social supports, all of which help households navigate complex application processes. When designing Home Energy Rebate programs, states, territories, Tribes, and administrators should take this into account and aim to design an application process that is as simple and easy as it can be, while still gathering necessary information.

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 the high-efficiency, higher end equipment unattainable.

Low-income households currently rest squarely in a financing gap that elements of the two home energy rebate programs were designed to address. Home Efficiency Rebates provide for at least a doubled rebate for those making less than 80% of Area Median Income (AMI), while Home Electrification Rebates are only available to individuals making 150% of AMI or below (with a household cap of \$14,000). DOE should support states and program administrators to allow for simplification of income qualification software to reduce administrative burdens on state energy offices and to conduct direct, targeted outreach to low-income and disadvantaged communities.

DOE guidelines should encourage state, territorial, and Tribal programs to work with Weatherization and Community Services Block Grant (CSBG) State Offices, as well as local Community Action Agencies and Weatherization Local Agencies to braid Weatherization Assistance Program (WAP) funding and ensure there is no overlap between the energy measures used if WAP and the rebate programs are both used for the same home.

DOE should encourage states to engage stakeholders from the start of the planning process to ensure program goals and frameworks align with the needs of the communities the rebates are intended to reach.

DOE should affirm that states can use, if they choose, Home Energy Rebate Program administrative funds for outreach including use of media (especially social media), childcare, food for events, community engagement, rapport building and education. DOE should also consider developing informational and marketing materials for organizations interested in promoting the rebates (regardless of whether they have a role in implementing them) and host trainings to educate intermediaries.

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?

DOE should ensure that total Residential Efficiency and Electrification Rebate allocations for states and territories meet the Biden Administration’s [Justice40](#) goals set forth in Sec. 223 of Executive Order 14008 and later guidance - and give flexibility to states to exceed these goals, as well.¹ Already, per IRA Sec. 50122, \$4.275 billion of the total \$8.8 billion is completely limited to households making no more than 150% of AMI, and a further \$225M is set aside for Indian Tribes, which are designated as disadvantaged communities, per the White House Council on Environmental Quality’s [Climate and Environmental Justice Screening Tool](#) (CEJST). The remaining \$4.3 billion in home efficiency rebates are not income-qualified—but rebate rates for those making under 80% of AMI are doubled (at least), per IRA Sec. 50121. If states and territories direct an average of half of HOMES rebates to LMI households, approximately 80 percent of the total \$8.8 billion Residential Efficiency and Electrification Rebates will go to LMI communities.² Low-income status is a key CEJST criterion to determine disadvantaged community qualifications, in addition to categories of burden related to impacts from climate change, energy cost, air quality, legacy pollution, health, and more.³ Furthermore, both rebates provide incentives to contractors to focus on disadvantaged communities.

This RFI’s proposed definition of “disadvantaged community” lays out two effective tools for states to use to identify disadvantaged communities: DOE’s [Disadvantaged Communities Reporter](#) and the CEJST.⁴ Importantly, DOE should allow states the flexibility to use their own

¹ Executive Order 14008, January 27, 2021.

<https://www.federalregister.gov/documents/2021/02/01/2021-02177/tackling-the-climate-crisis-at-home-and-abroad>. White House Office of Management and Budget. “Memorandum for the Heads of Executive Departments and Agencies.” January 27, 2023, M-23-09.

https://www.whitehouse.gov/wp-content/uploads/2023/01/M-23-09_Signed_CEO_CPO.pdf.

² This figure factors in DOE’s use of 3 percent of total HOMES and HEEHR funding for administrative expenses, per IRA Sec. 50121(a)(3) and Sec. 50122(a)(3).

³ CEJST identifies disadvantaged communities if they meet thresholds related to specific categories of burden in tandem with income qualification “at or above the 65th percentile for low income,” with low income defined as “percent of a census tract’s population in households where household income is at or below 200% of the Federal poverty level, not including students enrolled in higher education.”

Climate and Economic Justice Screening Tool, “Methodology.”

<https://screeningtool.geoplatform.gov/en/methodology>.

⁴ Definition from DOE’s RFI: “**Disadvantaged Community**: The Biden Administration’s [Justice40 Initiative](#) sets a goal that 40% of the overall benefits of certain Federal investments should flow to “disadvantaged communities”

tools to determine disadvantaged communities in addition to the baseline definition provided by DOE. Allowing those that already have tools to build upon them can ensure funding is complementary and encourage the leadership states have already shown. This flexibility will be particularly important in territories, where burden data is incomplete, according to CEQ.⁵ DOE should also provide training and standard practices to states, territories, and Tribes on using federal tools, like the [Energy Justice Mapping Tool](#), and partner with CEQ to provide training on CEJST.

Not all state energy offices have staffing capacity to meaningfully engage and target disadvantaged communities without support. DOE can assist states by generating an equity framework for state programs to adopt that identifies actions states and other stakeholders can take to support rebate program equity and align with Justice40 principles. Offering this framework can help states make meaningful progress throughout the program process and reach interim benchmarks to help with tracking and reviewing progress. This would include steps such as creating a process for meaningful stakeholder engagement, conducting a gap analysis to inform program design and implementation, setting aside certain funds to ensure equitable outcomes, and offering tracking metrics and goals in a publicly accessible manner.

DOE can also work with EPA to align programs like the Environmental Justice Thriving Communities Technical Assistance Centers (EJ TCTAC) to provide additional support to states. DOE should also consider incorporating or adapting the Department's Community Benefits Plan guidance in the application process.⁶

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?

DOE guidelines should provide best practice options for states to use vetted, proven techniques to pre-identify eligible households for rebates, in the case of Home Electrification Rebates, and pre-identify households that qualify for expanded rebates, in the case of Home Efficiency Rebates, to provide broad affirmative outreach to these too-often-neglected communities. Too often, rebate programs benefit only those in the know.

DOE guidelines should encourage states to engage with existing local community and neighborhood organizations, nonprofits, and trusted local media sources to spread the word

(DACs) that are marginalized, underserved, and overburdened by pollution. For the purposes of implementing the rebates, program administrators can use either of the following tools to identify DACs: [energy justice mapping tool](#) or [Climate and Economic Justice Screening Tool](#). Note that Tribal lands and U.S. territories, in their entirety, are categorized as disadvantaged communities in accordance with [OMB's Interim Guidance](#).⁵

⁵ Climate and Economic Justice Screening Tool, "Frequently Asked Questions." <https://screeningtool.geoplatform.gov/en/frequently-asked-questions#3/33.47/-97.5>

⁶ U.S. Department of Energy, "Community Benefits Plan FAQs." <https://www.energy.gov/clean-energy-infrastructure/community-benefits-plan-frequently-asked-questions-faqs>.

about programs. DOE should encourage states to evaluate and deploy the Promotores (Community Health Worker) Model.⁷

DOE should require states to provide access to programs for non-English speakers, and provide corresponding assistance to states with low administrative capacity.

State Example: Virginia. Virginia’s Department of Environmental Quality commissioned a statewide environmental justice analysis. Virginia’s experience can assist other states to develop similar statewide strategies for effective engagement with disadvantaged communities.⁸

DOE should consult the following resources for additional information:

- Center for the Study of Social Policy - [Community Outreach and Solar Equity: A Guide for States on Collaborating with Community-Based Organizations](#)
- City of Seattle - [Inclusive Outreach and Public Engagement Guide](#)
- GroundworksUSA - [Best Practices for Meaningful Community Engagement](#)

5. How can the Home Energy Rebate programs help to minimize energy burden and costs, particularly in low- and moderate-income (LMI) and high energy burden households?

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.⁹ 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.¹⁰ These vast energy burden gaps will be critical to address via state Home Energy Rebate Programs.

It is critical that income qualification technology not increase this burden on low-income households or make rebates difficult to access. Furthermore, any technology used to income-qualify must be proven to be able to reach low income families, use federal funds for distribution, and understand qualifying gig-economy and income insecure individuals. Our most vulnerable citizens should not be test subjects for unproven software.

Additionally, DOE should affirm that the HEEHR rebates may include replacements of inefficient electrical technologies with more efficient technologies. Indeed a ResStock analysis determined that replacing electric furnaces with heat pump HVACs was among the most cost-effective upgrades available. Importantly, these replacements comply with HEEHR statute—per IRA Sec.

⁷ Center for the Study of Social Policy, “Integrating the Promotores Model to Strengthen Community Partnerships.” <https://cssp.org/wp-content/uploads/2019/02/CSSP-Toolkit-4-RBA-Integrating-Promotores.pdf>

⁸ “Environmental Justice Study for the Virginia Department of Environmental Quality.” October 2020. <https://www.deq.virginia.gov/home/showpublisheddocument/8624/637727534058630000>.

⁹ American Council for an Energy Efficient Economy, “How High are Household Energy Burdens?” September 2020. <https://www.aceee.org/sites/default/files/pdfs/i2006.pdf>.

¹⁰ Ibid.

50122(d)(6)(A)(ii), appliances must be purchased: “1. As part of new construction; 2. To replace a nonelectric appliance; or 3. As a first-time purchase with respect to that appliance.” These replacements would constitute a “first-time purchase,” particularly when switching from electrical resistance heating to a high-efficiency Heat Pump.

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?

For both HOMES and HEEHR rebate programs, DOE should offer a list of qualified contractor certifications for states to consider for program implementation. This list should align with qualified certifications eligible under the \$200M Contractor Training Program (IRA Sec. 50123), which was designed to spur workforce development in support of both HOMES and HEEHR.¹¹ DOE should consider including certifications with the following course criteria (criteria that were included in the underlying legislation, the HOPE for HOMES Act of 2021, H.R. 3456/S. 1768¹²):

- 30 hours in total course time;
- Training provided by a provider accredited by the Interstate Renewable Energy Council (IREC);
- Alignment with relevant NREL Job Task Analysis;
- Established learning objectives; and
- Assessment of learning objectives (including a final exam), either on-site, remote, or in-field.

Contractor certifications are invaluable tools to ensuring consistent quality in home performance and electrification projects. The AnnDyl Policy Group Contractor Survey provided contractors with a list of certifications and asked to select all that they would favor to be required of contractors to perform HOMES and HEEHR projects. A majority of contractors surveyed (61 percent) noted they believed BPI Building Science Principles, Building Analyst, Infiltration, and Duct Leakage should qualify contractors to perform HOMES and HEEHR 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).¹³

Measured Savings under HOMES

¹¹ Per IRA Sec. 50123(a), funds from the \$200M Contractor Training Program must “provide training and education to contractors involved in the installation of home energy efficiency and electrification improvements, including improvements eligible for rebates under a HOMES rebate program...or a high-efficiency electric home rebate program.”

¹² HOPE for HOMES Act of 2021, H.R. 3456/S. 1768.

<https://www.congress.gov/bill/117th-congress/house-bill/3456/text/>.

¹³ AnnDyl Policy Group Contractor Survey (conducted November 15, 2022-January 6, 2023).

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

The Measured Energy Savings Pathway¹⁴ under HOMES aligns incentives for homeowners, contractors, and aggregators because of the accountability for work quality and accurate savings predictions taken on by aggregators. Under this system, households receive an incentive from an aggregator while the aggregator is paid for the energy saved by a portfolio of households, while states and 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. States adopting the measured energy savings pathway will be able to ensure third-party aggregators take on performance risk, letting taxpayers off the hook and aligning key incentives across the board to support utility bill reductions for homeowners.

Both HOMES & HEEHR

States should be encouraged to pair stand alone HVAC upgrades with envelope improvements to ensure the best energy and cost results. Such pairing can reduce the risk of poor performance or other issues that would impact customer satisfaction and will give states flexibility to protect low-income and disadvantaged rebate recipients who, as noted earlier in this response, bear disproportionately large energy burdens. Homes in mild climates that rely on older systems like electric resistance heating can reduce electricity use for heating by approximately 50% by switching to properly-installed high-efficiency heat pumps, according to DOE—and, with proper system right-sizing, should see energy bills decrease regardless of insulation upgrades.¹⁵

DOE should allow other sources of funding (e.g., utility, state, or local rebate programs) to incentivize complementary work to be completed – via WAP for low-income households, or other programs - in order to ensure a decrease in energy bills as a result of the upgrade. As detailed below, DOE should coordinate internally to align program rules and reduce the friction of braiding funds between programs.

DOE should also develop and offer a template for states to use and/or modify to encourage consumer awareness of expected costs and potential risks.

DOE should also inform states about the potential application of different HVAC technologies and how they impact the cost of utilities in states—particularly for homes that are not well insulated and in extreme climate zones. This could include DOE providing calculation methodology that would provide households considering an HVAC purchase with an estimate of total household annual energy costs with the new appliance the following year and in subsequent years over the life of the new HVAC unit. If provided, DOE should also provide a solution for estimating this value based on actual utility tariffs.

¹⁴ As laid out under IRA Sec. 50121(c)(2)(A)(iii), Sec. 50121(c)(2)(B)(iii), and Sec. 50121(c)(2)(C)(iii).

¹⁵ 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>.

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?

Since energy savings are usually received by the tenant, most landlords have little incentive to invest in more efficient equipment at a time of appliance breakage or replacement. The U.S. Internal Revenue Service has affirmed that expanded tax credits like the 25C credit cannot be used by landlords for improvements made to any homes they rent out but do not use as a residence themselves.¹⁶ As a result, 25C does not address this split incentive.

The underlying legislation that created the HOMES program (H.R. 3456 and S.1768¹⁷, Sec. 206(e)(3)) included special provisions to protect renters and provide guidelines to ensure that low-income renting households are not penalized by these two programs – while still providing an incentive for landlords to provide these upgrades to their properties. DOE should set guidelines for state programs based on the underlying legislation, which includes:

- Limiting rent increases for unassisted multifamily buildings to percentage increases in the Consumer Price Index for All Urban Consumers (CPI-U);¹⁸
- Eviction Protections;
- Tenant Notification of Rights and Landlord Obligations;
- Partnerships with Housing Finance Agencies to monitor compliance and enforce requirements.

Local Example: Alachua County, FL. The pilot Alachua County Energy Efficiency and Weatherization Grant Program¹⁹ uses dollars from the American Rescue Plan Act (P.L. 117-2) to fund rental energy efficiency upgrades and appliances. The program offers varying grant levels to landlords for commitments to keep units affordable for certain timeframes. For awards up to \$5,000, landlords must agree to keep the unit below market rate for three years, with higher awards available for five year (up to \$10,000) and seven year (up to \$15,000) commitments.

Regarding multifamily affordable housing properties, DOE should facilitate coordination between state rebate programs and the U.S. Department of Housing and Urban Development (HUD) on the Green and Resilient Retrofit Program (GRRP),²⁰ also passed in the IRA, which focuses on energy resilience (along with water and climate resilience) in eligible HUD-assisted multifamily properties. Close coordination should ensure home rebate program funding

¹⁶ “Frequently asked questions about energy efficient home improvements and residential clean energy property credits.” Internal Revenue Service, December 2022. <https://www.irs.gov/pub/taxpros/fs-2022-40.pdf>.

¹⁷ HOPE for HOMES Act of 2021, H.R. 3456/S. 1768. <https://www.congress.gov/bill/117th-congress/house-bill/3456/text/>.

¹⁸ Under the underlying HOPE for HOMES Act of 2021, H.R. 3456 Sec. 206(e)(3)(A)(ii), DOE may provide exemptions if building owners can provide documentation demonstrating documented increases in specific operating expenses.

¹⁹ Alachua County, FL, “Energy Efficiency and Weatherization of Affordable Housing Grant Program.” <https://alachuacounty.us/news/Article/Pages/Energy-Efficiency-and-Weatherization-of-Affordable-Housing-Grant-Program.aspx>.

²⁰ IRA Sec. 30002.

supplements and does not supplant existing programs, including the GRRP—especially given statutory prohibitions related to combining funds “for the same single upgrade,” per 50121(c)(7) and “for the same upgrade,” per 50122(c)(8). Neither provision mentions financing support, and neither contains a prohibition related to federal grants for other upgrades within the same home project.

8. Given that rebate allocations are intended to be applied to residential properties within that state, tribe, or territory’s jurisdiction, how can program administrators ensure proper rebate processing in instances when the equipment/service provider and the household are in two different jurisdictions?

Overlapping jurisdictions (and providers spanning multiple jurisdictions) are unavoidable realities—but clear, consistent guidance from DOE can minimize these complexities. Processing rebates at the property level where projects are performed makes it simple to understand which state or territory’s system to apply in.

9. What are best practices for implementing successful ‘point of sale’ rebates, including when considering contractor needs?

HEEHR requires that rebates be available at the point of sale, per IRA Sec. 50122(b)(2). This provision is critical for ensuring that low- and moderate-income households are able to benefit from these programs. Many standard rebate programs require the purchaser to pay upfront for equipment and wait weeks or months for reimbursement from the rebate company. For most LMI households, this kind of large upfront outlay would effectively bar them from participating.

Similarly, for many contractors who rely on upfront customer deposits to provide the “float” they need to purchase equipment from wholesalers before installation, the ability to apply these rebates at the point of sale will dramatically expand the pool of contractors who can participate beyond the largest ones who have ample financial resources. However, because most point-of-sale rebates are offered by the manufacturer (e.g. pharmaceutical discounts, cars) and/or are available to any purchasers (e.g. point-of-sale electric vehicle rebates), designing efficient, simple ways to qualify purchasers and then apply the correct rebate at the point of sale will be a significant, novel undertaking.

The difference between a well-designed program and a poorly-designed one is enormous. Well-designed programs efficiently disburse funds with minimal waste, while funds in poorly-designed programs languish unspent. **Some key principles that will be essential to a successful implementation include:**

- **User-friendliness** - Consumers, contractors, retail employees will all be interacting with the rebate system. Some will only interact with it once, while others will use it regularly, but the system should be designed to be as self-explanatory as possible, with no requirement to read separate instructions or get specialized training. The need to login

to the system and to create an account should be restricted only to those parts of the process where it is genuinely needed.

- **Timeliness** - Some parts of the rebate process will be best completed in advance, while others must happen synchronously at the moment of purchase. Making sure that users can complete different parts of the process on their own timeline, whenever it's most convenient for them, will be crucial to a smooth user experience.
 - An illustrative example is income verification, which is best completed ahead of time, when a potential purchaser is able to access any necessary documents and take their time entering data correctly. Customers should not be burdened with inputting that information while in line at the store or talking to a contractor.
 - However, on the other side of the spectrum, the final check as to whether a household still has room under the "cap" for a specific rebate *must* be done in real-time at the point of sale. This is essential to prevent double-dipping and for providing customers an accurate assessment of their out-of-pocket costs.
- **Efficiency in the flow of funds** - Contractors and retailers will need to be reimbursed for the rebates quickly and efficiently so that they're not floating the funds for any longer than is absolutely necessary. Getting entities who will receive payments to pre-register their information in a system of record will be important so that funds can be moved electronically and expeditiously, and so that participating vendors can easily be tracked and monitored for program compliance.
- **Security and oversight** - Because the systems needed to manage the rebate programs will have access to sensitive data, users of all kinds need to know that their data will be maintained securely. In general, access to data should maintain the Principle of Least Privilege. However, security and data restrictions shouldn't be used as an excuse for a poor user experience. Nor should security prevent rigorous oversight and analysis that seeks to identify fraud *and* areas of the program that are not working optimally so they can be improved.

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

As noted earlier in this response, DOE should facilitate coordination between state rebate programs and the U.S. Department of Housing and Urban Development (HUD) on the Green and Resilient Retrofit Program (GRRP),²¹ also passed in the IRA, which focuses on energy resilience (along with water and climate resilience) in eligible HUD-assisted multifamily properties. Close coordination should ensure home rebate program funding supplements and does not supplant existing programs, including the GRRP—especially given statutory prohibitions related to combining funds “for the same single upgrade,” per 50121(c)(7) and “for the same upgrade,” per 50122(c)(8). Neither provision mentions financing support, and neither contains a prohibition related to federal grants for other upgrades within the same home project.

²¹ IRA Sec. 30002.

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

While a few states with established rebate programs already have “approved contractor” lists that are accessible to consumers, most states do not have these lists. DOE should provide states with pre-vetted contractor certification requirements and approve existing state programs that meet DOE’s standards for in-place and equivalent. For more detail related to certifications, see this response’s answer to Question 6 of this RFI.

Site Inspections, Proof of Replacement, and Audits

Per HEEHR statute, IRA Sec. 50122(d)(6)(A)(ii), appliances must be purchased: “1. As part of new construction; 2. To replace a nonelectric appliance; or 3. As a first-time purchase with respect to that appliance.” Clear DOE guidelines giving states flexibility to institute inspection requirements, and/or certifications would be beneficial for states to meet (potential) DOE reporting requirements, track program uptake, ensure programs are working as intended, and reduce program waste, fraud, and abuse. DOE should provide states with protocol best practices to track the following:

- Quality control/assurance, including ensuring appliance right-sizing;
- Waste, fraud, and abuse;
- To ensure the appliance is replacing a nonelectric appliance;
- To ensure the appliance is a first-time purchase of that appliance, and that it is not replacing an existing version of that appliance;
- To ensure old gas appliances are properly uninstalled, hauled away, recycled, and not resold or redeployed to low-income homes;
- To ensure natural gas, fuel oil, or other infrastructure is decommissioned safely and according to applicable codes and regulations;
- To ensure combustion gas venting of any remaining fossil fuel appliances that were commonly vented with a removed appliance are to code and standards and are venting safely; and
- To ensure that health and safety issues related to the electric appliance, such as properly sized circuit breakers and removal of unsafe wiring, are addressed.

12. Which Home Energy Rebate program components across Sections 50121 and 50122 should be implemented separately or together? Some examples could include:

- (i) Marketing, communications, branding**
- (ii) Income verification**
- (iii) Rebate processing**
- (iv) Contractor requirements**
- (v) Home energy assessments**
- (vi) Data collection and reporting**

DOE should support states to ensure as many program elements as possible are implemented together across both rebate programs. DOE can offer this support by pre-vetting different

software options for states as opt-in resources. Separate income verification and rebate processing, in particular, will create additional unnecessary soft costs and confusion for households, contractors, program implementers, aggregators, and others if managed independently across two programs - while also impeding statutory requirements related to tracking "double dipping" between the two programs. Many contractors will be working on both rebate programs, so rebate processing and income qualification should be consistent for both programs. For more detail on income verification, see responses under Category G.

There are many ways that different components of the Home Energy Rebate program can be combined successfully. However, there are several components where interoperability and centralization are critical to success.

Specifically, tracking each household/property's remaining eligibility for each line item in the HEEHR and HOMES programs needs to be consolidated in a national clearinghouse or a clearinghouse for each state or tribal area so that remaining rebate balances can be checked in real time at the point of sale. Whatever entity is maintaining this clearinghouse (DOE, a National Lab, or an outside partner) should be required to make their system interoperable via Application Programming Interfaces (APIs) with the entities managing other parts of the program. Under this approach, an entity performing marketing and outreach can target outreach to homes that have remaining eligibility, and the entity processing rebates can check for remaining eligibility before applying the rebate at the point of sale.

Income eligibility determinations can be separate from the other systems and could, in theory, be offered by multiple entities within a single state, territory, or region. It is critical that these systems, which will be used by consumers, are designed for usability. If the entities building other back-end systems are not experts in building user-friendly systems, then these pieces should be separated. However, being able to effectively distribute responsibility for these systems is dependent on programs requiring that those building the back-end systems make them open and interoperable.

Rebate processing and vendor/contractor registration would benefit from tight integration to minimize friction to onboard vendors and make the flow of rebate funds efficient and fast. Because the rebate processing system will have to integrate tightly with the income verification and credit eligibility processes, it is critical that these systems interoperate smoothly. As noted, this does not mean they need to be built by the same provider, as different providers have different areas of expertise.

One key component of these programs that would be best handled by DOE at the federal level is determining which products qualify and for which "accounts" (insulation, heat pump, hot water heater, electric service upgrade, etc.). These determinations are unlikely to vary substantially across jurisdictional lines, and many state energy offices are not going to be equipped to work with manufacturers to make these judgments. DOE could work with the National Labs to set up an evaluation framework and establish an open registry of qualified Universal Product Codes (UPCs) that all states could benefit from. For more, see response to Question 46.

C. Additional Design Considerations Specific to Indian Tribes

13. Funds reserved for Indian Tribes will be made available in “a manner determined appropriate by the Secretary”.

- a. What factors should be considered in the determination? Factors could include population of a Tribe, average cost of energy, and/or average cost of construction.**
- b. Should the allocation be similar to or different from the allocation of other federal programs (e.g., DOE’s Energy Efficiency Conservation Block Grant Program)?**

Per IRA Sec. 50122(a)(1)(B), \$225 million of the total \$4.5 billion Congress appropriated to the Home Electrification Rebate program is reserved for Indian Tribes. Many Tribes face numerous barriers to implementation, including tribal members' inability to afford matching funds, lack of efficiency and electrification expertise on Tribal Councils, and lack of capacity and competing priorities. Infrastructure will also be a barrier for some tribes where a sizable percentage of reservation households don't have access to electricity and running water.

The U.S. Department of Housing and Urban Development (HUD) Indian Housing Block Grant (IHBG) formula is an ideal funding distribution model to ensure a fair allocation that can be effectively administered. The IHBG formula takes into consideration the current assisted housing stock for each Tribe/TDHE and what the need is for that Tribe/TDHE.²² The IHBG formula is particularly useful because need is determined based on households on tribal lands, not tribal member enrollment numbers, as not all enrolled members will live on the reservation, or even in the state where the reservation is located.

Tribes across the country have historically struggled to access DOE resources directly due to capacity challenges and the “learning curve” of working with agencies other than the U.S. Department of Housing and Urban Development (HUD). Using a familiar program allocation model will ensure Tribes and TDHEs are best positioned to make use of new resources from HEEHR. Given these barriers and the low administrative capacity of most Indian Tribes, DOE should leverage HUD’s consensus-based IHBG formula, incorporating census data to allocate funds for housing activities administered by Tribal and Tribally Designated Housing Entity (TDHEs). In Alaska, TDHEs are Regional Housing Authorities that function as consortiums of Tribes, and are often the only entity in a region positioned to bear the administrative burden of program implementation and reporting. As an example, the state of Alaska hosts 229 (40%) of the 574 federally-recognized Tribes in the United States, and of these, 196 are affiliated with a TDHE, as defined in the Native American Housing Assistance and Self-Determination Act of 1996 (NAHASDA, P.L. 104-330, as amended).

DOE should also clarify that Tribes and TDHEs should be allowed additional flexibility, including the opportunity to use up to 30 percent of funds for administrative purposes. It is

²² U.S. Department of Housing and Urban Development, “IHBG Formula.” https://www.hud.gov/program_offices/public_indian_housing/ih/codetalk/onap/ihbgformula/.

likely that a number of these entities will need to engage with third parties for program implementation given a lack of internal expertise and capacity with specific electrification activities. Even reporting requirements could be a barrier. Ideally, Tribal utilities would have access to funding to help with program implementation.

When distributing funds to Tribal Nations, DOE should also be sure to note the following considerations:

- **Energy Costs** - Energy costs may be subsidized by a Tribe or tribal utility, as is the case on the Navajo Nation because the average income of tribal members is below the poverty line - so the cost of energy may be hard to know.
- **Construction Costs** - The cost of construction is higher because of risks associated with access to supply chains—i.e., if something breaks, there is often not someone who can do the repairs in rural locations.

14. For tribal program implementation, do Indian Tribes plan to administer the programs themselves or engage with 3rd-party support? What role could DOE play in supporting program implementation for Indian Tribes?

Smaller Tribal communities will need assistance with implementation, and expanded administrative funds will help. DOE should allow, but not require, third party program implementation for Tribal programs.

Tribes and TDHEs in Alaska have had recent experience with both direct and third-party models. For example, Emergency Rental Assistance funds received from the US Treasury were dispatched by TDHEs to eligible renters through a software portal created and shared by the Alaska Housing Finance Corporation, while others designed and implemented their own programs. If DOE allocates funding based on the IHBG formula, and models the delivery and reporting structure and format used by the HUD Office of Native American Programs, the likelihood that Tribes and TDHEs can administer their own programs increases. DOE should closely consult with ONAP on outreach and program administration design, and specifically emulate the Indian Housing Plan/Annual Performance Report process.

Another example is DOE's [Grid Resilience State/Tribal Formula Grant Program](#), which features different levels of matching requirements based on whether the Tribe uses a third party contract or if they do the work themselves.

DOE and Tribes Should Leverage Trusted, In-State Contacts

Tribes and TDHEs have trusted in-state contacts familiar with the unique history, context and laws that have shaped and continue to shape their communities. In Alaska, for example, DOE could leverage Alaska-based organizations (e.g., the Association of Housing Authorities, Alaska Housing Finance Corporation, Cold Climate Housing Research Center, Renewable Energy Alaska Project, etc.) as subject matter experts who can interface between Tribes/TDHEs and DOE.

15. What barriers do Indian Tribes face to developing and implementing these programs (e.g., access to infrastructure, technology, or program implementers)? How can DOE help Indian Tribes overcome these barriers and support program efficiencies?

Access to DOE programs has historically been a barrier for Indian tribes. Most tribes have very low administrative capacity. **DOE should add the following entities** to the draft definition of “Indian Tribe” to support successful implementation:

- **Tribally Designated Housing Entities (TDHEs)**, as defined in the Native American Housing Assistance and Self-Determination Act (NAHASDA, P.L. 104-330).
 - TDHEs operate as regional consortia for small tribes that would otherwise get left behind. TDHEs have reported having trouble accessing “Tribal” DOE funds in the past because of this eligibility barrier.
 - NAHASDA programs and formula funding delivered by HUD through TDHEs are an excellent model for DOE to emulate in equitably dispatching this assistance to tribes.
 - Often, TDHEs are left out of the eligibility pool for access to DOE funds for Tribes, an oversight that puts remote, rural places like Alaska at a further disadvantage in harnessing the benefits of the energy transition, as most individual Tribes serve villages of only a few hundred people or less and lack capacity to pursue complex grant applications.
- **Tribal Utilities**
 - Tribal utilities are enterprises owned by the tribe but may have different governing structures and may or may not be regulated by the tribe. These organizations typically deliver energy to reservation territories.
 - The creation of tribal utilities increases tribal sovereignty and self-determination, supports economic development, creates jobs on the reservation, and provides improved customer service to service territory.
 - Tribal utilities often have staff outside of the tribal government administration who may have the expertise and capacity to apply for and manage federal grants.²³
- **Intertribal Councils**
 - Intertribal councils and organizations are tribally-run non-profit organizations whose governing structure is made up of elected leaders from tribal councils in the state. They typically provide technical assistance and training to tribal governments and communities on a variety of topics important to Indian Country.
 - Most Intertribal councils serve tribes within each state. Some examples of western Intertribal councils are:

²³ For more, see: National Renewable Energy Laboratory (NREL), “Addressing Regulatory Challenges to Tribal Solar Deployment.” <https://www.nrel.gov/docs/fy22osti/82725.pdf>; U.S. Department of Energy, “Tribal Authority Process.” <https://www.energy.gov/indianenergy/articles/tribal-authority-process-case-studies-conversion-reservation-electric>; Woven Energy, “Tribal Utilities.” <https://wovenenergy.co/tribal-utilities>;

- [Intertribal Council of Arizona](#)²⁴
- [Intertribal Council of Nevada](#)²⁵
- [Intertribal Council of California](#)²⁶

Tribes and TDHEs face considerable barriers related to climate, geography, logistics, lack of infrastructure, administrative capacity and broadband.

As an example: Some of the last Blockbuster video stores to close in the country, in the late 2010s, were in Alaska. This is a cultural reflection of the generally poor state of Internet access in much of the state, even the urban areas. Alaska is big, cold and rugged. The distance from Utqiaġvik to Juneau is 1,100 miles, the same as New York City to Orlando. Freight is about 20% of the total cost of building a new single-family home in the remote North Slope region of the state.

Access to electricity is another major barrier for all Tribal homes; a 2021 Department of Energy analysis estimated 14.2% of Native American families on reservations have no access to electricity, compared to 1.4% of all U.S. households. An example of this lack of sufficient infrastructure can be found on the Navajo Nation in the Southwest, which is the largest Native American nation in the U.S., with an estimated enrollment of 343,000 people, about 185,000 of which live on the Navajo Nation. Approximately 34% of these families live below the poverty line and 32% lack electricity. Even where there is access, the availability of *reliable* electricity in Tribal communities can also be a barrier.

Additionally, types of homes vary across Indian Country and may include traditional homes, e.g., hogans, as well as mobile homes and houses, which will require different types and levels of efficiency improvements. Proving home ownership may be a challenge, as some Tribal residents may own their homes but not have titles or a traditional home mortgage to prove home ownership. It will be important to have a variety of ways to define and prove homeownership. See, for example, the home efficiency improvements application used by Red Feather, a tribal housing services organization operating in Arizona, [here](#).²⁷

Tribal homes on Indian Reservations may not have postal addresses, which can pose a barrier for Tribes applying for grants.

DOE can help overcome these barriers and support program efficiencies by making an intentional effort to dovetail programs and procedures for Tribes and TDHEs, wherever possible, with the principles and practices of NAHASDA.

16. What best practices and lessons learned from other tribal efficiency or incentive programs should DOE consider in drafting program guidance?

²⁴ Intertribal Council of Arizona, <https://itcaonline.com/>.

²⁵ Intertribal Council of Nevada, <https://itcn.org/>.

²⁶ Intertribal Council of California, <https://itccinc.org/>

²⁷ Red Feather, “Application for Home Repairs.” <https://www.redfeather.org/application-for-home-repairs.html>.

As noted above, HUD’s IHBG program is an excellent model for deploying funds to Tribes and TDHEs. DOE should leverage the IHBG formula to determine funding allocations for Tribes. Additionally, as also mentioned, DOE should closely consult with ONAP on outreach and program administration design, and specifically emulate the Indian Housing Plan/Annual Performance Report process.

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?

HOMES

State Example: California.

Franklin Energy implemented a measured pay-for-performance home performance program with PG&E from 2019 - 2022. Results [demonstrated](#) high realization rates and delivered significant peak electric savings. Franklin achieved over 100% realized savings rate (compared to 27% for the predicted AHUP program that it replaced). This turnaround was a combination of the fact that measurement creates an incentive to be accurate, and Franklin Energy was able to use the data generated from measuring past projects to calibrate prediction. Accuracy is possible when there is performance data and aligned incentives.

Utility Example: ComEd.

Recurve’s [recent study of four ComEd energy efficiency programs](#) demonstrated that customer targeting based on pre-program Advanced Metering Infrastructure (AMI) data can accurately predict results from future customers.²⁸ The results of this study showed that targeting metrics were predictive of savings outcomes for the multiple programs evaluated and could be applied to future participants to optimize programs and customer benefits. According to Recurve's analysis, if a future program targeted energy customers with similar profiles to the top quartile of energy savers from the ComEd programs, it could drive 2-4.5x more savings than the average (depending on the program). HOMES programs that apply similar targeting strategies will be able to amplify the impact of each federal dollar as it is coupled with private or utility investments.

HEEHR

In the wake of the COVID-19 pandemic, there are several recent examples of new aid programs, many of them income-qualified, that DOE should look to for lessons in designing these rebates, including CARES/ARP relief programs and the Low-Income Household Water Assistance Program. The 2022 student loan forgiveness program is another useful program that can provide guidance.

²⁸ ComEd and Recurve. “Utilizing Smart Meter Data to Improve Program Cost Effectiveness and Customer Outcomes Executive Summary.”

<https://comedemergingtech.com/images/documents/ComEd-Emerging-Technologies-Smart-Meter-Data.pdf/>

Some key learnings from these programs include:

- **Power of self-attestation**
 - 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.)
 - President Biden’s student loan forgiveness program has processed more than 22 million applications using self-attestation of income. 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.

- **Benefits of integrating with existing government data sources and “categorical eligibility”**
 - Because many existing low-income programs (e.g. SNAP, LIHEAP, LIHWAP, TANF) are administered by one or two state agencies in each state, the state already has an excellent resource for identifying and certifying households that are low-income and should be deemed categorically eligible for HEEHR rebates.
 - LIHWAP, which states had to stand up as a brand-new, income-qualified program in 2021-2022 showed how effectively this data can be used to accelerate program adoption. In Virginia, as part of the application process, households could attest to any programs that would make them categorically eligible for LIHWAP and authorize a match against the state’s database to confirm their eligibility. More than 82% of the approved applications used this “express lane” and were able to apply without uploading any income documentation, allowing Virginia to distribute almost 5% of its allocation *each week*.

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?

Overall, DOE should give states flexibility to identify primary goals of their individual programs, based on unique state needs and priorities. DOE should consider supporting states by creating standard frameworks or sharing best practices for data collection, calculations, and guidance for data needed for calculation of metrics (for example, data needed to calculate GHG savings.)

DOE should ask individual state, tribal, and territorial programs to track their program performance, and consider measuring program success based on the following metrics:

- The number of projects completed for households in total across both programs;
- The number of projects completed in low-income and disadvantaged communities (for both HOMES and HEEHR programs);
- Survey of a sample of customers one month and one year after the retrofit was completed;
- The amount of energy savings (lifetime and peak) and GHG savings achieved program-wide;
 - HEEHR, based on the energy measures installed, the deemed energy and GHG savings (based on zip code).
 - HOMES programs offering the Modeled Savings pathway: the realization rates post retrofit, noting if they over or under performed predictions.
 - GHG savings determined by location of projects.
 - HOMES programs offering the Measured Savings pathway: the total energy saved
 - GHG savings determined by location of projects.

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?

Regardless of the method used (online, phone, paper) for applications and vendor enrollments, any entity processing applications or income verifications should be required to keep a comprehensive and robust audit trail to easily allow a percentage of the applications to be audited for accuracy.

Program administrators and DOE should design a set of program metrics that track key indicators that point to program success or failure, but also recognize that which metrics are most informative will change over time and that participants should be prepared to change their reporting as the program matures.

Some key aggregate metrics that should be tracked and reported on from the outset include tracking the number and value of rebates redeemed by:

- Low vs. moderate income households
- ZIP code and census tract
- Type of vendor (large hardware store, contractor, small hardware store)
- Rebate “account” used (heat pump, hot water heater, electric service upgrade, etc.)
- Renter vs. owner

Program Administrators, States, and DOE should consider collecting the following information:

- Individual contact information and the right to review their energy data pre- and post upgrade (13 months before and 13 months after).

- The specific measures installed per home, per address (with zip code)

DOE guidelines should lay out required and optional post-upgrade evaluation procedures that may be undertaken on a statistically significant number of projects including the following considerations:

- Quality control inspections, including equipment right-sizing (for both programs)
- Fuel-switching inspections to ensure old gas appliances are properly uninstalled, hauled away, (for HEEHR rebates) and
- Initial follow up outreach should be completed by phone/email within one-month for satisfaction, 3 months and 13 months for weather normalized savings using utility data access (For HOMES rebates).

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?

According to the U.S. Census Bureau, the U.S. has approximately 142 million housing units nationwide.²⁹ The \$8.8 billion for home energy rebate programs appropriated in the Inflation Reduction Act (along with the 25C tax credit) is not enough on its own to address the efficiency and electrification needs in every home - but these funds mark an important downpayment for the home performance and electrification industry to build out local workforces, promote state, territorial, and Tribal engagement and programs, and build familiarity and trust at the community level in home energy upgrade programs. To build this trust in the long term, programs will need to be effective - saving households money and energy while improving comfort.

DOE should offer states flexibility regarding the size of rebates, allowing lower rebates where they can pair with utility rebates and stretch their allocated funds.

DOE should work internally and with EPA, HUD, and other agencies to align funding priorities so that both IRA and durable sources of federal funding can build off of the investment of HOMES and HEEHR. DOE's revolving loan fund grants and EPA's GHG reduction fund can establish durable sources of funding that will continue beyond the IRA, and DOE's codes and workforce funding can be used to transform the building and contractor industry to deliver not only IRA program dollars, but in perpetuity.

HOMES Project Certification

The certification requirement for HOMES rebates under IRA Sec. 50121(b)(4) is one of the most important tools that states can use to leverage public funds 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

²⁹ United States Census Bureau. "QuickFacts," <https://www.census.gov/quickfacts/fact/table/US/HCN010217>.

properly valued at time of sale. Programs should also take into account and support the potential for the IRA programs 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 IRA 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. (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](#), [Argento, Bak, and Brown 2020](#), [Redfin 2016](#), [Pearl Certification 2017](#) and [Pearl Certification 2022](#); see also [Brookstein 2020](#) for discussion of how high-performing homes that are *not* certified do not typically achieve price premiums.)

Less intuitively, it should be noted that the buyer 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. The relationship between higher mortgage payment and lower monthly bills is driven partly by the appraiser and underwriter. DOE should support lending standards that support an increase in home values when the home is more energy efficient.

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)?

For more information on past successes, see earlier responses to Question 17.

For driving higher energy savings per rebate dollar invested, please see question 6.

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)?

As noted earlier in this response under Question 3, the rebate programs were designed to target substantial funding at low-income communities but should be seen as one residential rebate program with two parts.³⁰

DOE should affirm that Tribal programs do not need to undertake any set asides.

³⁰ As noted previously, The HEEHR program is limited to households under 150 percent Area Median Income (AMI), while HOMES rebate dollar maximums double for low-and moderate-income households (under 80 percent AMI). Under HEEHR, 100 percent of project costs are covered for households making under 80 percent AMI. HOMES and HEEHR offer additional rebates to contractors working on projects in disadvantaged and low-income communities.

23. What best practices, like bulk purchasing or bulk installation, should program administrators consider to reduce implementation costs for rebate recipients or to maximize the reach of program funding?

In guidelines, DOE should affirm states may allow implementers to pursue bulk purchasing and bulk installations, fixed pricing for measures, or other program design components, particularly in support of low-income and disadvantaged communities, as well as multifamily projects where, per statute, at least 50 percent of residents meet income requirements.

24. What practices should states, territories, and Indian Tribes include in program design to maximize uptake such as interim targets, incentives to contractors to install eligible equipment, or partnerships with for-profit, non-profit, or municipal entities)?

Both HOMES and HEEHR rebates include contractor incentives to work on projects in disadvantaged and income-qualified communities—HOMES includes a \$200 rebate per home for contractors completing projects in disadvantaged communities, while HEEHR allows states to offer up to a \$500 rebate per project.³¹

To maximize contractor project uptake, DOE should affirm that states may choose to not cap uptake 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.³²

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 should consider providing stock images (with people representing diverse backgrounds and homes of diverse construction types), program information, and marketing tools in easily modifiable formats and multiple languages so that states can provide these tools to contractors—and, in turn, consumers.

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?

HOMES

³¹ Per IRA Sec. 50121(b)(5) and Sec. 50122(c)(5)(A)(i).

³² AnnDyl Policy Group Contractor Survey (conducted November 15, 2022-January 6, 2023). <https://www.anndyl.com/wp-content/uploads/2023/01/AnnDyl-Contractor-Survey-Initial-Results.pdf>. 24 percent responded that these incentives would not move the needle—even with that benefit, they believe there are still too many barriers.

The Measured Savings Approach under HOMES provides excellent potential for new business models. Some examples of new business models that can be created include:

- “Installer aggregators” could be local contractors that do their own sales and marketing, leveraging measured savings incentives to provide special rebates to consumers while partnering with financing and distribution partners.
- “Marketing aggregators” could focus primarily on lead generation, leveraging measured savings incentives to reach more homes than they otherwise would be able to.
- A “Distributor Aggregator” could provide installer partners with lower cost equipment and financing solutions subsidized by measured savings incentives, lowering project prices across the board.
- A “Sales Aggregator” like a solar company with existing sales, marketing, and financing capabilities could partner with HVAC contractors to improve the economics of projects that combine heat pumps and solar.

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?)

DOE should encourage states to prioritize HEEHR rebates on existing buildings, ahead of new construction. According to recent analysis from RMI, building all-electric single family homes is less expensive than building with both gas and electricity in most cities across the country.³³ Retrofitting existing homes, in comparison (especially low-income and affordable housing), is often much harder and costlier. Existing homes often require electric capacity upgrades, duct work, and additional efficiency improvements to ensure that electric appliances perform well and provide indoor comfort. Because those additional barriers will make retrofits with electric appliances much less likely to occur naturally, we believe that prioritizing the distribution of funds towards those most difficult use cases would produce the greatest number of benefits that would have otherwise not occurred. Focusing on low-income, affordable housing, and environmental justice community retrofits has the added benefit of reducing energy burdens on communities often hit hardest by volatile and rising fuel costs and utility bills.

DOE has other IRA and non-IRA funding that impacts the new construction market - such as funds for workforce development and codes. These programs should align with HOMES/HEEHR and support market transformation.

E. Integrating Existing Incentives & Programs

³³ RMI, “All-Electric New Homes: A Win for the Climate and the Economy.” <https://rmi.org/all-electric-new-homes-a-win-for-the-climate-and-the-economy/>.

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?**

While \$8.8 billion is amazing support for energy efficiency and electrification – it is not enough to meet the energy challenges facing America’s homes. State Energy Offices must be allowed to layer rebate funds (and tax credits) with other funding to provide comprehensive energy upgrades that go beyond what is allowed with rebate funds. DOE should focus on aligning the rules of various federal programs so that coordination is easy and practical for State Energy Offices. DOE should meet with WAP, RLF, LIHEAP, and tax credit offices to determine what braiding will look like in practice and how State Energy Offices will comply with individual program requirements.

To the maximum extent possible, DOE should offer clear guidance to states, territories, tribes, and program implementers on how this braiding can occur. The ability for states and communities to stack different funding sources can make federal tax dollars go further, lower program costs, and increase the measures and benefits a home can receive. DOE should provide this guidance quickly so program implementers, households, and other stakeholders can most efficiently and lawfully combine funding sources.

Both HOMES and HEEHR rebate programs feature large maximum rebate dollar caps to address low-income household cost constraints—\$8,000 under HOMES (with up to 80 percent of costs covered) and \$14,000 under HEEHR (with 100 percent of costs covered for low-income households, and 50 percent of costs covered for moderate-income households). Still, these dollar and cost-percentage caps may not be fully sufficient to meet home performance needs in all low income homes.

While the statute explicitly includes prohibitions related to combining funds between the two programs (or any other Federal grants or rebates), the statute limits this combination “for the same single upgrade,” per 50121(c)(7) and “for the same upgrade,” per 50122(c)(8). Neither provision mentions financing support, and neither contains a prohibition related to federal grants for other upgrades within the same home project. This was purposeful. Guidance from DOE explicitly allowing HOMES and HEEHR rebates to be layered with existing federal, state,

local, and utility rebate programs will allow states to both broaden and deepen their rebate programs, reducing greenhouse gas emissions and improving conditions in underserved homes. DOE coordination between the two IRA home energy rebate programs and the Weatherization Assistance Program (WAP) will also be crucial, since all three programs target low-income beneficiaries.³⁴ Coordination with other agencies administering existing and key new IRA programs that include building efficiency, like the EPA Greenhouse Gas Reduction Fund (GGRF)³⁵ and HUD Green and Resilient Retrofit Program (GRRP)³⁶ will also be critical.

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

The National Energy Efficiency Registry ([NEER](#)) was released in 2017 after a DOE-funded, two year effort.³⁷ In the process, DOE developed operating rules for a web-based platform that documents achievement of state energy and environmental goals, discloses regulated entities' compliance activities, and drives voluntary investment in energy efficiency and energy and water conservation initiatives, by supporting the registration and tracking of Energy Efficiency Projects (EE projects) and issuing tradable instruments based on resulting savings. NEER is designed to be flexible and can be tailored to suit evolving public policy goals and to track a range of benefits of EE projects. While NEER's trading of financial instruments modules (designed to support the Clean Power Plan) are not required for HOMES/HEEHR, the comprehensive national stakeholder process produced an important resource that DOE can use to support Definitions, EM&V, and quantification methodologies, mitigating risks of fraud and liability. We encourage DOE to consider this work for the insights it can provide to program energy savings attribution and the registry of these savings for evaluation and measurement of program success.

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)?

DOE should provide decision trees for retrofits and new home construction that helps contractors and consumers understand what the best incentives are for a homeowner or renter given their financial circumstances, energy rates, available incentives, and urgency. Working

³⁴ DOE's Weatherization Assistance Program (WAP) provides grants for low-income households (up to 200% of the federal poverty line) to support fundamental home weatherization measures, in partnership with state, local, and territorial governments. WAP received an additional \$3.5 billion in the Infrastructure Investment and Jobs Act (IIJA), which DOE estimates will support the weatherization of more than 700,000 additional low-income households. Sources: Department of Energy, Weatherization Program Notice 22-3. February 14, 2022. https://www.energy.gov/sites/default/files/2022-02/wpn_22-3.pdf. Department of Energy, "Celebrating 45 Years of the Weatherization Assistance Program." October 28, 2021. <https://www.energy.gov/eere/articles/celebrating-45-years-weatherization-assistance-program>.

³⁵ IRA. Sec. 60103.

³⁶ IRA Sec. 30002.

³⁷ U.S. Department of Energy, "National Energy Efficiency Registry (NEER) Principles and Operating Rules." <https://www.energy.gov/scep/slsc/articles/national-energy-efficiency-registry-principles-and-operating-rules>.

back from the consumer/contractor experience, DOE should provide guidance for states and administrators.

DOE should also provide state energy offices with pathways to engage low-income individuals and community stakeholders at the decision-making table. Specifically, DOE should recommend including equity-focused organizations to ensure intersectionality and inclusion in approach. Including these stakeholders in each state allows for addressing community level needs while centering low-income and marginalized communities. It is critical that low-income homes receive the most cost-effective approach to meet the comfort, health, and energy security needs.

As previously noted under Question 28, while IRA Secs. 50121(c)(7) and 50122(c)(8) prohibit using rebates and WAP grants for the same upgrade, neither HOMES nor HEEHR prohibit using both for different measures as part of the same home retrofit. DOE should affirm this in guidance. For example, a household may receive a HEEHR rebate for a heat pump, and an insulation upgrade that is part of HOMES. HEEHR equipment replacement may also occur in a home that also receives a WAP upgrade for insulation and air sealing.

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?

Home Efficiency and Electrification Rebate Program funding is routed through state energy offices to supplement, **not** supplant utility rebates. Energy efficiency funding provided by utilities is usually built into the rates, meaning ratepayers have already paid for these rebates, in the same way that taxpayers have already paid for HOMES and HEEHR funding through federal tax dollars. SEOs should note in their plans how they will be working with existing utility programs to ensure that they are not diminished by, but supported by, the new federal rebates. This may include modifying the HOMES and HEEHR rebate implementation to better complement the state's existing utility programs. DOE should consider undertaking a research report on ratepayer investment levels before and during implementation of HOMES and HEEHR.

DOE should affirm in guidelines that homeowners who qualify for HOMES, HEEHR, and/or utility rebates are allowed to take advantage of all rebates that are applicable to their home, layering them as needed, to support important upgrades that provide the public goods of grid resilience, greenhouse gas reduction, job growth, and energy security.

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

32. DOE may invest in tools and resources that states, territories, and Indian Tribes can elect to use to implement their programs. Program components could include (i) systems to track or process rebates, transactions, and improvements; (ii) systems to verify income eligibility; (iii) software to model and optimize savings; (iv) systems and/or forms for data collection; (v) model program templates program administrators can adopt in their application; (vi)

stakeholder engagement guidance and resources; (vii) standardized datasets and APIs, and (viii) program marketing, education and branding.

a. Which of these should be prioritized?

b. Are any of these not needed?

c. Are other components needed?

DOE should support and pre-approve income qualification and certification tools that currently exist in the marketplace by setting out criteria, consistent with statute, that help the states choose tools. DOE should not develop new tools that duplicate existing tools. DOE should provide states with a list of qualified software eligible to state energy offices for use related to income qualification, certification, measurement, and other tools needed for both HOMES and HEEHR rebate programs. Providing a pre-qualified list that meets the stated criteria would give states flexibility to use tools that work best for them with the confidence that DOE has vetted each option, reducing state administrative workload.

DOE should focus on providing program components that can be deployed with minimal or no changes across states. For program components that can be efficiently delivered by the private sector and/or will need to vary significantly across the country, DOE should instead focus on providing guidance and model templates.

One area where DOE could add significant value across the country is by producing a standardized dataset (and APIs for accessing it) that lists qualified products and which types of credits/rebates they qualify for. This would simplify the process for manufacturers to register their products and would ensure that products are vetted and classified correctly. As an example, providing a list where a contractor could look up that the Rheem Model #XE50T10H45U0 is eligible for a HEEHR rebate and should be counted toward the “Heat Pump Water Heater” account, but that Rheem Model #XG40T06EC36U1 is *not* eligible for a rebate would be beneficial to any entity trying to administer a rebate program. For more, see the response to Question 46. The DOE should ensure that this dataset incorporates any state differences where they might exist, for example in state-level appliance standards.

In other areas, like income qualification software, we recommend a process for software vendors to have their tools approved by DOE in order to ease the evaluation process for state administrators. Providing a qualified list will give states flexibility to use tools that work best for them and allow for software providers to offer important customization (e.g. integration with state social service agencies and/or tax authorities to simplify income verification) while assuring state administrators that the vendor they select will meet DOE requirements.

Third party certification is the crux of a viable market for high performing homes and required for the HOMES program by the statute. DOE should provide the states with a list of qualified certifications, along with clear parameters of what meets the requirement including:

- 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 (HES) 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.

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

As outlined earlier in this response under Question 32, the registry of product eligibility is unlikely to vary significantly across states and should be provided by DOE to avoid states having to reproduce this critical piece of infrastructure and to simplify the registration process for manufacturers.

An additional component that DOE might provide is the clearinghouse of how much of each type of rebate has been used by each household. Given that the rebate cap per household under HEEHR is \$14,000, per IRA Sec. 50122(c)(3)(C), DOE could ensure there is a centralized federal clearinghouse with an open API standard that states can use to track and manage rebate disbursement. This clearinghouse could also collect data on equipment installed, fuel use in property, haul-away information, and more.

Whoever maintains this clearinghouse, it will need to allow for updates in real-time to ensure that each household or contractor does not exceed the \$14,000 statutory cap on rebates, or individual caps per appliance or upgrade type. Using multiple software platforms within one state could potentially allow one household or contractor to exceed the \$14,000 cap if not properly connected with each other.

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?

Categorical Eligibility

For low-income households, the simplest method for verifying eligibility is to confirm that they are “categorically eligible” by virtue of participation in an existing benefit program (e.g. SNAP, LIHEAP, LIHWAP, TANF), all of which generally have income qualifications that are *well* below the 80 percent of AMI HEEHR threshold for low-income. Integrating with state administrators of those programs to verify program participation such that applicants don’t need to upload *any* documents as part of their application would dramatically ease the administrative burden on low-income households. DOE should consider providing guidance that administrative funding can be used to upgrade these systems, where they will be used for income verification for HOMES/HEERH.

There will also be many low-income households that do not already participate in an existing benefit program and therefore cannot use categorical eligibility - but providing that pathway for those who do qualify will greatly reduce burdens on both state programs and qualified households.

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.

Self-Attestation

For others, offering self-attestation of income and/or the ability for applicants to authorize review of their tax data held by state or federal tax authorities would significantly streamline the application process. Requiring program participants to provide documentation is likely the largest single barrier that would prevent program uptake. In general, program administrators should offer other “shortcuts” to avoid documentation requirements as much as possible.

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.

For those households that do need to provide documents, recent paystubs are usually the most readily available documentation and should be prioritized. But income verification providers will need to be flexible in the guidelines they use to assess income, especially as many LMI households have multiple jobs and/or work in the gig economy with unpredictable income streams.

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?

Rather than trying to establish a single income qualification system, DOE should recognize that the private sector has extensive expertise in this area, and that centralizing this critical function in a single make-or-break system risks high-profile program failure. The HOMES and HEEHR programs were celebrated for the support of expanding jobs and markets, and this includes supporting American-based companies that have proven solutions. Some important qualifications DOE should consider in determining which software tools the states may use include:

- Prior experience designing user-friendly, mobile-first consumer-facing applications that minimize friction in a self-serve experience, while providing phone and paper as fallback options for those who prefer them;
- Prior experience with income verification and self-attestation in the context of benefit qualification, including accounting for gig economy forms of income (e.g. experience processing Uber and DoorDash paystubs, etc.);
- Prior experience with qualifying income as falling *below* a threshold (rather than above, which is the industry norm for things like credit approvals);
- Prior experience securely sharing data with state governments - both sending data and receiving data - particularly related to low-income populations;
- Prior experience outreaching to low-income populations, especially those that are not already receiving government benefits, meeting households where they are;
- Prior experience leveraging existing data that states make available to speed the application process for low-income households, including via categorical eligibility;
- Prior experience providing direct aid, discounts, and/or rebates to vendors, with a history of processing applications and delivering funds in a timely and accurate manner
- Prior experience with having programs audited and examined for excessive waste, fraud and abuse, with successful completion of those audits;
- Prior experience working with other likely stakeholders in the HEEHR and HOMES programs, including utilities, community action agencies, vendors, and end-users; or
- Prior experience standing up a new government program (e.g. CARES/ARP relief, LIHWAP) and complying with both state and federal guidelines.

In addition, if an optional national system can access federal tax documents and verify eligibility while preserving privacy, it could help address the documentation challenges described in the previous response.

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?**

Most existing technology solutions for verifying income are aimed at verifying that a household's income is *above* a threshold, rather than below one, since this is critical for common use cases like loans and other extensions of credit.

Using existing government data sources that can report a precise household income should make determining whether the household makes <80% AMI, 80-150% AMI or > 150% relatively easy using widely available tools to geocode an address to a particular MSA and then cross-walk that MSA to its HUD-provided AMI.

Because most existing low-income programs generally use a 100%, 150% or 200% of the Federal Poverty Level as their eligibility threshold, participation in any program should make a household categorically eligible at the low-income level. While the details will vary for different areas, in the vast majority of states/MSAs, qualifying for SNAP, TANF, LIHEAP/LIHWAP, Medicaid, CHIP, Public Housing Assistance, ACP, or SSI should mean that the household is considered low-income by the 80% AMI threshold.

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?

For both the modeled and measured pathways, the statute requires that states provide a plan; thus DOE should support opportunities for states to provide one or both options. Access to utility data, software tools, and customer awareness will be critical to both pathways and DOE should provide states the flexibility to use the tools in the marketplace that best meet the needs of their workforce and existing programs. In addition, DOE should provide states the option to add either a modeled or measured approach at a later time should their access to data and tools make one pathway more optimal.

In implementing the modeled approach, DOE should approve modeling software that is designed to be calibrated with historical energy use data, in a process equivalent to BPI2400 as noted in the statute. DOE should ensure access to training on the use of these software tools so that contractors can easily incorporate them into their business models. Furthermore, there should be opportunities to review the data post-retrofit to ensure that contractors that are habitually "over predicting" or "under predicting" savings receive additional training or are

removed from the program. DOE-designed webinars that explain the program, the concerns about over predicting savings, and the need to support accurate savings are important.

In order to implement the measured savings approach, the state will need to consider the following key elements:

- **Performance Payments to Aggregators:** Incentives for the measured approach are paid by program implementers to “aggregators” that provide retrofit resources to a portfolio of homes that will achieve a minimum of 15% measured energy savings. The aggregator takes on project performance risk based on their predictions of actual energy and GHG reductions that will be paid for by the SEO.
- **Upfront Payments to Consumers:** While aggregators are paid on actual energy savings performance of a portfolio of projects, households that complete projects receive upfront incentives by the aggregator, ensuring a “point of sale” discount or other value proposition (lower financing costs, additional measures, etc.).
- **Aligned Contractor Incentive:** Contractors who work with aggregators are incentivized to provide rebates that will move the household to make the most-energy-saving choices, and not to overpredict so that the portfolio achieves its goals in addition to the household’s project and comfort goals.
- **Accountability to Consumers and Taxpayers:** Since aggregators are only paid based on actual project performance, they are incentivized to ensure high levels of work quality—if projects do not perform, aggregators are on the hook (not taxpayers) and homeowners still receive their incentives.

In order to ensure the successful implementation of both the modeled and measured savings approaches by State Energy Offices (“SEOs”), DOE should provide the following guidelines to SEOs:

- **Support for the measured paths:** DOE should support the development of guidelines and tools that allow states to make the investments necessary to stand up the measured path as quickly as possible. Because much of program design and administration is focused on ensuring accurate energy savings, the measured savings approach can reduce program and administrative time because the burden of design is on the aggregator to develop what will work in the marketplace to achieve the desired energy savings – dramatically reducing overall program administrative soft costs.
- **Support for accurate modeling tools:** Modeling can only be done accurately when an accurate baseline is established and the elements of a building can be easily included in the home improvement. DOE should support the development and approval of software tools, and support funding for contractors to purchase modeling technology, as well as training on this software, to empower the contractors to undertake on-site modeling as quickly and easily and accurately as possible and ensure that models are accurately calibrated to customers historical energy usage per the IRA.

- **Support access to utility data:** Per statute, DOE shall publish guidelines for utility data sharing. This should be prioritized at DOE so that states can work to incorporate accurate utility data models swiftly into their programs in a secure and easy manner.
- **Enable data aggregator flexibility:** Data is critical to the measured and modeled paths. In order to ensure consumer accessibility, DOE should draft SEO guidelines that provide aggregators with the flexibility to provide program implementers with whole home energy data from a wide variety of sources, including utilities, third-party data providers, customer utility bills and delivery records, and/or in-home sensors.

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

Modeled savings estimates have had difficulty predicting energy savings due to three primary factors that should be addressed by the program:

- Energy models struggle to capture many complex factors that determine energy savings, including household behavior.
- 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.
- Contractors are often incentivized to maximize incentive levels and therefore “game” even the most accurate models.

The BPI-2400 standard aims to ensure that contractors do not overpredict when making savings estimates through methods such as overestimating the inefficiency of the home’s existing condition (for example through a blower door reading that estimates an artificially high level of air leakage). In addition, the use of energy data or bill analysis can assist in the development of an appropriate work scope and target where the maximum energy savings can be found. When BPI 2400 is used it helps to establish how that individual home uses energy and model the upgrade to correspond to that actual usage.

The goal of the HOMES program is to provide public funds in the form of customer incentives in exchange for improvements that represent real energy savings. 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. DOE should develop specific recommendations for exceptions to allow for flexibility. However, blanket flexibility will be counter to the intent of the law which is clearly to use historical billing data which is available to every utility customer.

DOE should also provide easy forms and means of accessing data as lack of easy access to billing data is a systemic problem, making it difficult for consumers, contractors, and aggregators today.

42. What recommended methodologies or standards could be used by states/programs to calculate energy savings and associated impacts, such as greenhouse gas emissions reductions? What software is used to implement that methodology? What are the key inputs and features?

DOE should recommend that program administrators use open source methodologies such as [CalTRACK](#) and open source software such as [OpenEEmeter](#) to calculate energy savings and associated impacts, including peak energy reductions and greenhouse gas emissions reductions.

In addition, DOE should provide program administrators with standard accuracy metrics to determine methodology and software qualification, standards that aggregators should be able to meet, they may include:

- Fractional Savings Uncertainty (“FSU”) that calculates the confidence interval of energy savings in a population of projects.

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 for each state / territory.

43. What software tools provide any of the following capabilities? (i) Energy usage calibration consistent with BPI 2400 (ii) Open-source advanced measurement and verification (iii) Savings valuation based on time, location, or greenhouse gas emissions (iv) Third-party certified documentation of the work scope and predicted impacts (v) Other capabilities of interest, including but not limited to use of standard data schemas (e.g., HPXML), application programming interfaces (API) integrability, etc.

(ii & iii): Open source software such as [OpenEEmeter](#) can provide open source AM&V and can also provide savings valuation based on time, location, and greenhouse gas emissions.

(iv): Third-party certified documentation of the work scope and predicted impacts

Software must meet the statutory requirement of providing a certificate that documents the rebate and “is provided by the contractor and certified by a third party to the homeowner; and details the work performed, the equipment and materials installed, and the projected energy savings or energy generation to support accurate valuation of the retrofits.”³⁸

³⁸ IRA Sec. 50121(b)(4)

DOE guidelines should recommend states adopt approaches to home certification that will maximize their market impact, including the following:

- 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;
- Indicates the energy savings from the rebated improvement(s) that are predicted by the program's energy modeling software;
- Communicate the benefits of these features in accessible and engaging language;
- Include an asset-based miles-per-gallon metric generated with software based on NREL's residential energy modeling tools, with the Home Energy Score when sufficient data is available (lower-data options being acceptable);
- Demonstrates real acceptance from and value for the real estate sector.

The benefits of certification are closely tied to scale: the more homes certified, the more visible the certification in the real estate transaction. Accordingly, DOE guidelines should recommend that states require that HEEHR rebates be accompanied by a certification.

(v): EESG believes that all third party software should be compatible with HPXML and also provide aggregators with APIs that have input/output functionality (i.e. other software tools can send data and receive outputs without having to use a specific user interface).

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

The congressional intent of the HOMES rebate program is to apply BPI 2400. Specifically, the legislative intent included an acknowledgement that, while all energy models have challenges, energy models that are calibrated using household energy usage data are more likely to be accurate.

As noted, the primary goal of the BPI-2400 standard is to ensure that contractors do not "cheat" when making savings estimates through methods such as overestimating the inefficiency of the home's existing condition (for example through a blower door reading that estimates an artificially high level of air leakage). Furthermore, it is impossible to accurately establish a baseline of a 5 bedroom 1954 home to accurately model the savings from improvements in 2024 when the 70 years may have included a myriad of efficiency improvements, or not.

DOE guidance should include limited exceptions to BPI 2400 requirements for projects that are not capable of meeting BPI 2400 requirements (e.g. less than 12 months energy usage data due to a new home purchase). Contractors and aggregators should be allowed to provide modeled savings for projects that can demonstrate limited qualified exceptions.

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. As long as models are being calibrated, programs should be allowed flexibility with respect to rebate size and confidence, such that contractors who choose to use a full BPI-2400 compliant model are rewarded, but the program does not exclude homeowners that meet the exception.

45. The Home Efficiency Rebates refer to savings based on “time, location, or greenhouse gas emissions.” Please provide input on best practices for calculating savings based on these factors. How should program administrators value these savings in comparison to homeowner energy usage and bill reductions?

Considering time, location, or greenhouse gas emissions in the value of savings is straightforward. The value of savings impacts vary by hour (time), geography (location) and GHG intensity (emissions) of the grid or displaced fuel used. SEOs, possibly in partnership with utilities or regulatory bodies where appropriate, can assign value to each of these components based on needs and constraints in the state's grid and state goals and create a value stream for each location and hour or season of the year. California currently accomplishes this with the publicly available Avoided Cost Calculator. Illinois and Arizona have Time of Use rates that align with grid value, and many other states have started to incorporate hourly carbon intensity to their savings impacts. Geographic grid constraints are familiar to utilities and their regulators at the substation level.

The process does not need to be complicated and can draw from existing analysis in states to develop a representative value stream or a proxy shape that will drive savings to where they are needed most to optimize state objectives. In most cases, this value proposition will be favorably aligned with customer bill impacts, and aggregators play a key role in bridging the value proposition between customer value and broader grid and climate value. The value is synergistic, not an either/or comparison.

DOE should consider guidance to clarify that creating these datasets, where needed, are an acceptable use of administrative funds.

I. Eligible Technologies for Rebates

46. How should DOE facilitate that clear information regarding qualifying technologies and projects is readily available to consumers, contractors, retailers, and other relevant stakeholders?

HEEHR

DOE should create a standardized website featuring a full list of products eligible for HEEHR rebates, leveraging internal expertise from the Energy Star program, given the Energy Star equipment requirement, per IRA Sec. 50122(d)(6)(B). The site should feature simple, clear language and FAQs on qualifying technologies and projects that can be accessed by all

stakeholders. The website should also include a “help desk” email that stakeholders can use to ask additional questions.

Relatedly, DOE should indicate technologies that are not eligible. This guidance will guard against potential misuse of funds and provide clarity to grantees and markets to advance high-priority investment strategies.

DOE’s website should also develop and maintain a list of high-priority projects and technologies that make the largest pollution and energy burden impact reductions, allowing stakeholders to quickly evaluate whether a project/technology is qualified. This guidance on high-priority, safe harbor projects and technology types will reduce transaction costs, and encourage rebate projects with maximal health, climate, and economic impacts.

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?

Yes, DOE should provide states, territories, and Indian Tribes with a list of technologies that programs can add as optional additional eligible technologies, provided that they meet one of the two following criteria:

1. Technologies and equipment that **facilitate broader electrification of the home.**
 - a. DOE should list panel upgrades, sensors, and controls that allow for the integration and interoperability of systems as eligible for HEEHR rebates for the purpose of calculating project costs.
2. Technologies and equipment that **help to manage the home's electrical load.**
 - a. DOE should list smart thermostats and other demand-response technologies that allow for the automated or remote management of electrical systems as eligible for HEEHR rebates. Allowing these technologies to be part of the total project will help ensure that electrification does not put an undue strain on the distribution grid.

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

For new homes, which are allowed to receive a HEEHR rebate, it may make sense for states to provide a rebate for insulation and air sealing only to the extent they go beyond what is required in code. If the code or regulation already applies to a new home or substantial renovation, no additional efficiency or electrification measures beyond the insulation and air sealing rebate noted above are incentivized with a rebate.

For existing homes other than for additions and substantial renovation, the rebate should be applicable as it provides the incentive to make the retrofit.

According to the Building Decarbonization Coalition, almost 100 municipalities and four states have adopted policies that require or encourage building electrification.³⁹ State HOMES and HEEHR programs should have the flexibility to support these state and local electrification codes and policies.

J. Data Access and Sharing

49. What should DOE consider when drafting energy usage data sharing guidelines?

DOE considerations should be broken into two areas:

1. The principles that support a customer's right to control their energy data, including who may access it; and
2. The avoidance of unfair or anti-competitive restrictions on the sharing of energy data that are often imposed by utilities.

While this first point can be derived from first principles, the second point is responsive to issues experienced "in the wild" over the past few years regarding utilities providing low-quality data-exchange systems. For example, the taxonomy of data-exchange failures documented in Mission:Data's 2019 report include (i) data delays, (ii) incorrect data, (iii) unplanned system outages, and (iv) poor conformance with standards.⁴⁰

EESG refers DOE to consider draft guidelines from [Mission:Data](#) for DOE that endeavor to address both the points above – by, for example, affirming a customer's personal 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 pretending to implement Green Button Connect while undermining its operation in practice. The guidelines are linked [here](#).⁴¹ EESG strongly urges DOE to adopt review and publish guidelines for data portability.

50. What are best practices for minimizing the complications of data collection, allowing data sharing where needed, and ensuring data security? Is there an opportunity to build upon Green Button and Green Button Connect?

³⁹ Building Decarbonization Coalition, "Innovation Acceleration: How Building Decarbonization has transformed the U.S. building sector in just four years."

https://buildingdecarb.org/wp-content/uploads/BDC-Innovation-Acceleration-report_2.15.pdf

⁴⁰ <http://www.missiondata.io/s/Energy-Data-Portability.pdf>

⁴¹ http://www.missiondata.io/s/20230209-Missiondata-DOE-data-portability-guidelines_final.pdf

The best way to “build upon” Green Button Connect is to adopt consistent, nationwide practices across electric and gas utilities. Only then can automated software solutions reach a scale that dramatically reduce the administrative burden and costs of program implementation.

EESG supports guidelines from Mission:data that serve to fulfill the IRA’s requirement to “develop and publish guidelines for States relating to residential electric and natural gas energy data sharing.” Again, the guidelines are linked [here](#).⁴²

K. Compliance and Quality Assurance

51. How can program administrators track participation in rebate programs to protect against:

- (i) Double-dipping between various federally funded state and Tribal grant programs for the same upgrade**
- (ii) Households receiving more funds than are allowable under the law**
- (iii) Contractors/installers purchasing equipment in a way that violates the prohibition of combining efficiency and electrification rebates**
- (iv) Claims for work not done**
- (v) Improper installations**
- (vi) Ineligible products**
- (vii) Falsifying income eligibility**
- (viii) Other risks – please identify other risks**

(ii) Households receiving more funds than are allowable under the law

For the purposes of tracking how much is still available in each “account balance,” as well as toward a household’s overall cap, tracking should be implemented at the property/housing unit level as well as the individual who is receiving the rebate.

The composition of households (i.e. the people) changes frequently and is difficult to track over time, whereas housing units are relatively stable and already well cataloged by the USPS and private providers. Further, most of the upgrades covered under HOMES and HEEHR are likely to remain with the property when an occupant moves out. Thus it makes more sense to limit further rebates to upgrade that *property* than it does to limit rebate submissions by a *person* who has moved to a new property that hasn’t yet been upgraded.

Denying a rebate to a person who moves into a new home and wants to electrify their property because they already electrified their previous home and thus have no remaining eligibility runs counter to the goals of the program. Further, households that have already seen the benefits of electrifying their housing unit are some of the most likely to take advantage of these programs.

(iv) Claims for work not done

⁴² http://www.missiondata.io/s/20230209-Missiondata-DOE-data-portability-guidelines_final.pdf.

Administrators should incorporate random audits to confirm that individual projects were completed with statistical analysis of vendors' rebate submissions to look for anomalies that merit further investigation. Administrators should be particularly attuned to the possibility of unscrupulous contractors who target low-income neighborhoods and promise to do work that never gets done, while collecting rebates.

(vi) Ineligible products

As described earlier in this response under Question 46, DOE should create a national registry that manufacturers can use to register their products and to identify which "account(s)" the product falls under. Creating this standardized registry and providing broad, programmatic (API) access to it would dramatically accelerate how quickly states could begin providing rebates and ensure that funds are not spent on ineligible products.

(vii) Falsifying income eligibility

At its core, any process to verify that a household is *under* a certain income threshold relies on the household to report all income sources. Whether in tax returns or a rebate application, concealing off-the-books income is the simplest way for a household to report income lower than its actual income.

Consequently, the most important ways to minimize falsified income eligibility are to:

1. Make clear that certifications on the application are legally binding;
2. Cross-check income with other state records (since, for example, tax authorities often receive reporting directly from employers); and
3. Design the application in a user-friendly way that elicits all sources of income from the applicant (since, for example, applicants might not realize that retirement income or government benefits count as income).

(viii) Other risks – please identify other risks

In general, the biggest risks from fraud stem from organized attempts to abuse the program, not individual households that understate their income in an attempt to increase their rebates. As such, DOE should support states and program administrators with information sharing about types of fraud and abuse across states and solicit ideas from interested stakeholders to surface the ripest vectors for fraud.

Aspects of the rebate program process that could be vulnerable to organized fraud that DOE should encourage states, territories, and program administrators to particularly focus on include:

- Contractors or other vendors targeting low-income neighborhoods with inducements (e.g. gift cards, cash) to use those households' rebate eligibility to claim rebates for equipment that is never delivered or is resold.

- Multiple households including a person who is categorically eligible for a rebate in their household so that they qualify.⁴³
- The widespread use of non-existent or fraudulent identities, or the association of eligible households with a property where that household does not reside.⁴⁴

L. Job Creation & Quality

54. Which contractor and/or laborer credentials and/or certifications should DOE and/or program administrators require for work funded in part by these rebates?

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.

We recommend that DOE identify a set of industry certificates or certifications that are applicable for specific business models, specified rebateable measures (HVAC vs. insulation), and specific job roles e.g., energy modeling for specific software vs. home auditing vs. whole-house Manual J modeling (which is also energy modeling, and can be more accurate and robust than "home performance" energy modeling software).

DOE should ensure that there is training and training funding available to support workforce development efforts to help contractors get the applicable certificates / certifications for their employees based on their business models and internal Quality Assurance and Quality Control processes.

55. What practices are needed to ensure quality installations? Please provide examples of how existing efficiency or electrification programs track quality installations by contractor.

Contractor Certification

As noted earlier in this response, for both the Home Efficiency and Home Electrification Rebate programs, DOE should offer a list of qualified contractor certifications that states may consider using to ensure contractors performing rebates according to the state's program standards. This list should align with qualified certifications eligible under the \$200M Contractor Training Program (IRA Sec. 50123), which was designed to spur workforce development in support of both HOMES and HEEHR.

⁴³ Example: Tony Romm, "Thousands allegedly bilked U.S. for free internet — in one child's name." Washington Post. <https://www.washingtonpost.com/us-policy/2022/09/08/fcc-broadband-fraud-coronavirus/>.

⁴⁴ Example: Pandemic Response Accountability Committee, "Fraud Alert: PRAC Identifies \$5.4 Billion in Potentially Fraudulent Pandemic Loans Obtained Using Over 69,000 Questionable Social Security Numbers." <https://www.pandemicoversight.gov/media/file/prac-fraud-alert-potential-ssn-fraud1.pdf>.

As noted earlier in this response under Question 51, rebate program administrators should consider incorporating random audits to confirm that individual projects were completed as submitted for the rebate.

56. How can DOE assure that these rebates support quality construction jobs and quality non construction jobs?

The vast majority of residential home performance, general construction, HVAC, or plumbing are small non-union businesses.⁴⁵ The single-family 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 Energy Efficiency Strategy Group’s response to DOE’s workforce RFI [here](#).⁴⁶

M. Buy America and Supply Chain Considerations

57. Which technologies, products, or materials could face barriers to deployment or accessibility due to cost premiums, supply chain constraints, or other production issues?

Many of the building materials needed for energy efficient retrofits, especially for multifamily housing, are already made in America, according to an upcoming report commissioned by the BlueGreen Alliance (BGA) Foundation. For example, above 90% of air sealing, wall and attic insulation and windows and doors are made domestically while almost 75% of heat pumps are also made in America. For more detail, see BGA’s response to the U.S. Department of Housing and Urban Development RFI Relating to the Implementation of the Build America, Buy America Act (Docket No. FR-6331-N-03).⁴⁷

At the present moment, a number of electrified household appliances face supply shortages. There are notable component and labor deficits in the home electrification sector, which have contributed to the shortages. For example, semiconductors are found in virtually every

⁴⁵ E4TheFuture, 2021 Energy Efficiency Jobs in America Report.

https://e4thefuture.org/wp-content/uploads/2021/10/Energy-Efficiency-Jobs_2021_All-States.pdf.

⁴⁶ The Energy Efficiency Strategy Group and E4TheFuture submitted joint comments to DOE related to DE-FOA-0002885. Full comments available at

<https://drive.google.com/file/d/1j91A8irQ6PSgEliZpi0OrLBJjoNozGkv/view?usp=sharing>.

⁴⁷ BlueGreen Alliance, “Response to Request for Information Relating to the Implementation of the Build America, Buy America Act Docket No. FR-6331-N-03.” <https://www.regulations.gov/comment/HUD-2022-0033-0041>.

electrified appliance from heat pumps to electric and induction stoves, to Internet of Things (IoT) and smart home devices. Semiconductors bear the brunt of these shortages from a component perspective. The chips supply chain is highly concentrated in East Asia. TSMC, a Taiwanese manufacturer supplies 55% of global chips. Given Taiwan's geopolitical vulnerabilities and location, the Taiwan Strait is a semiconductor chokepoint. Further upstream, Dutch ASML sold 45% of its lithography equipment to Taiwan in 2019. Disruptions in the Netherlands or to the Taiwanese fabrication plants would expose supply chain vulnerabilities and exacerbate the existing volatility in the global semiconductor and electric appliance markets. The bipartisan CHIPS & Science Act (P.L. 117-167) has spurred tens of billions of dollars in private investment in American fabrication plants on top of the law's \$52 billion in public incentives. However, it will take several years before these fabrication plants are operational and for the American semiconductor renaissance to take hold.

The heat pump market and workforce are growing but demand will outpace supply. Manufacturers will ship the majority of their supply to states with aggressive decarbonization goals (CA, NY, WA) in order to reach their target markets. It is essential to get heat pumps into contractor hands everywhere to ensure equitable distribution. Domestic heat pump labor shortages hamper home electrification goals as well; currently, there is a shortage of electricians who can install these heat pumps. Apprenticeship programs could ameliorate the electrician labor crunch, but this upskilling will take time to develop at scale. The Bureau of Labor Statistics estimates that there will be demand for roughly 80,000 electricians per year through 2031.⁴⁸

58. Are there approaches that program implementers can take to reduce supply chain constraints (e.g., bulk purchases, coordination with DOE manufacturing programs)?

The national nature of these supply constraints warrants a federal response. The Administration should be applauded for the early steps it has already taken, particularly in the production of heat pumps, a key technology for greater efficiency and electrification. In June 2022, President Biden invoked the Defense Production Act (DPA) to ramp up the production of this technology.⁴⁹ We encourage DOE to take advantage of this opportunity. They should first leverage DPA funds to help finance the construction and expansion of production lines for heat pumps and their component parts. Second, they should consider utilizing the Advanced Market Commitment (AMC) mechanism to help prime the market for heat pumps and prioritize production that can then serve HOMES and HEEHR implementers and contractors.

The Inflation Reduction Act (IRA) likewise contains a number of provisions to help spur additional domestic manufacturing of energy conservation and electrification technologies. Specifically, the IRA provided \$10 billion to the 48C Advanced Energy Project credit (IRA Sec.

⁴⁸ Bureau of Labor Statistics, "Electricians." <https://www.bls.gov/ooh/construction-and-extraction/electricians.htm>.

⁴⁹ U.S. Department of Energy, "President Biden Invokes Defense Production Act to Accelerate Domestic Manufacturing of Clean Energy." June 6, 2022. <https://www.energy.gov/articles/president-biden-invokes-defense-production-act-accelerate-domestic-manufacturing-clean>.

13501 - the U.S. Department of the Treasury recently released initial guidance⁵⁰ on the credit). We encourage DOE to coordinate with Treasury to ensure applications from manufacturers of eligible conservation and electrification technologies are prioritized in the \$4 billion funding round that will open later this year.

Finally, DOE should coordinate HOMES and HEEHR disbursements to state energy offices with disbursements from the Energy Efficiency Workforce Training Program. Per IRA Sec. 50123(a), the \$200M Contractor Training Program (CTP) is designed to support the HOMES and HEEHR rebate programs to help states begin to address labor shortage concerns. DOE should ensure states and territories can access training dollars as they set up rebate programs to address an increase in demand for home retrofits. For more information, see the Energy Efficiency Strategy Group's response to DOE's workforce RFI [here](#).⁵¹

N. Open Response

59. Is there anything else DOE should be aware of as it develops program design guidance and support for these rebate programs?

In guidance, DOE should add the following definitions:

Same Single Upgrade

- A single appliance, energy-efficiency measure, energy-efficiency device, electrification component, or other item installed as part of a HOMES performance based retrofit or HEEHR upgrade that result in a rebate that can be stacked with one or more other measures from HOMES or HEEHR upgrades that result in a rebate (within both programs' respective rebate caps), as well as federal, state, and utility incentive programs.
 - As noted earlier in this response, while the statute explicitly includes prohibitions related to combining funds between the two programs (or any other Federal grants or rebates), the statute limits this combination for the "same single upgrade," per 50121(c)(7) and "for the same upgrade," per 50122(c)(8). Neither provision mentions financing support or tax credits and neither provision includes a prohibition related to federal grants for rebates within the same home project. This was purposeful. Guidance from DOE explicitly allowing HOMES and HEEHR rebates to be layered with existing federal, state, and utility incentives will allow states to both broaden and deepen their energy efficiency programs, reducing greenhouse gas emissions and improving conditions in underserved homes.

⁵⁰ Internal Revenue Service, "Initial Guidance Establishing Qualifying Advanced Energy Project Credit Allocation Program Under Section 48C(e)." <https://www.irs.gov/pub/irs-drop/n-23-18.pdf>.

⁵¹ The Energy Efficiency Strategy Group and E4TheFuture submitted joint comments to DOE related to DE-FOA-0002885. Full comments available at <https://drive.google.com/file/d/1j91A8irO6PSgElizpi0OrLBijoNozGkv/view?usp=sharing>.

Self Attestation

- A person's written, verbal, or electronic declaration of his or her income and/or circumstances made under penalty of perjury, confirming a statement to be true.