



Rhode Island Office of Energy Resources
Inflation Reduction Act Home Energy Rebate Programs Request for Information Responses
Responses received by February 23rd, 2024

Respondent 1:

Over the past several years, the Office of Energy Resources (OER) has played a critical role in driving one of the most ambitious climate and energy policy frameworks in the country. From its role leading new program design with the Infrastructure Bank to its recent leadership facilitating a climate of growth for the state and region's offshore wind industry, OER's track record of policy and programmatic effectiveness is unparalleled. As OER seeks to navigate the complexity of the new HER and HEAR programs, Respondent 1 seeks to complement your leadership with our multi-disciplinary, global approach to effectively deploying federal funds for green deployment.

Respondent 1 is the largest global professional services company in the world, with leading capabilities in managing both large scale government program initiatives and the energy transition. We offer a full spectrum of professional services in the domains of Strategy and Consulting, Technology, Operations, and Workforce – and distinguish ourselves among similar companies through unmatched investment in market leading capabilities around Customer Experience Design. While we have global capabilities and reach, we are focused on making an impact locally, with particular interest in engaging where our people work and live and in scaling sustainable, equitable solutions. We are invested in growing our relationship and partnering with OER to positively impact the state's future and address climate change.

Our dedicated Federal Funds and Grant Management Center of Excellence (COE) is focused on delivering services to support public and private sector entities with maximizing IIJA and IRA funding opportunities. We recently supported \$4B+ in IIJA grant applications for utilities and energy clients across the country, winning ~\$1B+ in IIJA grants to date, from broadband, to grid resiliency, to hydrogen hubs. We also administer the largest IT contract the US Department of Energy (DOE) has ever awarded which includes the development and support of digital infrastructure to track clean energy infrastructure funding, like this new private capital investment tracker.

Respondent 1 also has a long history of successfully operating, maintaining, and enhancing large-scale, complex social service eligibility systems for SNAP, TANF, Medicaid and other programs and will draw on this experience to inform HER/HEAR program design. Our

eligibility teams process more than 35 million applications every year. We are also currently in the process of helping the Rhode Island Department of Administration implement one of the largest, most complex technology modernization projects—the state’s ERP implementation—in recent state history. We also bring key federal fund leadership and former state of Rhode Island employee talent—based in the Massachusetts/Rhode Island region—who are helping to lead our Inflation Reduction Act practice nationally.

We welcome the opportunity to discuss these programs or provide additional insights at your convenience.

Our Recommendations for HER and HEAR programs Implementation

The Inflation Reduction (IRA) provides Rhode Island’s Office of Energy Resources (OER) a once-in-a-generation opportunity to combat climate change and deliver a wide range of energy efficiency and electrification and appliance upgrades through the Home Energy Rebates Programs. We’ve developed a set of recommendations as you work to design the HER and HEAR programs for Rhode Island.

Rhode Island Should Focus on A Technology-driven Approach in Its Program Design

As OER knows well, low-income households are disproportionately impacted by climate related events yet receive only 13% of energy efficiency funding nationwide. The HER and HEAR programs are designed to level the playing field and prioritize low-income households with the highest energy burdens. Reaching and encouraging adoption by populations will be challenging and participants will need to be supported in the process—from awareness, to understanding, to buy-in and ultimately to program adoption. These efforts will take focused and consistent outreach from trusted community organizations, followed by an easy to understand, intuitive program enrollment process.

Technology will be key to achieving the goals and should be infused throughout the process. The following expertise will be needed to implement these funding streams efficiently and effectively:

- **Data and Analytics:** Expertise in data and analytics will be necessary to effectively target outreach and design the program effectively. Outreach for these programs should be tailored and focused on delivering the highest impact, which can be achieved by analyzing data sources such as energy consumption and household and demographic data at the block group level. For example, Applied Intelligence tools can be leveraged to determine where clean energy and energy efficiency deployment would most benefit certain customer segments, what funding could be blended and braided by project and premise, and where existing contractors have capacity to provide services. Programs that equip community engagement partners, home improvement contractors, and

program implementors with insights about the probability and viability of rebate adoption and opportunities to stack funding will move faster, be more compelling, and ultimately deploy dollars (and achieve economic uplift) more effectively.

- **Integration with Other Systems:** Technical expertise will be needed to seamlessly integrate rebate application and processing system(s) into DOE-provided systems and platforms, as well as existing Rhode Island state systems (e.g., to verify eligibility through categorical eligibility of public benefits programs, among other functions) and potentially Rhode Island Energy provider's utility systems. Based on final program decisions, OER will need to identify existing federal, state, utility, and community-based rebate or incentive programs where integration makes the most sense. This integration could range from identifying funding that could be used for compliant HER/HEAR rebates through an existing program to co-advertisement of programs. For example, OER may look at integrating the multifamily, low-income target amount with Rhode Island Office of Housing & Community Development (OHCD) programs and may consider laying onto existing programs at utilities to better meet low-income targets in single-family homes. Full integration of these data sets, and where relevant, systems will speed up processing time and ensure that federal reporting requirements are met, while maintaining appropriate records. Solution integration should also support eligibility verification across other programs that could be used to stack benefits (e.g., from 25C tax credits to utility rebates, to existing weatherization programs). When systems of engagement are set up, it is paramount that the user experience be intuitive and seamless – and that hands-on support is made available to walk contractors and customers through application submission and rebate processing. Digital security will also be essential on the back end and your system integrator and program operator should be experts in setting up and ensuring the highest levels of customer data protection. We also believe it is important for the two programs, HER and HEAR to be integrated, this will be important to delivering the maximum benefit and reduce the risk of fraud.
- **Artificial Intelligence:** Infusing AI throughout the process will allow Rhode Island to be efficient in how funds are deployed, ultimately saving the state administrative dollars while providing stakeholders with faster access to the rebates. There are two main areas where AI can be leveraged. First, AI can be combined with data and analytics to increase accuracy in identifying eligible recipients. Second, AI can be incorporated throughout application processing, both speeding up the process and identifying potential patterns of fraud. Given the potential complexity of these rebates, there is a real risk of fraud and inadvertent misuse of these funds, hence states should incorporate controls to alert for potential fraud.

Rhode Island's HER and HEAR programs Design Should Be People-centric. Life-centricity – that is, rooting the program in a deep understanding of the Rhode Island People, their lives, and what will make participating in these programs a no-brainer for them – will be key to success at scale. Stakeholders must also be involved in both shaping program design and in crafting effective marketing messages.

- **Stakeholder-Centric Program Design to Minimize Administrative Burdens:** For HER and HEAR to be successful, Rhode Island should design the programs such that the process of receiving the rebates is centered on the journey experienced by the end-users and the key middleman (contractors, retailers). This would enable understanding how to shape the choice architecture so that the default choice of those making decisions on home upgrades should be to utilize the upgrades and advance energy-efficient changes. For example, consumers, contractors, retailers, and other stakeholders should experience the process of receiving the rebates in an easy and seamless manner rather than be forced to be proactive and jump through administrative hoops to receive them. We also recognize that organizations, particularly larger organizations, have a much higher capacity to negotiate the processes needed to receive the rebates compared to individual households. The HER and HEAR programs should consider the respective capacity of stakeholders to navigate the administration to receive the rebate, as well as target a design that maximizes the ability to receive rebates. This includes income verification; categorical eligibility programs should be leveraged to target outreach and speed up verification. Any braiding of HER and HEAR funding should be designed to be advantageous not only from the administrator's point of view (as it creates efficiencies in using the same administrators and regional infrastructure), but also from the point of view of those receiving the funding, whether they be individual households or contractors. Minimizing the administrative burdens, such as the number of applications for similar funding sources will be particularly beneficial for low-income residents.
- **Stakeholder Partnerships:** Given that this program will be complementary to existing home energy programs, OER should be prepared to partner with the wide network of stakeholders involved in implementing successful Home Energy Rebate programs. A diverse ecosystem is essential for effective program outcomes. OER will need to create new and expanded partnerships to drive consumer and building owner engagement. The list of interested stakeholders is vast, including other state agencies, community action organizations, housing advocates, workforce training organizations, consumer protection advocates, contractors and contractor associations, labor organizations, utility partners, and retailers among others (see Figure 1). One of the priorities will be to align on equitable representation needs, identify gaps within the current ecosystem, and outline a path to filling those gaps. Additionally, OER should actively involve end users, including residential customers and building owners, in the design process of the Home Energy Rebate programs. This can be achieved through stakeholder engagement sessions, surveys, focus groups, or public forums to gather feedback, insights, and preferences directly from those who will benefit from the program. By incorporating end user perspectives into the program design, OER can ensure that these programs are tailored to meet the needs and preferences of its intended beneficiaries, ultimately increasing program effectiveness
- **Campaign Outreach and Marketing:** Just because you build it, doesn't mean they will come. The current reality is that seventy-one percent (71%) of American know nothing about Inflation Reduction Act. To date, only 15% of American homes have installed heat pumps. In addition, low-income households may work irregular hours and face additional barriers to adoption.

Compelling and relevant marketing campaigns with a tailored rollout are essential to raise awareness and garner interest, ensuring that eligible individuals are informed about the program's offerings and have clear call-to-actions that compel them to care and adopt. A multi-channel approach, integrated through traditional media outlets, stakeholder engagement and messaging, and social media platforms, can effectively reach target audiences. Rising awareness and driving uptake among these populations will require significant stakeholder outreach and engagement with local nonprofits, focusing especially in identifying trusted partners and aligning with grassroots visions for strong, healthy, and prosperous communities.

- **Equitable Program Design:** Equity and environmental justice are key components of the rebate programs, as evidenced by their inclusion in the Justice40 initiative and the low-income targets incorporated in the program. We recognize that energy program must be designed to address the everyday needs of families and not leave disproportionately impacted populations behind. Affordability, jobs, health, and comfort for all must be the central themes of impactful rebate program implementation. Data shows that low-income households spend three times more of their income on energy costs, compared to median spending in non-low-income households, and the energy burdens among Black and Hispanic households are several percentage points higher than White non-Hispanic households, thus illustrating how critical energy efficiency and clean energy programs are for vulnerable communities. The State should use these once-in-a-generation resources to strategically target and improve the lives of the Rhode Islanders—from cost savings to improved health outcomes to robust job growth. To reach Justice40 goals, we recommend that Rhode Island leverage data and analytics to analysis to build equity and environmental justice concerns into the core of the program and include this as success metric criteria as we help the Department evaluate policy decisions. For example, for stakeholder outreach, the state should prioritize engaging with hard-to-reach target users in communities, such as those who may not be fluent in English. Their input and feedback should be incorporated into program design to allow for ease of use and minimizing both time spent and cost to consumers.
- **Serving Multi-family Households:** We recognize that enhancing the energy efficiency of federally subsidized multifamily housing will be an efficient way to meet the low income and multifamily program targets. This will require approaches and strategies to overcome their unique challenges, how to create incentives for individual unit efficiency in master-metered buildings, or how to benefit the tenants in renter-occupied buildings, and how to effectively layer federal funding sources. Rhode Island Housing and local public housing authorities should be engaged in program design, along with local governments, property owners' associations, and community organizations to craft strategies prioritizing energy efficiency investments in multi-family housing units, streamlining funding, and braiding together the different resources available. For instance, the State may want to prioritize investments in increasing energy efficiency in multi-family projects that are eligible for the Low-Income Housing Tax Credit or those eligible for existing preservation dollars. The State should consider how the program design can direct technical assistance, project management expertise, and financing to owners of low-income multifamily buildings, particularly in a way that creates benefits to low-income tenants (e.g., lower energy bills and reduced indoor air pollution from electrification of cooking

and heating). Additionally qualified contractors and aggregators will play a key role in delivering energy efficiency updates to multi-family households. The state should consider dedicated multi-family focused outreach and educational materials to contractors and aggregators.

Rhode Island Should Use This Opportunity to Enhance Targeted Workforce Development

While HER/HEAR are designed to grow the demand for energy efficiency in homes, we believe a successful program should also include a strong workforce development strategy and plan. This will enable the programs to meet the increased demand and successfully implement energy efficiency and electrification improvements.

- **Design for Diversity and Scale:** The HER/HEAR programs will supercharge jobs in the HVAC and home improvement contracting market. Nationally, growth in these sectors is projected at 200% by 2030, which will have a positive impact for those in the state's ~23,000 energy workforce of which ~11,000 are in the energy efficiency area. These jobs—like all advanced energy jobs—provide an array of benefits to workers, including versatility, geographic diversity, higher-than-median wages, and upward mobility, among others. As OER well knows, components of the current energy workforce in Rhode Island lack diversity and representation from communities facing the highest energy burdens. According to E4TheFuture's report (2023), 75% of energy efficiency contractors in Rhode Island are male and 76.7% are white.
- **Enable Rhode Island's Workforce:** To ensure sufficient supply of talent and to achieve equity in employment, Rhode Island should design workforce development programs that consider the needs of a diverse workforce, with many low-barrier on ramps to education and on-the-job-training. Rhode Island will need to assess and address gaps in its clean energy workforce to meet the ambitious implementation goals of the HER/HEAR programs. Coupling technical training (e.g., for heat pump installation or energy efficiency retrofits) with support services that many community-based partners provide (from recruiting of disadvantaged populations to wrap around services and tailored soft skills training) will open the candidate pool and prepare more and more diverse job seekers for careers in clean energy.
- **Identify Career Pathways:** Building an energy efficient workforce will require intentional planning on how to build the right skills in the workforce. Currently, at least 50%+ of heat pumps are incorrectly installed in the country. This will involve developing a workforce strategy that identifies in-demand jobs, and recruits and trains for these jobs throughout the region—focusing on existing roles that may have applicable skills and recruiting from disadvantaged communities to create on ramps to well-paying careers, and to amplify the positive economic impact of these programs. These carefully crafted strategies also provide a transition for those whose jobs may be disappearing from New England communities. Through working with community partners, the State can identify and potentially expand existing learning and credentialing programs.
- **Leverage Training Grants:** DOE State-Based Home Energy Efficiency Contractor Training Grants can be leveraged to develop and implement a state workforce energy program that prepares workers to deliver energy efficiency, electrification, and clean energy improvements. Rhode Island can choose to apply these funds to supplement existing workforce development

programs, create new workforce programs, or seek out a combination of these approaches. An intentional approach will be needed to create clear pathways for training and employment, quickly training upskilling energy contractors and providing pathways for new entrants into the workforce. These grants can be utilized to reduce the cost of training contractor employees, provide access to workforce development tools for contractors, and partner with community organizations to develop and implement an equitable state program. For instance, partnering with initiatives like The Goodwill Clean Tech Academy can also enhance training opportunities and provide targeted support to diverse communities in Rhode Island. Goodwill Clean Tech Accelerator launched in collaboration with Respondent 1, addresses a significant talent shortage by equipping individuals with the necessary skills and certifications essential for high-demand jobs. These opportunities not only promise higher wages but also pave the way for enhanced career growth. By doing so, it offers pathways for individuals within a rapidly expanding industry and extends support to employers who are dedicated to guiding toward a more sustainable future.

Considerations for External Vendor Support

Due to the size of the Home Energy Rebate programs, we see many opportunities for OER to partner to fill the gaps in in-house expertise, tools, experience, and capacity. Potential scopes of program design could include:

- **Program Operations:** Due to the scale of these programs, OER may need to process a significant number of rebates (actual figure to be driven by program policy decisions). OER may look to partner with an external vendor to assist with application intake and processing.
- **Technology Implementation:** Designing and operating a program at this scale will require significant technology investment. If OER already has a platform in mind, a partner can assist with configuration in terms of application design, API configuration, and reporting interfaces, such as a dashboard reporting on analytics and providing insights.
- **Distributing Funding and Reporting:** OER may need to work with a partner to create a plan for how to distribute funding for HER rebates and incorporate reporting measures that complement DOE available tools.
- **Workforce Development Strategy & Implementation:** Building the clean tech economy of the future requires reconsidering how we think about recruiting, upskilling, and traditional education and training efforts. OER may look to a partner to help design this workforce strategy and guide its implementation.
- **Outreach to Support Widespread Access:** To support uptake in households located in disadvantaged communities or with a low income, OER must move recipients along a change process—from awareness, to understanding, to buy-in, and ultimately, to program adoption. That will require compelling value propositions, easy/intuitive program enrollment processes, and trusted partners, especially for individuals with the fewest means for capital intensive home retrofits.

To achieve these goals, OER should look for vendor partners that have the right expertise and experience to compliment OER's own, including the below:

- **Experience administering large-scale benefits programs that involve assessing individual eligibility:** Respondent 1 has the experience necessary to process individual applications and assess individual eligibility building on our experience and tools that drive our administration of eligibility-based programs. Our application processors document important eligibility factors and review submitted documentation to confirm an appropriate system of record audit trail that supports the final determination and rebate issuance, as well as ensures that specific DOE requirements are addressed.
- **Experience using data and analytics to drive programmatic efficiencies:** Respondent 1 applied intelligence tools aid with harnessing the power of data for front-end design, back-end processing, and performance management. RI state agencies already have a lot of data necessary to inform program design decisions (e.g., locating eligible populations from other programs and location premise data). We can partner with OER to combine that with energy load data and machine-learning powered algorithms to test assumptions and refine program operations. Aggregating this data can increase application processing speed.
- **Experience working with state agencies and partners to design workforce strategies that work for clean tech industry:** Respondent 1 talent and organization process is already collaborating with states to design electrification workforce strategies. Respondent 1 through investment with Goodwill, is also launching Clean Tech Jobs Academies in 20 cities throughout the US. Through our global Skills to Succeed initiative, we also provide employment opportunities alongside our partners. We have equipped more than 5.8 million people worldwide with the skills to make substantive improvements to their lives
- **Access to experts in clean energy, analytics, and artificial intelligence:** If OER looks to implement parts of HER/HEAR in-house, OER may want a partner that can offer access to subject matter advisors in a variety of areas to augment the knowledge of OER staff, helping upskill OER's existing staff and expand their expertise and value to the State.
- **Experience in the most successful methodologies on large impact projects:** Respondent 1 has seen our most successful clients in this area apply agile methodology to allow for sprint development and evolution of technologies, so we recommend OER consider vendors with this robust skillset. Along those lines, given the number of people this will impact and the large potential budget, any vendor partner that OER considers should have experience working on technology projects that support at a large number of users and can meet federal reporting requirements.

Respondent 1 is pleased to submit this informational response to OER and looks forward to discussing it further. The information, material and ideas contained herein are to be used exclusively to evaluate the capabilities of Respondent 1 to provide assistance to OER. This is an initial response for informational purposes only and is not meant to constitute a formal offer, acceptance, or contract by Respondent 1.

Respondent 2:

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

There are important credentials, certifications, and licenses that currently exist to protect the safety of workers and consumers, while also ensuring that installation work and other projects are completed without problems for consumers. We are happy to provide more information and details on this topic, but we would need more time to provide a satisfactory response and answer any outlying questions.

42. How can OER assure that these rebates support quality construction jobs and quality non-construction jobs?

This is a once-in-a-lifetime opportunity to advance equity and economic opportunity for local communities, while decarbonizing the economy at the same time. In order to protect the rights and safety of workers and consumers alike, OER should keep a record, which should be public information, of all pre-qualified contractors and employers doing installation work through this program. Pre-qualified contractors should be able to enter into a predefined framework in the program design to bundle projects together to increase savings. This would enable pre-qualified contractors and employers to pay prevailing wages to workers doing the installation work. Additionally, to ensure that this rare opportunity increases access to family-sustaining careers in the green economy for people who need them most, contractors and employers should utilize apprentices and pre-apprentices participating in non-provisionally approved apprenticeship and pre-apprenticeship programs registered with a federally-recognized state apprenticeship agency that complies with 29 CFR 29 and 29 CFR 30.

Respondent 3

Question #12: Lessons Learned from Program Evaluations Respondent 3 has learned a lot from past evaluations of residential programs. The following evaluation reports and studies provide the most pertinent lessons learned, best practices, and recommendations the OER can use to administer HER and HEAR programs successfully:

- DNREC – Weatherization Assistance Program (this report was previously posted on DNREC's website but no longer is. Respondent 3 Insights can provide a copy of the report upon request)
- CT - [R1982] Residential HVAC/DHW Performance Potential Assessment
- Income Eligible Multifamily Energy Savings Program Process Evaluation (ComEd, PG & NSG)
- Ameren Illinois MF Process 2022
- Home Energy Savings Program Process Evaluation (Nicor Gas)

Some key takeaways from these resources include:

- Community-based outreach events have been effective in increasing program awareness and participation. Focus marketing efforts on community-based outreach and events. Ensure

outreach is available in the communities' native languages. To maximize persistent savings, ensure that weatherization measures are installed before any HVAC upgrades.

- Coordination between programs such as LIHEAP and WAP may generate the necessary project pipeline to sustain the program. We have seen success during the LIHEAP intake process, the participant is also introduced to WAP. This process allows for efficient enrollment and a pipeline of WAP candidates.
- Considering the housing stock when installing energy efficiency and weatherization measures is important. Coordinating with a pre-weatherization program to remedy the health and safety issues, infiltration, or structural issues older homes may have has successfully ensured persistent energy savings and performance.
- The implications of the significant increases in efficient heat pump-based heating equipment use on extreme cold days are different depending on the baseline equipment replaced by the retrofit measures.
- Homeowners and property managers are often unaware of the savings and financial benefits of the program's measures. Consider providing them with tools and calculators to understand the benefits of investing in energy efficiency.

Question #13: Measuring Success

The RI OER should measure success by tracking the following critical metrics for HER and HEAR:

- **Energy Impacts.** Annual kWh, average kW, peak kWh, and therm savings should be estimated for each program year. These impacts should be calculated following IPMVP protocols detailed in Respondent 3 Insight's response to Question #28. These impacts should be verified independently through evaluation and realization rates can help ensure program savings estimates are accurate for future planning. Project-level impacts such as average energy savings and bill savings can also be used to understand the value proposition of the program for customers.
- **Non-Energy Impacts.** Energy efficiency and electrification projects have major impacts that go beyond energy savings. These can include indoor and outdoor air quality improvements, comfort, health, and economic outcomes. Non-energy impacts can be estimated by conducting surveys with participants to understand changes in health, comfort, and economics following the installation of energy efficiency measures. Economic benefits of the programs, including quality job creation, can be estimated using economic modeling and require inputs such as bill savings, program budgets, and measure costs
- **Cost Effectiveness.** Understanding the cost-effectiveness of energy efficiency programs is critical for decision-makers to design programs and allocate resources to maximize the impacts of residential energy efficiency programs. A standard benefit-cost ratio should be calculated for the programs annually, including the Total Resource Cost, Societal Cost, and Program Administrator Cost test ratios. At the project level, understanding the participants' simple payback period is critical to inform rebate levels and improve the program's value proposition to participants.

Cost-effectiveness analysis requires inputs on program spending, measure costs, incentives, energy savings, persistence, avoided costs of generation and transmission, discount rates, and non-energy benefit values.

- **Environmental Impacts.** Our collective goal to combat climate change requires a serious reduction of greenhouse gas (GHG) emissions. Energy efficiency programs create significant GHG reductions that are often overlooked. For electricity savings, Scope 2 emissions reductions should be estimated using the emissions rate of the ISO NE grid. EPA's fuel emissions rates should be used to estimate GHG reductions from natural gas and propane savings. More detail on GHG reduction estimation methodology can be found in Respondent 3 Insight's response to question #31.
- **Satisfaction.** Successful residential programs depend on high levels of customer satisfaction and a strong value proposition for customers. Customer satisfaction should be measured through surveys that ask customers to rate their satisfaction on a fixed scale for the overall program, incentive payouts, measure installation process, working with trade allies or contractors, application and administrative processes, and impacts from the measures, among others. For accurate satisfaction ratings, surveys should be anonymous and conducted by an independent contractor.

Question #14: Program Evaluation

Recommended data to be collected to support evaluation can be found in Respondent 3 Insight's response to question #13 for measuring success. Project-level tracking data is critical for an evaluation of a program like HER and HEAR and should, at the very least, include estimated savings (kWh, kW, therms), residence location, customer contact information, trade ally/contractor contact information, measure installation date, measure description, and any information available on major systems (HVAC and water heater fuel).

To extract the most value possible from evaluation budgets, evaluation protocols should be established to support continuous feedback and improvement. This requires regular meetings between program administrators, implementers, and evaluators to discuss program processes, changes, data, and insights from the evaluation. Discussions of program data early in the evaluation process are critical to ensure evaluators have the data necessary to measure and verify impacts detailed in Respondent 3 Insight's response to question #13.

Energy efficiency programs do not necessarily need to be evaluated every year. It is crucial to conduct impact and process evaluations of a program after its first year or after any major program design or delivery changes. For mature programs, they can be evaluated every two to three years. Understanding a program's success in reach disadvantaged communities is critical to ensure that the benefits of investing in energy efficiency reach all of Rhode Island's residents. This can be achieved by conducting a gap analysis and surveying customers that fall into disadvantaged categories. A gap analysis aims to identify and understand the types and variety of barriers to participation that disadvantaged communities experience. To identify historical and current gaps in program coverage, program participation should be mapped to the customer population in Rhode Island. With this data, populations, and groups that are underserved by programs should be characterized using customer-

level data to consider distributions of underserved and eligible customers using demographics, income, home characteristics, energy usage, or other available data. With his gap analysis, disadvantaged communities with the highest needs can be identified and prioritization scenarios can be developed to reach those communities. Census data can be paired with program participation and energy consumption to conduct this research. To enhance the understanding of residential customers, third-party SMR data can be used to append census data and provide more insights on home type, the age of the homes, major system fuel types, and assessed home values.

Question #19: Best Practices for Partnerships with the Community & Question #23: Integrating Other Programs

Best practices for partnerships with the community and integrating program efforts with existing networks and programs include:

- **Performance-based partnerships.** Utilizing a performance-based contract with the implementation team will encourage consistent uptake and incentive to attain interim and full year targets. Successful programs leverage a network of Community Action Agencies (CAAs) and non-profits to market and deliver the program. CAAs develop deep roots in local income-eligible communities and can provide a powerful conduit to reach those populations. Not all homes are ready for weatherization measures depending on the housing stock. Some homes may require infiltration repairs, increased ventilation, or asbestos remediation before WAP measures may be installed. Pre-WAP, a program that completes capital repairs or remediation, is essential to ensure a safe home for the occupants and allows for persistent energy savings. The combination of the WAP and Pre-WAP allows the program to realize energy savings and NEBs.
- **Coordination.** Coordination between programs such as LIHEAP and WAP may generate the necessary project pipeline to sustain the program. We have seen success during the LIHEAP intake process, the participant is also introduced to WAP. This process allows for efficient enrollment and a pipeline of WAP candidates.
- **Consider Housing Stock.** Considering the housing stock when installing energy efficiency and weatherization measures is important. A hurdle we have seen through our work is that houses may have existing issues that impact health and safety (asbestos/mold), infiltration, or structural integrity (holes in roof or floor/broken windows) that need to be remedied before measures may be installed. As noted above, coordinating with a pre-weatherization program to remedy the health and safety issues, infiltration, or structural issues has been successful in ensuring persistent energy savings and performance. We have also seen a delay in installation or aversion to participating in a program if the participant rents the home from a landlord. The program must receive approval from the landlord to implement measures.

Question #27: Accurate Energy Modeling

There are several key drivers of success in accurately modeling or predicting energy savings:

- **Data Quality.** For energy modeling to be accurate, high-quality data must be available for energy usage patterns, building or residence characteristics, and weather conditions.

Consumption data, whether it be monthly billing or smart meter, should be leveraged across all seasons, both pre and post-project for weather-sensitive measures.

- **Granularity.** Accurate energy modeling requires a deep understanding of the characteristics of the residences where savings are being estimated. Information on appliances, HVAC systems, occupancy, and household characteristics can improve the ability to predict a residence's energy usage and savings. Moreover, granular energy consumption data from smart meters generally allows for a more accurate energy model to estimate peak demand savings compared to monthly billing data. As discussed in our response to Questions #28 and #31, hourly consumption data or 8,760 load shapes are required to accurately estimate Scope 2 emissions reductions.
- **Model Selection.** Accurately modeling or predicting energy savings for residential programs can be achieved using several approaches including simulation models, statistical regression, and machine learning models. Selecting the correct model with the most accurate estimations depends on data availability and computational resources. Statistical regressions and simulation models have been used for years to predict energy savings for residential programs and largely require data on energy consumption, occupancy, weather, HVAC systems, and major appliances. More recently, machine learning is being leveraged to develop predictive energy models that test a high number of complex nonlinear relationships between input variables and energy consumption. Respondent 3 Insights has been a leader in this approach. Its proprietary advanced M&V software, EnMeter, uses machine learning algorithms to test dozens of input variables to quickly and accurately estimate energy savings and carbon reductions across many buildings or residences. EnMeter's machine learning algorithms track input variables that are the best predictors of energy consumption and become more accurate with each model tested.
- **Weather Normalization.** Energy savings from common measures like insulation, air sealing, and HVAC upgrades are weather-dependent. Accurate models must leverage local weather variables like temperature and humidity to adjust energy usage data to account for fluctuations in weather. Moreover, Typical Meteorological Year (TMY) data should be used to improve the accuracy of energy models by ensuring savings from weather-dependent measures are predicted under realistic weather scenarios that reflect the long-term climate patterns of Rhode Island. Using actual weather data in energy models can overestimate savings when post-project winter is unseasonably warm or vice versa.

Questions #28 and #31: Measuring GHG Reductions

Energy savings and associated impacts should be calculated following International Performance Measurement and Verification Protocols (IPMVP). IPMVP Option C (Whole-Building Analysis or Billing Analysis) will likely yield the most accurate savings estimates for the Home Efficiency Rebates or Home Electrification and Appliance Rebates programs as it provides a holistic approach to measuring energy savings from multiple measures available to homeowners through the programs. Furthermore, Option C should be considered where measures are higher impact, weather-sensitive, or have the potential for significant interactive effects. With Option C, the savings would be calculated using regression analysis to correlate energy or gas consumption with essential weather or other independent variables. Weather-normalized consumption should be incorporated as the dependent variable, including heating and cooling-degree days, or another explanatory variable describing the weather, directly in the model.

Respondent 3 Insights response to question #27 explains the benefits of weather normalization. When possible, regression analyses should also use a comparison group composed of past program participants to control for exogenous effects from macroeconomic factors such as inflation and fuel prices.

Another benefit of Option C is that consumption data can be used to provide prospective inputs to algorithms used to claim ex-ante savings. For example, the average heating load or Equivalent Full Load Hours (EFLH) by premise type estimated from Option C analysis could be used as input to a high efficiency furnace savings algorithm. These hybrid approaches will further improve the accuracy of savings calculations, increasing the value proposition.

When Option C is deemed too rigorous or costly, IPMVP Option A (Retrofit Isolation) can be used to focus on specific systems or appliances in the homes rather than comprehensive whole home upgrades.

As for greenhouse gas (GHG) emissions reductions from electricity savings, it is recommended to use the World Resources Institute's (WRI) Greenhouse Gas Protocol Scope 2 Guidance. Specifically, the location based method leverages the electricity grid's average emissions intensity in the location of power consumption. As the emissions intensity of the grid fluctuates by the minute, GHG reduction estimates are most accurately calculated at hourly intervals. Respondent 3 Insight's EnMeter software can calculate GHG reductions at the hourly level by matching hourly kWh savings to real-time hourly emissions rates for ISO New England. This methodology calculates GHG emissions reductions based on time and locational factors and only requires hourly electricity savings profiles.

As for GHG emissions reductions from natural gas savings, it is recommended to use the EPA's Scope 1 Emissions Guidance. While this guidance is primarily focused on commercial and industrial sectors, the emissions calculations are transferable to natural gas savings at the residence level. The EPA provides emissions factors for different types of fuels commonly used by the residential sector, most notably natural gas. Natural gas savings estimated using IPMVP protocols can be converted to GHG emissions reductions using EPA emissions factors.

The value of GHG emissions reductions are often overlooked compared to avoided costs and bill reductions. The U.S. carbon market is expanding every day, led by the rapidly growing voluntary carbon market. Respondent 3 Insight's EnMeter can calculate revenue-grade GHG reductions ready to be claimed as offsets on the leading voluntary carbon markets. The additional revenue from these markets vastly improves the economics of energy efficiency projects and DSM programs.

Question #38: Quality Assurance and Quality Control (QA/QC)

To ensure proper installation quality and exceptional service to Rhode Island residents, we recommend several items that the OER should require.

1. Require that inspectors be certified professionals. One highly leveraged certification is the Quality Control Inspector certification from BPI1. However, other professional certifications in building systems, HVAC, energy auditing, energy management, and construction may also be applicable.

2. Require that contractors and businesses who perform work through the programs be registered and approved by OER or its program administrator. The contractor approval process does not need to be cumbersome and lengthy. Requiring firms to agree to abide by the federal rules, follow any OER rules, abide by all laws, carry the necessary insurance, be certified or qualified to do the work, and agree to pay for any rework. An approval process helps ensure contractors understand the rules and increases transparency between OER and residents since there is a clear list of approved contractors with which OER is administering funds, and any resident can review and confirm the contractor is legitimate.
3. Require some form of QAQC inspection for every project. In our opinion this does not need to mean that an OER inspector must inspect every project. Every project must be verified and installed correctly and safely by the firm performing the work. This can include a standardized data collection form and required documentation. A portion of these projects can then be randomly assigned and inspected by an independent OER inspector. A randomized approach is prevalent in other utility-led energy efficiency programs, and feedback from these internal QAQC inspections can be summarized, provided to the contractor immediately, and summarized for all contractors periodically through the program lifecycle. It also reduces the burden on inspectors, which we have seen become a significant bottleneck in other states with programs like WAP, where all projects must be inspected.
4. Develop standardized QAQC inspection procedures, forms, and repositories for data. This is essential to any successful program, and the BIL and IRA funded programs are no exception. Standardizing procedures ensures everyone knows the key elements of QAQC inspections regardless of tenure with The program. Consistent data collection forms help increase data quality and can significantly increase summary reporting efficiency with the DOE or other federal agencies. Finally, proper data management is critical to ensure data can be available readily, easily aggregated, and preserved for as long as required.

Respondent 4

Respondent 4 would like to thank the Rhode Island Office of Energy Resources for inviting comments on their implementation of the Inflation Reduction Act Home Energy Rebates.

INTRODUCTION AND SUMMARY OF RECOMMENDATIONS

In February 2024, the Rhode Island Office of Energy Resources (OER) requested written comments to inform the OER's application to the US Department of Energy for the Home Efficiency Rebate (HER) and the Home Electrification and Appliance Rebate (HEAR) programs. OER is seeking information on what program design options will most effectively serve Rhode Island households to reduce energy bills, increase home comfort, improve indoor air quality, and reduce carbon emissions.

Respondent 4 strongly believes affordable smart thermostats paired with heat pumps should be part of Rhode Island's strategy, as this combination provides customers with decarbonization, weatherization and electrification benefits. The DOE confirmed in their program guidelines that grid-enabled equipment such as smart thermostats are eligible under the HEAR heat pump rebate. Smart thermostats also meet the standard for inclusion in the HER program. Respondent 4's comments expand further on how Rhode Island can incorporate smart thermostats in an effort to meet their goals:

1. Rhode Island should require pairing ENERGY STAR® certified smart thermostats with every heat pump deployed, given their powerful capabilities to save energy and manage peak demand.
Smart thermostats are an eligible technology for both pathways in the HER program as well as the HEAR program. Installing smart thermostats alongside new loads like heat pumps lowers the cost of electrification to the grid and helps mitigate future peak demand spikes. Leveraging the ENERGY STAR® standard ensures that the thermostats have been independently certified, based on actual field data, to deliver energy savings.
2. Rhode Island should coordinate with utilities to offer pre-enrollment into demand response ("DR") programs with every smart thermostat installed where possible.

Demand response programs in particular provide potential for residential customers to provide load management support during extreme weather events or during peak loads. Utilities in neighboring states have shown expertise in running these types of programs and all efforts should be made to leverage new channels for customer engagement, such as online marketplaces and enrollment portals, where appropriate.

C. Designing Programs for Maximum Impact

16. 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)?

Respondent 4 recommends that Rhode Island's HER and HEAR funding should include investing in ways to deploy immediate weatherization benefits and manage newly added load from electrification. Smart thermostats are a simple and proven way to achieve widespread energy reduction and save customers money. Smart thermostats are an affordable product (as an example, Respondent 4 currently has a retail offering for a smart thermostat at less than \$130) that can be installed in all homes with central heating and cooling, including an estimated 85% of homes in the United States. Once installed, ENERGY STAR® certified smart thermostats like the Learning Thermostat have been shown to save 10% to 12% on heating costs and 15% on cooling costs.

Unfortunately, most thermostats sold today are not smart and do not achieve the level of savings mentioned above. Market estimates suggest that smart thermostats made up around 1/3 of all sales in 2021. The other 2/3rds of sales were for manual and programmable thermostats. This trend will continue unless we take specific policy actions and program designs.

1. Rhode Island should require pairing ENERGY STAR® smart thermostats with heat pumps given their powerful capabilities to save energy and manage peak demand.

Rhode Island customers will receive weatherization-related benefits immediately upon installing a smart thermostat through its proven capabilities to save substantially and meaningfully on heating and cooling costs. ENERGY STAR® itself has noted

"Weatherization programs benefit utilities and consumers in tandem, reducing unnecessary grid strain and lowering energy bills-mirroring the benefits of smart thermostats in any home." A recent report by S&P Global Market Intelligence that evaluated smart thermostat growth through 2026 noted that "if smart thermostats were installed in every home with an HVAC system by the end of the forecast...they could cut annual space heating and cooling energy consumption by 9%, or 45.4 TWh a year."

In addition, smart thermostats protect against an alternate scenario where electrification, without load control, increases the need for more generating resources. It is critical that as we install new equipment, we have some way to manage the newly created demand. Every heat pump needs to be installed with smart thermostats attached to offer customers a way to control their energy usage and further drive toward energy and cost savings.

Smart thermostats are an eligible technology for both HER and HEAR programs. In the HER modeled pathway, smart thermostats are an approved and included measure in the BPI2400 standard (including the recently proposed Annex E addition) because they provide the required functionality. In the HEAR program, the DOE guidance from July 2023 specifically allows the HEAR heat pump rebate to include costs for smart thermostats.

2. Rhode Island should coordinate with utilities to offer pre-enrollment into demand response ("DR") programs with every smart thermostat installed where possible.

Adding smart thermostats to weatherization and electrification programs can support energy providers to maximize energy and demand reduction capabilities in the near-term, and strategically set the stage for future grid benefits in the long-term. From a customer perspective, DR pre-enrollment often lowers the upfront cost of the devices by allowing the utility to stack EE and DR incentives into a single discount, thus increasing the rate of adoption. DR pre-enrollment also lowers the barrier to enrollment and ensures that the full DR value of thermostats are realized at the point of sale.

Pre-enrollment has been proven to increase demand response enrollment numbers - in New York, Orange and Rockland recently reported that since offering instant enrollment, their Bring Your Own Thermostat DR program realized a 53% increase year-over-year and record growth since this functionality was introduced.

Pre-enrollment into DR programs also primes the grid for residential Virtual Power Plants (VPPs). According to the DOE, the U.S. will need to support over 200 GW of peak demand between 2023 and 2030.⁵ The DOE published a report that found large-scale deployment of VPPs (80 - 160 GW) could address this demand increase and rising peaks at lower cost than conventional resources and reduce energy costs for Americans.

Residential VPPs that include heat pumps and smart thermostats provide a cost-effective alternative to manage peak electricity demand at scale. A recent Brattle group study found that a VPP enabled by technologies such as smart thermostats can provide many of the same benefits as generation resources by reducing or shifting load. Brattle modeled a 400 MW VPP with residential thermostats and found it could perform as reliably as a gas peaker plant at 40% of the net cost.

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

It is critical that electrification does not cause a significant energy bill increase for any homeowner, especially in disadvantaged communities or households that are fuel switching. As customers install new equipment, they should also have some way to manage the newly created load to manage energy consumption - for example, by pairing smart thermostats with every heat pump installed. Respondent 4 suggests that OER provide education on managing newly electrified loads, especially targeted education for disadvantaged communities and fuel-switching households. OER can also consider outreach campaigns on electrification via partnering with community organizations.

Respondent 4 recommends that OER provide as much education as possible on the benefits of electrification and how to maximize energy savings, such as through smart thermostats. Customers should also be aware of utility and/or state programs that provide additional energy savings, such as demand response programs.

F. Eligible Technologies for Rebates

33. 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?

Respondent 4 strongly recommends smart thermostats should be a required improvement paired with heat pumps, and allowable as part of qualified electrification projects. As mentioned above, it is critical we manage new loads from electrification. To support this effort, every heat pump needs to be installed with smart thermostats attached to offer customers a way to control their energy usage and further drive toward energy and cost savings. Smart thermostats also prime households to enter demand response programs, which drives even more energy (and bill) savings down the road.

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

As an industry best practice, Respondent 4 recommends that OER require smart thermostats to have the ability to connect to the grid for load management purposes. The nationally-recognized ENERGY STAR® program is widely considered an industry standard for efficiency. A product that is ENERGY STAR® certified ensures it meets strict, minimum standards for energy efficiency. OER should require ENERGY STAR® certification for all smart thermostats that receive a rebate through their program.

CONCLUSION

We thank OER for its attention to developing HER and HEAR program design principles that meet its decarbonization, equity, and affordability goals.

Respondent 5

Thanks for this opportunity to briefly share some thoughts concerning program design options for the upcoming Home Efficiency Rebates (HER) and Home Electrification and Appliance Rebates (HEAR) programs. Due to time constraints, we have not sought to respond directly to each of the section questions raised in the document. Nonetheless, we hope you will find our input useful as you consider the path forward, and we offer our assistance in whatever manner may be appropriate as you work through the task of bringing these initiatives to Rhode Islanders.

Our organization first started delivering comprehensive residential energy assessments to owners and tenants of 1-to-4-unit residential buildings in the state in 1978. We have been privileged to work through the years with the OER, other state and municipal agencies, and utilities since that time to arrange the installation of over \$500 million in energy improvements to existing RI homes. In large part due to strong support over the years from the OER and RI state government, tens of thousands of Rhode Island homes are now far more efficient thanks to our collective efforts.

The additional resources to be provided to our state through the Inflation Reduction Act, coupled with the already robust offerings made possible by other federal grant programs, ratepayer funding, Regional Greenhouse Gas Initiative (RGGI) grants, tax credits, and other sources will likely mean that RI residential energy users will have access to an unparalleled depth of energy assistance over the next several years. It may well represent a once-in-a-generation opportunity to complete upgrades that will provide meaningful returns for years to come to their homes and apartments. Our state is well positioned to make these benefits available in a coordinated and cost-effective manner.

We offer two overarching comments concerning this funding:

1. While the enabling legislation authorizes the use of up to 20% of the available funding for administration, planning and technical assistance, we urge the OER to reserve as much of the funding as possible for providing direct financial assistance to eligible households. We believe that a target of using 90% of the funds for direct assistance is reasonably achievable, while still allowing adequate resources for oversight and reporting responsibilities. This would send an important signal that the state is committed to maximizing the impact of the available funds to benefit participating households.
2. The focus of these resources should be to supplement and enhance the services/incentives already available to Rhode Island families, not to substitute new federal funds for existing sources.

We further suggest the following:

1. Consistent with the preceding comments, we believe that the planning process must start with a complete cataloguing of services already available to the RI energy users to be targeted by these efforts. It is critical to understand eligibility, incentive types and levels, covered technologies, delivery models, and any special considerations of existing programs as the first step towards

identifying where gaps exist that might possibly be filled by HER/HEAR resources. The gap identification must be performed from the perspective of various categories of energy consumers, based on their specific situation (own vs. rent, income level, nature of building, nature of improvement, etc.).

2. Equipped with an understanding of where the gaps might be (or where additional resources would be helpful), the specific objectives and allowable offerings of HER/HEAR can be evaluated to fill those needs. For example, the IRA places high priority on providing direct assistance to low- and moderate-income (LMI) households. One may reasonably conclude that there is a current gap for moderate income households who may not qualify for LIHEAP or WAP services, but whose annual household income is not sufficient to enable them to secure financing or pay out of pocket for substantial improvements to their homes. Addressing these high priority objectives first in designing complementary program offerings will help target the resources where the need is greatest.
3. Our organization’s mission is based on the notion that individual energy users may not have the time, knowledge, or resources necessary to confidently identify appropriate improvements and arrange for their installation by qualified tradespersons. There is a clear segment of the population that enjoys the availability of a trusted and vetted entity to guide them through the energy home improvement process, and the introduction of even more offerings will inevitably lead to even more need to provide information and guidance to sort things through. While online information sources like the Rewiring America Incentive Calculator on the OER web site can be very useful, the availability of an in-home resource that can match the specific customer and his/her home’s needs with the right path is a useful “turnkey” option that should be encouraged by the OER’s final design.

At that same time, there are many homeowners who prefer to work with a contractor of their own choosing and who would be served effectively without needing the “turnkey” option. We do not suggest that a managed approach is the only appropriate avenue – our experience with other residential programs in states like Massachusetts, for example, has demonstrated that both forms of delivery channel can work effectively to maintain program integrity and offer choice to participating households.

4. Many of the questions posed in the RFI have been addressed with varying degrees of success by Respondent 5 and others associated with utility-sponsored residential efficiency programs over many years. In most instances, the program sponsor must strike a balance between the degree of precision and control it seeks, measured against the cost of obtaining that precision. Mindful that we urged the OER at the outset of these comments to maximize the amount of direct financial assistance to be made available while controlling administrative costs, we would be happy to provide further input to the OER upon request on these items should circumstances permit.

Respondent 6

Response to RFI to Support Program Design for the Inflation Reduction Act’s Home Efficiency Rebates (Sec. 50121) and Home Electrification and Appliance Rebates (Sec. 50122) Programs – Respondent 6

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?

Multi-lingual marketing, community-based events and resources, and collaboration with community-based organizations on outreach and education. This can include informational sessions, workshops, and distributing marketing materials in multiple languages.

For best practices, we recommend referring to “Public Access and Participation Plans: A Starter Kit for State Agencies” produced by the Regulatory Assistance Project. The State of Massachusetts’ recently released Environmental Justice Strategy also offers a wide array of best practices for meaningful community/stakeholder outreach and engagement

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

Offer higher rebates for rebates offered in specific disadvantaged communities in alignment with Justice40. These disadvantaged communities in Rhode Island need to be clearly identified by OER, whether through a tool like the White House’s Climate and Economic Justice Screening Tool or DEM's interactive map of Environmental Justice areas in Rhode Island. Ensure reporting and accountability to the outcome of at least 40% of overall benefits towards disadvantaged communities. Adjust marketing and outreach budgets throughout if program is not on track to meet this outcome.

4. How can OER ensure that community-based organizations, residents of disadvantaged communities, renters, and marginalized groups such as low-income residents, residents of color, rural residents, and Tribal residents are meaningfully engaged for the Home Energy Rebate programs? What other groups should be included?

See answer to #2. Accessible educational resources and partnering with community-based organizations is key. Collaborations may include CAP agencies, Health Equity Zones, community development/financial literacy organizations, neighborhood and community groups, schools, unions, professional associations and affinity groups, and even banks and credit unions

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?

All cost-effective energy efficiency must be a prerequisite to both the HER and HEAR rebate programs, regardless of income. To address the current and evolving economics of electrification, we encourage OER to advocate for systemic rate reform, with policies such as specific heat pump electric rates and percentage of income payment programs.

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?

Require that contractors conduct savings analyses for the desired rebate, along with savings analyses for at least two additional comparable products, as part of consumer education, so that the consumer can make an informed decision regarding the impact of the upgrade on their annual household energy bills.

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 OER also incentivize multifamily affordable housing property owners to participate in these programs?

Higher rebates for affordable housing and lower-income rental properties may be obligated with an agreement by the owner/landlord to not raise rents above a certain rate per year for a minimum of 3 to 5 years.

Communication directly with renters is critical to ensuring that renters are aware of and benefiting from HER and/or HEAR rebate programs. Rebates for transferable appliances may be offered as a benefit directly to renters. Further, if a property is obligated to not raise rents in association with rebates, renters would be critical to accountability.

8. What are best practices for implementing successful 'point of sale' rebates, including when considering contractor needs?

Education opportunities for sales staff at retail vendors to better inform customers on the energy efficiency, health, safety, and climate benefits of products, particularly the higher efficiency offered by technologies like heat pump water heaters, heat pump clothes dryers, and induction stoves. Education opportunities for contractors that work to install appliances on behalf of or in partnership with retail locations, to ensure they understand how to properly install "newer" technologies like heat pump water heaters, heat pump clothes dryers, and induction stoves. The contractors, as well as sales staff at retail vendors, should also be well informed on how the rebate program works, rebate submission procedures, and any updates or changes to the program. The rebate application process should be as simple as possible to avoid any administrative burden on the contractors. User-friendly interfaces and well-informed contractors and sales staff will enhance contractor and retail vendor participation and ensure they are well equipped to promote the program to consumers and facilitate rebate transactions.

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

Recommended sources: Peter Asen (HUD), Providence Housing Authority and other public housing organizations, the Housing Network of RI, RI Housing

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

Recommended sources: Green and Healthy Homes Initiative, Childhood Lead Action Project, local community development offices.

11. 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

Data collection and reporting should be integrated across all program components to track participant demographics, energy savings, rebate distribution, and program outcomes. As mentioned above, all cost-effective energy efficiency must be a prerequisite to both the HER and HEAR rebate programs, regardless of income, and thus, home energy assessments should be a prerequisite to all rebate programs.

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

Evaluation of Clean Heat RI, particularly related to outreach and engagement, could offer insight and/or be integrated into the evaluation of these rebate programs. Evaluation of equity in energy efficiency programs and the work of the Energy Efficiency Equity Working Group may also offer helpful guidance and comparisons. In addition, the Division of Statewide Planning is initiating a Public Participation Task Force and developing a Social Equity mapping tool.

13. How should OER 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?

Contractors should collect the expected annual household energy and cost savings as a key outcome of the program. Energy savings may be used to estimate the emissions impacts of the program by year. The

measurement of health-related cost savings from reduced air pollutants and indoor air quality monitoring may also be explored.

14. What data should OER collect throughout the program for the purposes of evaluation? What evaluation protocols should OER put into place before program implementation begins?

1. Type of measures used for rebates: establish categories with lists of measures for clear interpretation by contractors

2. Program participation data: Collect data on the number of participants, % of participants in disadvantaged communities (establish geographic areas of disadvantaged communities for clear interpretation by contractors), and demographics including but not limited to income. This data will help assess program reach and identify any disparities in participation among different communities.

3. Energy savings data: Gather data on energy consumption before and after program participation for each rebate to determine total annual energy savings

4. Cost saving data: Gather data on energy costs before and after program participation to determine total annual cost savings.

5. To evaluate the program, OER should establish performance metrics and targets before program implementation begins to measure program outcomes such as energy savings, cost-effectiveness, customer satisfaction, and emissions reductions.

a. How often should OER evaluate the program?

Evaluation of the program should be assessed quarterly to ensure programs are on track to meet the desired outcomes and may be adjusted. Outward facing public reporting and communications on the outcomes and benefits of the program should be produced at least annually. A dashboard showing statistics of rebates used should be posted and updated monthly, similar to/integrated with the dashboard intended for Clean Heat RI and other OER programs.

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

OER must establish and define disadvantaged communities geographically in order to report on the distributional equity of these rebate programs. Disadvantaged communities in Rhode Island may be defined utilizing the White House's Climate and Economic Justice Screening Tool or DEM's interactive map of Environmental Justice areas in Rhode Island. The Division of Statewide Planning is also working on a Social Equity Data Platform to be used across state agencies.

15. 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?

OER must advocate for and implement supportive policies such as a building performance standard and clean heat standard to create an enabling environment for energy efficiency and electrification investments after these funds have been depleted

16. 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)?

Weatherization measures such as insulation and air sealing to help improve a building's envelope should be bundled with installation of heat pumps. By sealing air leaks and adding insulation, the home becomes more airtight and better insulated, reducing heat loss in the winter and heat gain in the summer. This will significantly reduce the workload of the heat pump, allowing it to operate more efficiently and therefore reduce energy consumption and costs.

17. 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)?

Program administrators should ensure that 40% of the rebates are delivered to disadvantaged communities, in line with Justice40.

18. 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?

Could look to past bulk solar purchases and installation facilitated by OER, the City of Providence, and the West Broadway Neighborhood Association.

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

See answer to question # 32

22. 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?)
Electrification rebates should primarily focus on existing buildings. New construction is lower-hanging fruit and already cost-effective to build all-electric. Recent analysis by the Rocky Mountain Institute found that new all-electric, single-family homes were less expensive to build than new mixed-fuel homes that rely on gas for cooking, space heating, and water heating. In addition to being more costly to electrify, existing buildings are also the larger piece of the building decarbonization puzzle.

Approximately 70% of our building stock in 2050 is already in place today. In order to achieve net-zero by 2050, it's crucial that we start retrofitting and electrifying existing buildings today.

23. How can OER encourage programming 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 to make this successful?

b. How should OER encourage programs and participants to leverage other resources and/or provide seamless services?

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

Aim to integrate education and outreach with the state's energy efficiency program and existing energy programming at local CAP agencies. Include integration with ReWiring's Home Energy Calculator.

26. 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?

OER should advocate to the utility to ensure that existing utility rebates are not reduced in tandem with additional available rebates.

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

OER should develop and maintain a comprehensive user-friendly website that serves as a hub for information on qualifying technologies, eligible projects, program guidelines, and application procedures. The website should be accessible in multiple languages. There should also be a comprehensive FAQ section to address frequent questions, as well as integration with the Rewiring incentive calculator.

OER should also conduct outreach and education campaigns to raise awareness about Home Energy Rebate Programs and the benefits of qualifying technologies. You can utilize multiple channels such as TV ads, radio, social media, email newsletters, and community events, to reach diverse audiences.

These informational campaigns and resources may be coordinated with bodies such as the Energy Efficiency Resource Management Council and the Executive Climate Change Coordinating Council, as well as industry and educational stakeholders.

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

Despite being required by local code, the upfront cost of purchasing and installing energy-efficient equipment or measures may still pose a barrier to adoption for some building owners. In such instances, providing rebates can help offset these costs and incentivize compliance with code requirements, leading to broader adoption of energy-efficient practices.

35. What should OER consider when drafting energy usage data sharing guidelines?

OER should establish quality assurance processes to ensure the accuracy, reliability, and integrity of energy usage data shared with third parties. Verify data completeness, consistency, and timeliness to enhance its usefulness for decision-making and analysis.

Respondent 7

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?

1. Program administrators can build networks of community-based partners to conduct marketing and outreach in disadvantaged communities. Identifying community partners that have the trust of the community is key to successful outreach efforts.
2. Partnering with municipal governments and community-based organizations on mailing campaigns, listening sessions, and tabling community events is another important outreach strategy.
3. Each community may get their news, information, and entertainment through different mediums. The program administrator should work to understand which medium works best for each community (e.g. radio versus social media).
4. Many communities spread program awareness through word-of-mouth. Designing easily understandable and shareable materials may help individuals better communicate programs to other community members.

How can OER 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?

- (i) OER can help program administrators understand which communities are designated as Justice40 communities and keep them aware of any changes to such designations.

- (ii) OER can educate program administrators on other initiatives that have occurred in Justice40 communities and provide case-studies on barriers, challenges, and successes.
- (iii) OER can set benefits delivery targets for each defined Justice40 community and communicate those targets with the program administrator.

How can OER 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?

- (iv) Please see the answer to question #2 in section B.
- (v) Health Equity Zones, Community Action Partnerships, Rhode Island Department of Health, and Rhode Island Department of Human Services have been valuable partners in engaging underserved Rhode Islanders.

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?

- (vi) The Home Energy Rebate programs incentives, combined with Rhode Island Energy's program incentives, can focus on driving energy efficiency adoption, and therefore lower customer bills, in high-energy burden households. Financing solutions (low-interest bank loans, green bank financing, and on-bill financing) can also help drive adoption of energy efficiency technologies.
- (vii) The Home Energy Rebate programs can track energy burdens and have targets in place to reduce them.

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 OER also incentivize multifamily affordable housing property owners to participate in these programs?

- (viii) OER should work with municipal governments and community-based organizations to engage landlords in listening sessions and education campaigns. Communities may be able to share rental registries with OER.

What evaluations of similar programs exist that can provide lessons learned and

recommendations for effective program guidance, support, and best practices?

- (i) All process evaluations, results can be found on the EERMC website.

How should OER 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?

- (ii) Define what you want, ensure you have the data, and report out on success. Definition of success is up to OER.

What data should OER collect throughout the program for the purposes of evaluation? What evaluation protocols should OER put into place before program implementation begins?

- a. How often should OER evaluate the program?
- b. What specific data is needed to evaluate program success in reaching disadvantaged communities?
 - Follow IPMVP protocols.

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?

- (iii) Perform market research and identify which markets you are targeting.

How can OER encourage programming 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 to make this successful?
Provide clear guidance for consumers and supply chain partners (wholesalers, retailers, installers), about the availability of IRA rebates and a simple, unified pathway for consumers to access funding from the IRA and other relevant sources. Program eligibility should be a point of emphasis, particularly where there are different eligibility requirements for outside funding sources and IRA funding.
- b. How should OER encourage programs and participants to leverage other resources and/or provide seamless services? OER should work closely with other funding sources to understand how IRA funds can integrate with existing funding pathways for participants. Clean Heat RI (CHRI) provides a

good example of coordination for participants interested in heat pump installations. For those eligible, it is straightforward to access the incentives available from CHRI and RI Energy.

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

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

The Northeast Energy Efficiency Partnership is publishing a report soon on IRA savings attribution that should be used as a reference. Rhode Island has been involved in the development of this report and provided RI-specific perspectives. Barriers include differing program participation requirements and coordination of marketing and implementation efforts, best practices will depend on exactly how the IRA funds will be used and who will be implementing them. Close coordination is the best way to overcome barriers. Lessons can be applied from past and current state and federal funding opportunities like LIHEAP, WAP, and Clean Heat Rhode Island.

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

- (i) Customer data, impact evaluations, and independent review of engineering calculations.

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?

- (ii) Technical Reference Manuals and AESC 2024 for conversion factors.

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?

- (i) Rhode Island TRM has the time-based factors, nothing in terms of location (must be site specific), and GHG savings could use conversion factors from AESC 2024. Values come from the avoided cost study.

What evaluations, research, reports, or other resources can help inform OER's program guidance?

- (i) All evaluations are uploaded to the EERMC website. Other resources can be found on the ACEEE website.

Respondent 8

Thank you for the opportunity to submit comments on the design of the Home Efficiency Rebates and Home Electrification and Appliance Rebate programs. Our comments are related to the program implementation at large.

Regarding the Home Electrification and Appliance Rebates (HEAR), we understand and agree that these rebates are mandated to benefit low-and moderate-income housing under the Inflation Reduction Act. It's imperative that these federal funds complement the efforts of existing programs like the Rhode Island Energy income-eligible program, extending their reach to more households. Rather than introducing new programs and income-verification methods, we recommend minimizing administrative costs and maximizing the impact of each dollar by expanding existing initiatives.

Another approach could be to allocate a significant portion of the HEAR rebates towards public and nonprofit affordable housing. For example, installing induction stoves in every unit of an affordable housing apartment complex.

Regarding the Home Efficiency Rebates (HER), which is not limited to low- and moderate-income households, 40% of these rebates must be distributed to disadvantaged communities to align with Justice 40. We recommend leveraging the Community Action Programs in Rhode Island to identify people who sought assistance but exceeded the income threshold for LIHEAP. We also recommend leveraging existing databases within the efficiency program to conduct targeted outreach to zip codes in disadvantaged communities as defined by the CEJST tool.

Respondent 9

Thank you for this opportunity to provide a response to the Response for Information on the Department of Energy Rebates. We are excited about the electrification and energy efficiency opportunities that this would provide all Rhode Islanders, but especially renters and homeowners earning low- to moderate-incomes (LMI). Below I respond briefly to some of the questions in the RFI.

(3) In alignment with the Justice40 Initiative, we would encourage OER to designate most of the funds, even greater than 40%, to our lowest income homeowners and renters. It is also important to focus on neighborhoods in Rhode Island, especially in Providence that have been disinvested in and have faced environmental injustice.

(4) Outreach to LMI homeowners and renters is critical for this program's success. The program could partner with affordable homeownership providers, CDFIs, and neighborhood groups and associations to reach as many homeowners as possible. We are happy to discuss program design and provide additional feedback as the program design progresses. In our work, many Central Providence residents express that they do not see how energy efficiency and electrification would positively impact them. In outreach, it is thus important to demonstrate how this would affect utility bills and comfort in one's home. This program can achieve this in several ways, including through using clear and straightforward language and marketing, leveraging existing trusted networks in communities, and meeting people where they are, including at their homes, laundromats, grocery stores, laundromats, and community and neighborhood associations, including Health Equity Zones. Additionally, if it is necessary for homeowners and renters to provide an outlay of cash up front, the program can partner with CDFIs (like Providence Revolving Fund) who do small home improvement lending to do initial spending and then recapture rebate, allowing LMI homeowners to pay CDFI back (in full or perhaps in installments).

(5) To help minimize the energy burden and costs, especially in LMI and high energy burden households, the Home Energy Rebate program can completely subsidize the cost of upgrades, as well as fund or significantly subsidize relocation assistance during installation, if needed. Additionally, the Home Energy Rebate program should also fund free energy assessments and cover installation costs and rebates for windows, insulation, and other factors affecting energy efficiency. To support owners and tenants who earn LMI, the program can also partner with landlords of housing for LMI households or that is deed restricted. Additionally, the program can partner with CDFIs and other local organizations to provide or further subsidize the up-front expenses rather than requiring LMI households to pay upfront costs to access this benefit.

(7) To ensure that owners of rental properties receiving rebates for low-income households continue to offer affordable rents for a reasonable time after owners implement the improvements, one approach could be mandating a deed restriction to maintain affordable rents for tenants earning LMI for 20 or more years. Potential incentives for the deed restriction could include additional rebates or funding for energy efficiency and electrification or some other form of financial incentive. We are happy to discuss this more as we think it is important to preserve quality, affordable housing.

(9) For federally subsidized, low-income housing, it is important that affordable housing subsidized by all forms of federal and state affordable housing programs are eligible, including the Low-Income Housing Tax Credit (LIHTC), the U.S. Treasury, and the U.S. Department of Housing and Urban Development. Developers have hundreds of units in our pipelines for new construction, and it would be helpful to explore options for rebates for energy efficiency for new construction of housing for LMI households, which would enable us and similarly situated providers to strive for bolder energy efficiency goals. Additionally, the program could allow developers to use bulk purchasing to access the rebate, rather than applying for each unit separately.

(11) We recommend that OER centralize outreach, marketing, and communications across both DOE Home Energy Rebate programs to make it easier for individuals and organizations to access the benefits. We would also recommend that the program employ "navigators," either new staff or providing salaries for staff at existing aligned organizations, who can connect with potential applicants to help them understand what they are eligible for and how to get it.

(12) The State Broadband Office from RI Commerce was effective at establishing an Affordable Connectivity Program (ACP) outreach program, soliciting feedback from relevant organizations on program design, and funding outreach to make it easier for applicants to access benefits. Additionally, the ACP program, a federal program, reduced barriers to determining eligibility by stating that applicants were eligible if they received any other public benefit. Perhaps this program can implement designs that streamline the eligibility and application process to encourage application.

(13) OER should measure success by assessing several measures, especially the impact on energy use and utility bills, as well as the neighborhoods and area median income (AMI) levels of homeowners and tenants. (17) In addition to our earlier discussions on set asides, perhaps the program could have a separate set aside for multi-family affordable housing developers, related to the bulk purchasing point in response to question 9.

(19) As noted in earlier responses, we encourage the program to partner with multifamily housing developers and community organizations, other organizations that already do or fund home repair work, and maybe Health Equity Zones.

(20) As noted in earlier responses, it is critical that this program use simple, straightforward language, since energy-related programs can be so technical and inaccessible to the average renter or homeowner. We would also suggest that OER develop a help website and help phone number where individuals can get access to information and navigators. Additionally, we would recommend that OER engage groups that work with low-income tenants on housing and utility issues, including the Rhode Island Center for Justice, the George Wiley Center, and Rhode Island Legal Services, to develop resources for tenants who want to engage their landlords to access these benefits, including on cost savings.

(22) Electrification rebates would be especially impactful for new construction of affordable housing. This would allow non-profit affordable housing developers to build 100s of fully fossil fuel free units, which can be cost prohibitive to developers.

(25) OER can put safeguards in place to make sure LMI households are optimally served through various available programs by educating individuals on all of the programs they are eligible for and making it as simple as possible to apply. Additionally, perhaps OER can work with utility companies to make sure that LMI homeowners and tenants have access to sufficient emergency funds for utilities, in the event of their not having enough money to pay for utilities. Additionally, as noted earlier, it is critical that OER centralize navigation and information about electrification and energy efficiency programs and incentives, such as through one central website or phone number than can help potential applicants navigate the process.

Thank you for your consideration, and I am happy to talk further about OER's program design for these two critical programs.

Respondent 10

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? Provide simplified implementation models that complement market-rate programs and that can enhance identification and outreach to disadvantaged communities in each state as part of the overall program plan.

3. How can OER 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?

Higher incentives are made available for targeted segments in the law and can be deployed with existing programs. Conducting targeting for the programs, including these parameters, can ensure that the people who will benefit most can be served first.

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?

We have found that data-driven, meter-based customer targeting is the key to ensuring that programs help reach the LMI customers who need it most. Meter-based targeting can provide actual bill savings and help mitigate the increased energy burden from electrification. Identifying and focusing on serving customers with the greatest potential for having good outcomes from an intervention, often highly correlated to energy burden, allows the funds to drive maximum impacts and value to participants.

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?

Our recent study of four ComEd energy efficiency programs found that customer targeting using pre-program AMI data effectively identifies customers with the highest savings potential. The study also found that targeted customers (top 25%) in the Income-Eligible Weatherization Program saw more than double the average savings of the rest.

Similarly, researchers analyzed the energy consumption of almost 350,000 customers in Northern California, focusing on those who have already installed air conditioning as part of the TECH Clean California electrification program. The analysis found that 30 percent of customers would see their bills go up after switching because of high electricity rates. Another 46 percent would save only an average of \$40 per year, leaving 24 percent of customers who would average \$200 per year for what was, on average, over \$18,000 invested. The report highlights the need to carefully target customer with a high potential for savings and consider other factors that motivate participation.

Using energy consumption data to develop customer parameters for high- and low-savers and sharing those insights with participating contractors and aggregators supports them in delivering measurable

results. Since they are paid based on these quantifiable results, customers are protected from low-quality work that doesn't deliver promised benefits.

8. What are best practices for implementing successful 'point of sale' rebates, including when considering contractor needs?

"Point of sale" rebate best practices are more appropriate for single-technology programs, while the HOMES rebate program requires whole-house energy savings and access to bill data. A best practice while implementing a measured approach is to offer the customer a package of different technologies that suit their needs. Transferring the rebate to the aggregator reduces the project's overall cost while shifting the performance risk away from the customer.

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

In a measured program, payments are based on outcomes; contractors and aggregators take on the performance risk. Adopting a measured approach for the HOMES rebate program would ensure that aggregators and contractors are held accountable for attaining the anticipated savings in residential properties that participate in the program.

11. 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 will be dependent on the program design. Companies offering customer services are typically the primary marketing channel if a market-based design is Adopted. HOMES limits program implementation to 20% of the budget which will limit direct customer marketing. Using customer targeting information to enable aggregators to market to the best candidate customers will be critical to utilize limited funding.

(ii) Income verification A unified system for income verification across a state should be used to ensure a streamlined and consistent flow of accurate information and reporting.

(iii) Rebate processing Measured performance programs need processes for enrollment, tracking, and payment. Since aggregators are the point of payment, the primary component is validating savings and calculating the eligible payment.

(iv) Contractor requirements In a measured program, payments are based on outcomes; contractors and aggregators take on the performance risk. This greatly reduces the need for upfront regulations and opens the door to a wider range of potential providers who have creative business models or ways to reach LMI/high energy-burden customers. Contractor requirements can be limited to basic licensing and financial viability.

(v) Home energy assessments Developing a work scope and engaging customers depends on the program model implemented. Modeled approaches require more detailed and complicated home assessments to develop the necessary energy model correctly and are often limited to measures software is capable of modeling.

Conversely, measured approaches are paid based on actual metered performance instead of upfront predictions. They don't require detailed or prescriptive upfront assessments, allowing more room for innovation and business model variation, as the risk of underperformance falls squarely on the contractor and aggregator. The goal of a measured program is to enable innovation and more streamlined approaches to the market. Ex: Companies that are successfully conducting assessments and home performance and electrification sales over the phone.

(vi) Data collection and reporting The necessary data will depend on the program model implemented. For a modeled approach, calibrating the model that is the basis of the incentive payment requires gathering extensive information about the age and size of the building and shell assemblies, the type of heating and cooling system, the existence of insulation and other measures, recent energy bills, room-by-room inspection, and a blower door test to measure air leakage.

In the measured approach, the primary data needed is the energy consumption of the customer before and after the intervention. Most measured programs collect information on the technologies installed and their cost. This simplifies the data collection and management process while reducing contractor and program transaction costs.

For modeled and measured approaches, the OER should require reporting actual savings, and those savings be calculated using a consistent, open-source Advanced Measurement and Verification code base.

The actual savings achieved at the meter is the most accurate representation of the customer's bill savings, GHG impacts, and grid value. Even if OER should choose to run programs that rely on up-front assumptions and predictions of savings, it is prudent for the OER to require quantification of actual impacts. Embedded measurement and verification is a common, responsible practice to provide feedback for program improvement. It is accessible to all states and will provide concrete evidence of the impacts of this significant investment in home performance.

For example, the Advanced Home Upgrade Program in California, which was originally deployed using a modeled approach, was measured in real-time during the entire program to enable process improvement. The program was found to only deliver 27% of the predicted savings (realization rate) that were used to calibrate estimates and incentives. The program transitioned to a measured P4P program and subsequently achieved realization rates of over 100%. Similar results can be found in home performance programs across the country.

TECH Clean California is a statewide program that pays deemed incentives for heat pumps. To ensure rebates go where they can have the greatest impacts, the program uses consumption analytics to target high-potential customers and avoid negative equity impacts. The program also measures the bill impacts and GHG impacts of all heat pump installations to optimize program design and understand the potential grid impacts of widespread electrification. (See the webinar Using Advanced Targeting to Ensure that Electrification Reaches Those Who Will Benefit Most for more detail.)

Targeting and measurement are fundamental best practices that should be required for the HOMES programs and for the HEERA Electrification program. You cannot improve what you don't measure. We strongly encourage the OER to use this opportunity to advance the demand-side industry by requiring that impacts are measured and reported in all cases.

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

Our recent study of four ComEd energy efficiency programs demonstrated that customer targeting based on pre-program AMI data can accurately predict results for future customers. Targeting metrics were predictive of savings outcomes for the multiple weatherization and HVAC programs evaluated and could be applied to future participants to optimize programs and customers benefits. Targeting the highest 25% of savers for each of the four programs could drive 2-4.5 times more savings than the average, depending on the program. Targeting is a best practice that should be utilized in optimizing HOMES deployment. Source: Recurve Analytics on behalf of Commonwealth Edison Utilizing Smart Meter Data to Improve Program Cost-Effectiveness and Customer Outcomes. January 2023.

The Energy Upgrade California Advanced Home Upgrade Program (AHUP) was a statewide program administered by the California IOUs from 2010 to 2019. In this program, customers were paid based on modeled (predicted) savings, with 20% predicted savings worth \$2,000. The evaluation showed average site savings of only 9.6% on a combined whole-house energy basis. The realization rates were 27.3%, (i.e. only 1 out of every 4 units of energy the models predicted and were paid for were actually delivered). The AHUP program was designed with the most innovative modeling software - the lesson is that models fall short in predicting accurate energy consumption at the site level. Source: DNV-GL Impact Evaluation Report Home Upgrade Program – Residential Program Year 2017 CALIFORNIA PUBLIC UTILITIES COMMISSION CALMAC ID: CPU0191.01 April 29, 2019

More recent results of measured home performance programs have demonstrated positive results. Franklin Energy implemented a measured home performance program with PG&E from 2019 - 2022. Results presented at an industry forum demonstrated high realization rates as well as customer satisfaction and delivered significant peak electric savings. Source: Justin Kjeltzen, Franklin Energy, Presentation at California Efficiency and Demand Management Council EM&V Forum February 2023

Other references for this program include:

-Leif Magnuson, PG&E Better Buildings Residential Network Peer Exchange Call Series: Spring Forward: Top Strategies for Growing and Scaling Your Program (301) May 26, 2016

-Leif Magnuson and Adam Scheer PG&E - "From the Shadows to the Spotlight " Presentation Summary at California Efficiency and Demand Management Council EM&V Forum January 2019

While not compiled in an evaluation report, Respondent 10 has collected some key lessons learned from experience with residential pay-for-performance programs in Oregon, New York, and California. Best new best practices can be found in current models (i.e. MCE Residential FLEXmarket and Tri-County Regional Network FLEXmarket)

1. Offer open-market procurements so that more than one or two companies can have an opportunity to participate and drive impacts.
2. Start with a standard offer price to allow aggregators to build knowledge based on their performance. Early market actors may not have enough information to price their bids appropriately and get stuck.
3. Modify the program delivery to reflect a measured incentive structure and data-rich feedback. Deemed programs, with no modification, will likely fall short of desired performance.
4. Savings must be deep enough to measure (+5%)
5. Include the time-value of performance impacts with technology incentives, and account for the aggregator's performance risk

Apex Analytics evaluation report of the Oregon Residential P4P pilot is also a helpful resource to understand how deemed programs need to adapt to a measured model. Energy Trust of Oregon Residential Pay for Performance Pilot Evaluation Report, Apex Analytics 2021.

Findings on the challenges of weatherization program realization rates can be found in the E2e Working Paper 046 Decomposing the Wedge Between Projected and Realized Returns in Energy Efficiency Programs, February 15, 2021.

13. How should OER 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?

OER should focus on the value of measured changes in energy consumption and the related customer bill and grid impacts. These impacts directly translate to GHG reductions, resilience, and reliability as the primary metrics of success. The data needed to evaluate these metrics include time-delimited energy consumption patterns, geographic location, and rates.

Whenever possible, these measurements should include hourly AMI data to account for the differing value of savings over time. For example, states like California, with large amounts of solar power, are struggling to address the mismatch between daytime solar supply and evening demand (the “duck curve”). Regions with high penetration of wind, such as Texas and the Midwest, face similar challenges. In all of these cases, variability contributes to regular periods of over and undersupply and periods of negative energy prices. Energy savings that happen during periods of renewable oversupply do nothing to reduce greenhouse gas emissions or help grid stability. Conversely, savings that happen at peak times can contribute to grid stability by taking pressure off of consumption during extreme events and reducing the need to deploy carbon-heavy fossil-fuel peaker plants.

Measuring and understanding the time and locational impacts is critical for incentivizing demand-side interventions that promote grid resilience, support renewables, and reduce GHG emissions.

14. What data should OER collect throughout the program for the purposes of evaluation? What evaluation protocols should OER put into place before program implementation begins?

a. How often should OER evaluate the program? The measured approach embeds open-source auditable evaluation that provides near real-time feedback. This allows for continuous monitoring and evaluation, so adjustments and improvements to the program implementation can be made simultaneously, ensuring programs are reaching their desired goals.

Embedded open-source measurement and verification should be used for the modeled and measured HOMES and HEERA pathways. If measured results are the basis of reporting to OER and DOE, no additional impact evaluation would be necessary. DOE could simply conduct an audit of reported results from OER.

b. What specific data is needed to evaluate program success in reaching disadvantaged Communities? Data on the number of customers representing targeted communities in each program is needed to evaluate success in reaching DAC. Other metrics would be the same as the rest of the program.

15. 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?

To spur durable market demand and assure continued success after HOMES funds have been depleted, program designs must become self-sustaining as either cost-effective rate-payer programs or as virtual power plants (VPP) that can reliably produce real and measurable grid value funded through procurement mechanisms.

The risk with deploying only a modeled approach is that it cannot provide the reliable results needed for a VPP model and may not stand up to rate-payer program cost tests which could mean the program ends when federal funding is over.

Following the measured path, on the other hand, allows aggregators to deliver value to customers and demonstrate grid impacts. This could transfer into a VPP model where the grid impacts could be purchased by LSEs or a cost-effective rate-payer program model that, in both cases, would fund and support investment in quality products and services to customers.

For market-rate customers, these services are sold, not bought. In other words, when replacing an appliance or retrofitting a house, customers will often simply accept the recommendation of a contractor. Designing sustainable contractor business models in which they are incentivized to deliver grid savings in addition to customer value is critical for the sustainability of a program. The OER implementation model can enable aggregators and contractors to integrate these incentives into their business models with this federal funding stream to set them up for future continued success once federal funds have expired.

Additionally, the home certification provision may also support self-sustaining market demand for electrification, and high-performing homes continue long after the rebate funds are expended. To ensure that the full potential of this provision is realized, the OER should adopt straightforward approaches to home certification that will maximize their market impact but not drag project throughput.

16. 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)?

The most important practices the OER can encourage are: 1) to allow flexibility to aggregators to deliver products and services that customers want and need; 2) allow for truly technology-agnostic approaches that can reduce overall energy consumption; and 3) support incentive layering to stretch each federal dollar further.

18. 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?

Administrators should focus on leveraging community businesses in the equipment distribution business partnered with contractors rather than attempting to intermediate them. Past experience in the ARRA bulk buying for HVAC demonstrated the complexity of this approach and the fact that contractors use specific brands, and there are hundreds of products in addition to the HVAC system itself required for installation. Improving the efficiencies of a professional distribution company is a significant challenge. It requires many hundreds of products on hand, customer service, on-time delivery, stock, return policies, etc. that may be difficult to emulate or improve upon.

19. What practices should OER 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?

Program administrators should leverage existing programs where possible, and use embedded M&V to support adaptation and maximization of benefits. Make it simple to deploy and tied to local expertise.

21. 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?

Programs must be easily implemented, have low transaction costs, and allow for flexibility in how companies deploy their business models and the technologies offered to customers. The OER should also include the grid and/or GHG value as a central tenet of the program alongside the customer value. This will demonstrate the potential value for continued investment of load-serving entities in demand-

side grid assets (homes and businesses) to continue to improve reliability and resilience for the system, as well as individuals. The measured approach frees aggregators to innovate and invent delivery models that provide the best solutions for customers and contractors alike. Aligning incentives with outcomes and paying for performance lowers individual transaction costs during the sale and installation periods and allows aggregators to build sustainable business models for the continued investment in demand-side resources.

23. How can OER encourage programming 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 to make this successful?

Creating new programs that need to be coordinated will create more confusion and transaction costs in the market; less is truly more in this case. The measured path has the necessary flexibility to be stacked on top of existing programs without creating market confusion and new complicated rules. Allowing the IRA incentives to be stacked on top of existing state and utility incentives is a great policy. These programs, which have not scaled, will get a needed shot in the arm in the form of additional incentives. Adding the incentive of pay for performance, and in some cases, time-based value will create the conditions that encourage these programs to evolve to improve delivered outcomes. The OER should try to stack benefits wherever possible and within the bounds of the law as the fastest and lowest transaction cost path to the market.

The measured approach can be stacked on existing utility programs and federal tax credits with little new overhead or requirement for new and complicated program designs. This deployment strategy can turbocharge programs so they launch more quickly by leveraging both ratepayer and federal investment to drive greater demand. Paying for performance ensures that current programs deliver real and greater savings to customers, and when AMI is present, time-based incentives can be sent to drive greater peak savings and GHG reductions.

The modeled approach, on the other hand, requires a specific whole-house energy audit and model, which will be challenging to stack on existing programs without substantial transaction costs to all parties.

OER should look to existing examples of how to facilitate braiding (of funds), incentive layering (of technology-specific incentives), and value stacking (of benefits). For example, in a measured program, pooled funds (braided) can be deployed to common communities to achieve co-benefits (e.g., rural innovation loan funds and home performance rebates could focus on upgrades geographically). Technology incentives available in a utility program could be coupled with home performance incentives to drive deeper savings impacts or address other costs. In a time-valued measured program, the value from multiple sources can be stacked (i.e., avoided cost curve + carbon, reliability, etc.) to send a price signal to aggregators to optimize the home performance outcomes with other policy goals.

Existing loan funds should explicitly be allowed to complement measured programs. Because the loan could be paid back in part or in whole by the performance incentive, aggregators could leverage loan dollars for the initial installation. This would help participants and aggregators overcome first-cost barriers and extend the impact of both the revolving loan fund and the performance incentive program. Using these programs together creates the necessary cash flow and as such is not double paying for the upgrade.

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

The OER should not offer incentives that exceed the total cost of a project. (For a measured path, this should only apply to portfolios of projects). This is not likely a common problem as the typical cost of a project is much higher than available incentives. For example, home performance jobs typically cost more than \$10,000, so a \$2,000 incentive would only cover a small fraction of the total project cost. Having caps in place on the project cost is a sufficient mechanism for managing the risk of Overpayment.

It is important to note that the long-term performance value of a project—which could include GHG mitigation, improved grid stability, avoided maintenance costs, and other factors—could be greater than the upfront cost of physical equipment.

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

The primary barrier to effective program attribution is overcomplicating the segmentation of savings credit. For HOMES and HEERA, it is not necessary to attribute the energy savings since the programs' policy intent represents a unique value stream above and beyond existing programs. Programs should in particular steer clear of self-report surveys after implementation.

A best practice for handling attribution is for programs with common objectives to recognize that they each have differing roles and discrete barriers that they must each address in getting to a common objective. In addition, entities involved in funding a program can discreetly define a value stream they are supporting to achieve a particular objective.

The OER, for example, may wish to "claim" the bill impacts, and a utility partner would "claim" the grid impacts to align with their savings goals. Both influenced the action, combined available funding resources and they can share credit for achieving a successful outcome. Tracking how federal dollars have accelerated investment (scope, scale, or depth) in home upgrades can also speak to the shared success of joint influence above and beyond the status quo (another means of assessing attribution).

In that vein, the most important question of attribution is if the intervention (regardless of why) resulted in energy savings impacts relative to the population. Measuring the actual savings impact with a matched comparison group is the best means of understanding overall program influence. Meter-based site-level analysis provides bill impacts, and the comparison group provides an assessment of the

incremental impact of the intervention relative to the general population. Where feasible, this form of analysis should be conducted to understand incremental impacts to the grid.

26. 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?

Administrators should work closely with regulators and utility program managers to allow for and encourage responsible incentive layering. Collaborative approaches to augment rather than replace funding will allow each available dollar to expand the scope, scale, or depth of existing programs and build scalable market models for the future.

28. 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?

The core calculations for energy savings are directly related to the associated impacts. The OpenEEmeter methods and code base provide a standard for programs and states to use in quantifying changes in energy consumption and associated impacts and represent a long-term investment by the OER (see our answer to question 32a for details). Electric hourly consumption data can be directly mapped to the marginal carbon intensity of the grid at that hour to quantify GHG impacts coincident with energy savings and should be used where possible. The level of precision and detail may vary by state, but even with seasonal carbon intensity or an annual carbon intensity factor, it is possible to estimate GHG emissions. Savings from natural gas efficiency or delivered fuels can be directly quantified based on the fuel type, and the savings achieved.

Carbon or GHG intensity data is generally available at the state level and also via federal resources like the Energy Information Agency. The OER is best suited to leverage their emissions data where available.

DOE has invested in the development of open-source advanced M&V for over a decade. From that investment and collaboration with utilities, regulators, and the national labs, the OpenEEmeter and the GRIDmeter have been developed, tested, and deployed with utilities, regulators, and aggregators across the country. Having standard, transparent, and consistent “weights and measures” is critical to value energy efficiency and having consistent, comparable reporting. The OER should use existing methods and open-source code and avoid creating bespoke models and new, untested approaches.

29. What software tools provide any of the following capabilities?

(ii) Open-source advanced measurement and verification

The OpenEEmeter, with its Apache 2 open-source license, provides all the core capabilities required for "open-source advanced measurement and verification." As previously noted, DOE has invested in its development, and we recommend adoption to support standardized weights and measures for the implementation of HOMES.

The key feature of open-source methods and code-base is transparency. Open-source methods and code are developed and curated in a transparent governance process. The living products are methods and codes with detailed documentation available to all parties under an open license. This model makes it possible for any entity to conduct quality assurance on measured savings, and performance can be commonly understood across state boundaries and implementation companies

(iii) Savings valuation based on time, location, or greenhouse gas emissions

Savings valuation is simply monetizing the relationship between changes in energy consumption and the related impacts it delivers. California, for example, recently abandoned annual kWh savings goals and adopted a total system benefit metric grounded in the locational and time value of changes in energy consumption. The system benefit represents the combined value of avoided transmission and distribution costs, emissions reductions (including methane), and even the value of using low GHG refrigerants for each hour of the year. Rhode Island employs a similar structure (though not time-valued) and puts a monetary value on the impacts of energy efficiency to pay performance incentives to utilities.

With its past experience, the OER is best positioned to define the time-delimited value stream that aligns with grid and or decarbonization objectives. Creating an hourly value stream does not need to be complex. The state could develop a TOU rate and use it as a basis, carbon intensity data sets that are often available publicly (e.g. GridStatus.io), or even simply add a multiplier during grid peak periods that align with system needs. Per the legislation, whenever there is AMI, hourly impacts must be used, but where it's not available, emissions factors are a common practice.

The OpenEEmeter quantifies changes in energy consumption over past usage and then connects those changes to the value of capturing GHG reductions (emissions intensity), bill impacts (rates), and geographic (grid reliability or equity or both) benefits. California, Oregon, New York, Illinois, Arizona, and many other states and utilities have deployed these methods to directly see the value delivered by their energy efficiency programs.

(v) Other capabilities of interest, including but not limited to use of standard data schemas (e.g., HPXML), application programming interfaces (API) integrability, Etc.

While it is always a good idea to recommend using standard data formats and APIs, there is already a diversity of systems in use in the US. Standardization is noble, but there is a long history on this topic, and it always takes significant time, with a low probability of adoption (see HPXML, Orange Button, Green Button, BEDES, etc).

31. 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?

Savings value based on time, location, or greenhouse gas emissions is a clear priority of the enabling legislation and is cited as equivalent to direct bill savings. It is explicitly stated as being included in the application plans. To unlock the transformative power of this historic investment to a market transformation that will value efficiency impacts for the combined resource, reliability, climate, and resilience impacts - savings value cannot be limited to just customer bill impacts.

Considering the time, location, or greenhouse gas emissions 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. The OER, in partnership with utilities or regulatory bodies, 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 hour of the year

The process does not need to be overly 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. Aggregators play a key role in developing solutions that balance the value proposition between customer bill savings and grid and climate value.

For example, early measured pay for performance (P4P) programs simply valued summer peak (4-9 PM in June, July, and August) at 3x other hours, which had a positive effect on the grid and GHG impacts. The value is going to be local, so it must be aligned with the intent to motivate the desired action. Each SEO should be allowed to assign the appropriate value to the stream of benefits. A simplified model has been developed that can be shared with DOE and states. This model allows SEOs to adjust kWh payment rates by the hour. The ratio between hours or peak periods is used to distribute the value of savings in each hour so that it aligns with the time, location, and GHG value inputs by the SEO, but also rolls back up into \$2,000 for 20% reduction on the average home if 20% is saved across all hours. This model can be shared and is easy to use and adapt for all states in the country.

32. How should OER facilitate that clear information regarding qualifying technologies and projects is readily available to consumers, contractors, retailers, and other relevant stakeholders? Payment in measured home performance programs is made based on the savings achieved at the meter; any number of technologies can achieve these savings. This flexibility enables and encourages innovation. For example, many successful programs across the country have coupled distributed solar with energy efficiency interventions. Therefore, these programs do not need extensive specifications of qualifying technologies. If absolutely necessary, these programs should only specify what's not eligible and why. The OER should encourage investment in any combination of technologies that drive customer bill impacts and grid benefits.

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

Yes. It has been broadly established that substantial up-to-code opportunities are not just happening on their own. The implementation of HOMES, for the measured path, in particular, is dependent on adopting an existing conditions baseline. For example, California utilizes the Normalized Metered Energy

Consumption (NMEC) legislative mandate, which is explicitly designed to encourage up-to-code retrofits. Accelerating the adoption of clean and efficient technologies will, in turn, advance grid benefits, GHG reductions, and bill impacts above and beyond existing conditions and should be pursued.

35. What should OER consider when drafting energy usage data sharing guidelines?

As partners in implementing HOMES, utilities may only need to share saving outputs and portfolio performance rather than customer smart meter data. By requiring open-source EM&V, the OER could QA and verify the outputs without the hassle of managing customer PII. Or, if the OER chooses to implement the program directly, they (or their third-party vendor) would need to receive customer usage data to effectively implement the program. Securing and protecting customer data could be the responsibility of the third party. For example, Respondent 10 has served in this role utilizing Energy Differential Privacy in addition to aggregation and anonymization approaches to manage the risk of customer re-identification while still providing actionable intelligence. The OER would be wise to consider a general framework for data sharing guided by a risk-based approach. (Arbuckle, El Emam. Building an Anonymization Pipeline is a helpful reference)

36. 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?

To minimize potential complications of data collection, a framework for secure data sharing will need to be established to implement both the modeled and measured approaches. Frameworks can be simple and straightforward agreements among existing actors recognizing the value of data-driven implementation, the need to protect privacy, and the rights of consumers to have access to their own Data.

For the measured approach, the amount of data needed by the state energy office can be minimized through partnerships. Quantification of savings for each customer in the program can be conducted by a utility or load serving entity and the outcomes (a derivative of savings calculations) can be shared with the state energy office. These calculated outputs could be provided on a portfolio-level basis or at lower levels of granularity if approved. By keeping individual customer savings within the boundaries of the load serving entity, the risk of privacy exposure is significantly reduced. The OER will still get reliable results, and load serving entities will have detailed information on how these interventions will affect their distribution system and the value they bring to the grid overall.

Given that there may be varying implementation models of HOMES state by state, the OER should take into consideration some possible data-sharing scenarios:

- Distributed implementation. A utility or LSEs would implement the program along side existing programs and process data on their own premise, providing derivative outputs on performance to the OER for payment.
- Centralized Implementation (by the OER). Energy consumption and customer information data are provided to the SEO under a security agreement to conduct M&V for measured approach

and model calibration and targeting. The OER would have full access to all data with direct liability for protection.

- Centralized Third-Party implementation. Energy consumption and customer information data are provided to and protected by the OER's third party under a security agreement to conduct M&V for the measured approach and model calibration and targeting. The OER would have access to derivative data, not individual data, and responsibility and liability for the protection of the data is held by third parties with SOC2 certification and appropriate cyber insurance.

In each scenario, any vendor or third party that is handling energy consumption data on behalf of the state agency or the load serving entity should be SOC2 certified and carry cyber insurance.

The OER should also consider that a number of technical approaches can be employed to protect against individual privacy exposure. In addition to the commonly cited aggregation and anonymization approaches, differential privacy can be used to protect against privacy breaches and calibrated to a level that still enables useful outputs of the data. DOE and NREL recently funded the development of Energy Differential Privacy to test its application to improve data security and the usefulness of shared data.

Data needs are not limited to the measured approach. For the modeled approach, a considerable amount of customer data would need to be shared. The data needed includes building data to verify models (detailed description of each customer's home attributes), measure data, cost data, income-qualification data, and customer historical billing data, which should be interval data whenever possible. This data is required for QA, validation, and the calibration of predictions, meaning there is substantial potential exposure to customer PII for all parties.

38. What types of quality assurance and/or quality control should OER require? What are recommendations for best practices?

The level and type of quality assurance required are a function of the type of approach adopted under HOMES. The measured approach aligns aggregator and contractor incentives with measurable savings at the meter, so the companies have a strong incentive to be accurate in their predictions and to do quality work that delivers real results. This means that oversight can be limited to spot-checking and data analysis to identify potential fraud or abuse. However, the requirement to regulate quality through rules and costly oversight needs to be improved.

As a best practice, quality assurance (QA) for a measured program should have several components, including a review of qualifications and credentials, aggregators' roles and responsibilities, paperwork audits, the establishment of program standards, and field photos on a sample of projects to verify installation (unlike a modeled or deemed approach, attempts to assess quality are less critical as the measured approach only pays for actual results). QA inspections only need to involve verification of the contracted scope of work.

In contrast, the modeled approach pays customers based on a model which creates two significant risks that must be managed through QA, rules, and quality controls. First, contractors have an incentive to over-predict savings and under spend on installation to increase margins as actual performance does

not directly matter. Hence, models and calibration require review and QA, and the quality of work should be audited on all sites (or at least a high percentage at random). Second, customers are paid regardless of the efficacy of projects, so contractors will maximize their margin by cutting installation costs (AKA quality). Therefore in modeled programs, significant oversight is required for each step in the process to ensure good outcomes and prevent gaming.

Current measured P4P programs, such as the Franklin program, demonstrate how aligned incentives can dramatically improve quality and customer experience without the need for costly oversight and prescriptive rules. The Franklin P4P program, which replaced the CA AHUP predicted program, improved realization rates from 27% to 100% and nearly doubled the electrical savings for customers without the need for costly, high transaction cost program QA.

39. What data should OER and program administrators collect to ensure their ability to conduct effective quality assurance and/or quality control?

For the measured approach, where incentives are aligned around delivered measured results, the PA can limit their required site-level data and focus primarily on savings performance. If savings are not delivered, they are not paid for. Additionally, this data can be used proactively to identify outlier contractors and projects early in the process. For a modeled approach, the program administrator must receive customer building data (including square footage, age, insulation U/R values, etc), measured energy consumption data, and customer meter data for QA models and QA implementation.

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

The OER should require measurement, even if the state utilizes a modeled approach, to validate impacts. This is a best practice in the industry, and unless M&V is embedded in the program deployment, constructing a nation-wide evaluation after the fact is extremely challenging. Embedding measurement, using widely available and open-source software, will also provide the OER valuable intelligence to course correct and optimize the impact of federal dollars as well as demonstrate tangible results to their own constituencies and to the federal agency. The OER should be aware of the following existing measured programs and policies operating in California with their associated guidelines:

MCE Residential FLEXmarket:

The Residential FLEXmarket is a currently operating measured home performance program. It was approved in 2022 by the California Public Utilities Commission (filed program plan) and is operated by MCE, a community choice aggregator in northern California. MCE launched the \$6M market in response to California's efforts to increase grid reliability and lower energy costs. This \$6 million program increases decarbonization and grid reliability by incentivizing participants to reduce energy consumption with a focus on summer 4 p.m. to 9 p.m. peak hours. The Residential FLEXmarket is an expansion of MCE's Marketplace programs, which include the Commercial Efficiency Market and the Peak FLEXmarket.

Tri-County Regional Energy Network (3C-REN):

3C-REN's Single Family Residential Program is powered a Demand FLEXmarket platform. The Residential Marketplace utilizes independent, transparent, open-source measurement and continual tracking of changes in pre- and post-intervention energy usage observed at the meter. It makes aggregator payments based on metered impacts, not calculated estimates, and offers targeted incentives to disadvantaged communities with streamlined kicker incentives (3-7X) for both electrification and efficiency improvements.

California Market Access Program for Summer Reliability:

In response to Governor Newsom's July 30, 2021, Emergency Proclamation, which directed state agencies to address a statewide shortage of electricity, the Commission authorized the Market Access Program as a strategy to reduce peak demand. This program was created by D.21-12-011, which authorized up to \$150 million to fund projects that are incremental to the main energy efficiency portfolio. Market Access incentivizes peak savings (7 to 9pm) during the summers of 2022 and 2023, with payments based on actual savings at the meter with value tied to avoided cost and emission reductions to address summer reliability. The program is open to qualified aggregators.

California Public Utilities Commission NMEC Rulebook:

Guidance for Meter-based programs like HOMES can be found on their energy efficiency portfolio page. Specifically, "Programs and Projects Using Normalized Metered Energy Consumption (NMEC) NMEC Rulebook (Revised January 2020). Guidelines for "Population-based NMEC" are appropriate for consideration of HOMES measured pathway program criteria and M&V expectations. This guide provides core program design criteria to enable approval by the regulatory body and includes program implementation considerations like eligibility along with pre-defined measurement and verification expectations. Respondent 10 created this tutorial video to help demystify the rules and provide program implementers with a path for operationalizing the guidance.

46. What evaluations, research, reports, or other resources can help inform OER's program guidance? The OER should utilize lessons learned from recent residential meter-base pay for performance models that have operated over the past several years:

Case Study: Streamlining Processes Achieves More for California Home Energy Program HOME UPGRADE PROGRAM ACCELERATOR, Better Buildings - US Department of Energy.

<https://betterbuildingsolutioncenter.energy.gov/beat-blog/top-solutions-2021>

Policy Pathways to Meter-based Pay for Performance, (Carmen Best, IEPEC 2019 Proceedings) explores the policy drivers for meter-based performance programs. Three states embarked on meter-based pay for performance in this time period, and the results of each provided lessons learned for initiating, sustaining, and assessing these efforts.

PG&E's Residential P4P program:

PG&E's Residential Energy Efficiency Program launched one of the first Residential Pay for Performance (P4P) programs in 2016 to test whether this market solution can cost-effectively scale residential energy efficiency. PG&E selected several aggregators through a competitive solicitation. Each aggregator offered a unique model of working directly with residential customers and contractors to achieve energy

savings via behavioral interventions and retrofits. PG&E provided incentive payments to aggregators based on analyzing the combined impact of their customers' metered energy consumption. Franklin Energy, one of the program's aggregators, presented its results at an industry forum (slides 133-146). The program, which replaced the California Advanced Home Upgrade predicted program, improved realization rates from 27% to 100% and nearly doubled the electrical savings for customers without needing costly, high transaction cost quality assurance.

NYSERDA Residential P4P program:

NYSERDA's Home Energy Savings Program was a pay-for-performance residential energy savings pilot program in Central New York. This approach hit several barriers before launch. By utilizing a traditional utility procurement process, only two companies were able to participate. One withdrew well prior to launch and the other bid too low to actually support deployment. In addition, after the RFP was awarded, competing programs were launched that paid for deemed savings at a higher rate. These valuable lessons should be considered when designing future meter-based performance programs.

Oregon Energy Trust Residential P4P:

Oregon's residential pay-for-performance program launched in April 2019 for a limited two-year term to explore meter-based performance models and accelerate the state's response to climate change. The program offers a good example of why existing programs need adaptations to succeed as a measured performance program. In the evaluation of the pilot published in 2021, it was noted that aggregators saw the potential to use performance data and incentives to guide their offerings but did not significantly engage with the data during the pilot because the incentives offerings possible were not fully aligned with accountability for their delivered impacts.

The OER should also consider the number and diversity of aggregators already participating in measured program models. A comprehensive list is provided on the Demand FLEXmarket webpage

Respondent 11

Thank you for the opportunity to provide feedback on program design for both the Home Energy Rebates and the Home Electrification & Appliance Rebates programs. We respectfully submits the following comments.

Accessible and Equitable Program Design

- Program materials (flyers, websites, applications, etc.) should be available in both English and Spanish to accommodate multilingual Rhode Islanders.
- Informational events (program launch, information sessions, etc.) should be hosted in neighborhoods and venues that are accessible. We suggest considering transportation, neighborhood density, walkable areas, and places where there may be higher levels of comfort among marginalized communities.
- We recommend that OER does not only encourage, but rather require that program administrators align with the Justice40 Initiative, with special preference given to proposals that exceed the 40% benefit mark.

- We recommend talking with community groups including the George Wiley Center, Roots 2 Empower, Building Futures, the Black Business Association, Hispanic Chamber of Commerce, the Racial & Environmental Justice Committee, tenant’s rights organizations, neighborhood associations, and other groups dedicated to serving marginalized community members.
 - Throughout 2023, the EERMC worked with the URI Outreach Center/Extension on outreach and communications. As part of their work, they presented on energy efficiency programs to the Health Equity Zones at their most recent summit. The HEZ meet regularly in a centralized location to learn and share information they can bring back to their communities. HEZ are place based and comprised of community-based organizations providing services to residents. This initial groundwork should be utilized.
- We recommend that these programs be available for a broad set of measures.
 - These could include: weatherization or pre-electrification measures that would help enable someone to efficiently decarbonize their home systems. This could include electric system upgrades or additional insulation. This would allow recipients of rebates to maximize energy efficiency, cost savings, and home comfort.
 - In addition, we recommend consideration of using this funding be used to off-set the non-energy costs associated with energy upgrades. Things like replacing knob and tube wiring, fixing other things that are broken in homes can help enable folks to take advantage of energy efficiency. The utility energy efficiency programs cannot cover these types of expenses. This program could be additive and complementary to the utility programs, not a replacement. It could layer on top of their programs and/or cover additional things that ratepayer funds cannot be used for.

Designing Programs for Maximum Impact

- Rhode Island is home to a very old and aging housing and building stock. McKinsey & Company estimates that 80% of building stock that will exist in 2050 is standing today. Resources should be allocated with this in mind to promote retrofits to existing buildings. However, we do recommend designing programs for both existing buildings and new construction to ensure broader access to rebates for Rhode Islanders.
- This funding should not be used to incentivize new gas appliances.

Integrating Existing Incentives & Programs

- To ensure all programs available are leveraged to provide maximum benefit, OER could consider bundling programs and facilitating collaboration across program administrators. A “one-stop-shop” could provide increased subscription to all programs.
- These programs should be complementary and additive to existing energy programs, not a replacement.

Job Creation & Quality

- Program design should prioritize organized labor and union members to ensure fair wages, safe practices, and proper training. We recommend collaboration with the Climate Jobs Rhode Island coalition.
- We suggest OER engage with workforce development organizations to provide educational opportunities for selected contractors.

Respondent 12

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?

- **Tailor outreach to low/middle-income households:** Contract with community organizations or give incentives for referrals; provide technical support in applying to the program; give information out during free home energy assessments (RI Energy) & LIHEAP applications
 - Inform people ahead of time that electric bills will still be high each winter, so we can help them get on low income heating assistance (federal program + state program supplements it).
- **Get close to fully covering the cost of heat pump installation for low/middle-income households**
 - Assumptions as of 2023: If your household income is 0-80% of your area's median income, you receive the maximum rebate from the Inflation Reduction Act, covering your new heat pump at 100% up to \$8,000. If your household income is 81-150% of your area's median income, you'll receive up to 50% of the heat pump's cost (use this tool to look up AMI).
 - Based on that, we could use the residential incentive + enhanced low-income incentive to add an additional 8K per house as a state incentive on top of federal incentives. According to Abode Management the average costs of a heat pump installation for a 1500 square foot home is \$22,327 [Source 1, Source 2, Source 3 [Abode Management]]. So, if the federal incentive is 8K, the state incentive is another 8K and then citizens take up another 7K in zero interest loans that would fully cover the average cost of installation.
 - For the 1000 sq ft houses, that combined \$23k in financing would cover 100% of the cost of installation (on average).
 - For the 2000 sq ft. houses, that combined \$23k in financing would cover 100% of the cost of installation (on average)
 - For the 3000 sq ft houses that combined \$23k in financing would cover 80% of the cost of installation (on average)
 - For the 4000 sq ft houses that combined \$23k in financing would cover 46% of the cost of installation (on average)

4. How can OER 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?

- Dedicate a percentage of the funds to public housing or subsidized housing. Boston Mayor Michelle Wu is planning to electrify every unit in the Boston Housing Authority.

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

- MA revised their incentives to offer a max cap instead of subsidizing per ton if the house is fully heated by a heat pump. We assume that this means they found this incentive structure to work better than the per-ton incentive structure. Partial-homes can still get the per ton rebate. [MA Source, RI Source]

15. 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?

- Target outreach to people based on the age of their heating system (older means they're more likely to want to upgrade), whether they have an oil or propane heating system (the most expensive in terms of utility bills), central air system (installation cost of heat pump is dramatically lower if there is already central air), and the square footage of their home (see above for cost comparison).
 - About 1/3 of homes and central AC units fail about every 15 years, so it's a considerable # per year.
 - Such homeowners need to invest money in replacing their heating system anyway
 - Can we get this data from partnering with Zillow or Redfin?
- Provide an add-on incentive for weatherization work that is done within a window of a heat pump installation. Layered on top of the utility incentive, this should ensure weatherization is an incorporated measure and incentivize homeowners further to follow through.

Do market research on people's willingness to chip in their own money for heat pumps, especially if you layer in weatherization incentives or residents of the RI towns that have opted for municipal aggregation to make energy costs lower and more predictable.

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

- We request that the OER provide monthly reports on the distribution of money across different family incomes and house sizes anonymously, and an estimate of GHG emissions avoided through this program. Such data could include:
 - Is the household at 100% of median income or below, 101-150, or above 150
 - % of installations that are low/middle-income
 - GHG emissions displaced
 - Zip Code
 - Home Size
 - Fuel Type
 - Ducted vs Ductless vs Mix
 - Installer
 - Manufacturer

- Cost per ton / Total installation cost

Respondent 13

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?

Respondent 13 commends OER on its focus on minimizing energy burden for low- and moderate-income households. To accomplish this goal, OER should incentivize technologies that enable demand flexibility. OER is well-positioned to incentivize technologies capable of automatically leveraging time varying rates and demand response with the introduction of Advanced Metering Functionality (AMF).

Demand flexibility programs are uniquely beneficial to Rhode Islanders who own battery-integrated appliances such as a stove. Enabled by software, these appliances can be set to automatically charge during low-cost, off-peak times (for customers with time-of-use rates) and then discharged at times when energy costs and emissions intensity are highest. Additionally, these appliances act as distributed energy resources that can respond automatically to demand response events and, under certain conditions, back feed power to the grid.

Total energy savings will vary based on the final time varying rates that are approved in Rhode Island. That being said, residents of nearby states such as New York are poised to save several hundreds of dollars per year by leveraging the battery of a cooktop to charge at off-peak times. By encouraging consumers to choose battery-integrated appliances, or other technologies that enable easy participation in these programs without sacrificing comfort, OER can help reduce energy costs for Rhode Islanders while also strengthening Rhode Island's grid.

8. What are best practices for implementing successful 'point of sale' rebates, including when considering contractor needs?

Respondent 13 believes that point of sale rebates are an essential feature of a successful rebate program. Point of sale rebates should be designed with the goal of providing rebates to the purchaser of eligible technologies as soon as possible in order to minimize potential friction in the purchasing process.

Respondent 13 is aware that some respondents to Rhode Island's RFI may recommend that point of sale rebates be made available in the form of coupons that can be used with large national retailers. While this strategy is helpful, it is critical that Rhode Island allow for these rebates to be used in instances other than purchases from large retailers. A number of new technologies, such as a battery-integrated induction stove, are sold today via the manufacturer's website. This direct-to-consumer model allows manufacturers to offer the products at a lower price to consumers than they would if the products were to be sold through channel partners; however, if direct-to-consumer companies do not have the opportunity to allow consumers to leverage HEAR, it will unfairly disadvantage these companies and limit the options available to consumers.

Because of this, Respondent 13 recommends that OER create the opportunity for companies to apply for coupons that can allow them to provide instant rebates to end consumers. By creating a frictionless experience for both manufacturers and residents of Rhode Island to access rebates, OER can ensure that IRA funding is delivered quickly and expansively across Rhode Island's diverse population.

13. How should OER 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?

OER can measure success across a number of variables. Respondent 13 would encourage OER to monitor the following:

1. Customer satisfaction: OER should measure customer satisfaction across specific appliances before and after installation of all-electric technologies.
2. Residential energy bills: OER should measure energy bills before and after the installation of new appliances. OER can specifically note whether any rebate recipients were able to switch off fossil fuels entirely.
3. Indoor air pollution reduction: OER can estimate the reduction in in-home air pollution exposure – particularly for nitrogen oxide and benzene levels – across the state by monitoring the number of homes that switch from gas cooktops and ranges to induction technologies. This would further allow the state to estimate the health benefits of the HEAR in quality adjusted life years, as well as dollars.
4. Demand flexibility engagement: OER can measure the total number of households that enroll in demand flexibility programs such as time varying rates and demand response, once these programs are introduced in Rhode Island. Further, it can measure aggregate shifts in energy demand from peak times to times when energy is cleaner and/or cheaper.
5. Home value: OER can compare the increase in home value over a period of time for homes that took advantage of home energy rebates compared to those that did not.

18. 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?

While bulk purchasing or installation may seem to help maximize the reach of program funding, limiting the appliances that may be eligible for rebates may actually limit the reach of the HEAR and HER programs. Rhode Islanders have unique energy needs that may require specific appliance purchases that are not included in a bulk installation program – while a bulk installation program may in itself include multiple hardware options, residents have unique configurations of needs and preferences that may mean that the options are insufficient. Additionally, without proper diligence, a bulk purchase program risks leaving new technologies with ancillary benefits such as automatic time-of-use rate or demand response integration off the table for Rhode Island consumers. This would get in the way of incoming

ambitions in Rhode Island to enable participation in these services, and limit the speed at which Rhode Island can improve demand curves.

Numerous programs have offered open-ended rebates to incentivize the purchase of induction cooktops. The California BAYREN induction rebate program, for example, provides \$250 (previously \$750) to consumers for purchase of induction cooktops. Additionally, neighboring Massachusetts offers \$500 incentives to residents who switch from gas stoves to induction through the Mass Save program. These open-ended rebate structures provide flexibility that allows residents to choose stoves that meet their unique needs.

22. 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?)

Respondent 13 believes strongly that rebates should be made available for both retrofits and new construction. Both of these channels are critical to ensure uptake of technologies that are not only low-carbon, but also mitigate indoor air pollution, lower energy costs, and support the resilience of Rhode Island's grid.

Because induction stoves are healthier, higher-performing, and more recently commercialized than gas stoves or traditional electric resistance stoves, there is still a price premium for these products. While this premium will be reduced over time as manufacturers scale development, it is important that consumers adopt induction technology today. The average stove lifespan is more than ten years; if the next stove purchase for both new construction and existing buildings is not a low-carbon technology, we risk prolonging the use of fossil gas appliances and the accompanying infrastructure far into the future.

For next-generation technologies such as battery-integrated appliances, this is doubly important: while initial sticker price may be higher than traditional appliances, these devices can ultimately result in lower energy costs for Rhode Island residents, saving them money in the long run. Rebates are essential in closing the gap in sticker price between these appliances and traditional ones.

Making rebates widely available to income-qualified residents and developers alike is essential to ensuring that Rhode Island maximizes the impact of federal dollars for electrification.

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

Respondent 13 recommends that OER provide educational materials to contractors and homeowners on appliance categories that provide the greatest aggregate benefit to Rhode Island residents. OER can build a webpage that describes the varying classes of technologies available for each rebate-eligible appliance, and include examples of products in each class. For example, OER's section on stoves can discuss traditional electric resistance stoves, induction stoves, and battery-integrated induction stoves. The text should highlight the emissions and indoor air pollution reductions associated with each of these

classes of technologies compared to gas stoves. Additionally, the webpage can highlight the performance benefits of induction compared to electric resistance cooking, and explain how battery-integrated induction stoves allow Rhode Island residents to lower energy costs by taking advantage of time-varying rates and demand response programs. Finally, the webpage can clearly outline any eligibility criteria, such as income level by geography.

46. What evaluations, research, reports, or other resources can help inform OER's program guidance?

Respondent 13 recommends that OER review coverage of the links between gas stoves and childhood Asthma. Additionally, we would encourage OER to read recent coverage of battery-integrated appliances.

Finally, we encourage OER to consider additional benefits of providing rebates for induction stoves. Many residents have an emotional connection to their stoves due to frequency of use, preventing them from wanting to switch from fossil gas to lower-carbon technologies. In fact, over 40% of electrification hold-outs would be willing to electrify if they were allowed to keep their gas stove. Stoves provide a lifeline for gas appliances in homes, and justify the maintenance of fossil gas infrastructure that can otherwise be decommissioned. Providing upfront incentives for electric cooking — especially technologies that rival and surpass gas stove performance — encourages households to pursue electrification.

Respondent 14

Respondent 14 is pleased to submit the following comments to OER. We appreciate the opportunity to provide comments and recommendations, and we believe our ideas will bolster Rhode Island implementation of the Home Efficiency Rebates and Home Electrification and Appliance Rebates programs. We welcome further discussion around any of these recommendations.

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?

Electrification and efficiency are especially important in low-income households and disadvantaged communities. These communities have the highest energy burdens, the most deferred maintenance issues, and the most compounding health risks. A comprehensive approach to efficiency and electrification can improve air quality, reduce energy burdens, increase resilience, and increase household stability. Respondent 14 is dedicated to addressing the social determinants of health and the advancement of racial and health equity through the creation of healthy, safe and energy efficient homes. We see electrification as a key path towards achieving this mission.

To ensure disadvantaged communities and low-income households are aware of and have easy access to the Inflation Reduction Act Home Energy Rebate programs, the programs must be designed to meet the needs of these communities. That goes beyond just offering a rebate to replace an oil furnace with a

heat pump. These rebates must be a part of a comprehensive “Whole Home” approach to interventions where program offerings can layer electrification, energy efficiency, and health and safety remediations to ensure that limited income households and disadvantaged communities can be served by the programs.

Without this, the programs risk leaving behind households with high energy burdens and leaving many households unable to qualify for services because of deferral issues such as mold, asbestos, or lead paint that prevent implementers from delivering interventions. It will be especially important that Rhode Island OER align the rebate programs with programs that address pre-electrification and pre-weatherization barriers such as mold, moisture, structural issues, and lead paint. We also know that many of the highest need communities have barriers from lack of historic investments, lower incomes, lower wealth, cultural barriers, and additional environmental burdens.

Successful implementation in low-income and disadvantaged communities will build momentum for services and ensure the growth of a market of contractors, organizations, and other implementers that can serve these communities

Specific suggestions include the following:

- Commit the majority of rebate funds to reaching low-income households and seek approval from the Department of Energy to cover 100% of Home Efficiency Rebates program measures for low-income households. We ask that the state dedicate at least 75% of rebate funds to low- and moderate-income programs. This will create clear prioritization of these communities and ensure adequate resources.
- Align the rebate programs with existing and future housing efficiency and rehabilitation programs to create a whole-home approach that aligns programs, braids resources, and coordinates delivery.
- Cover the full costs of services for low-income households without loans or financing, leaving no gaps in funding across the comprehensive program delivery.
- Develop a comprehensive intake and audit process that assesses households for services across multiple programs, especially limited-income efficiency programs.

In addition, it is important that clients served through other programs are connected to these resources. The one-stop shop would ideally serve as a navigator to guide consumers as to the best options for combining programs and incentives; help with applying for those programs and incentives; serve as a resource if there are problems, etc. If additional funds to staff these navigator positions are needed, OER should allocate funds to support this role.

Finally, the rebate programs cannot add to cost burdens that low-income households face. OER must ensure that low-income households do not have to take on debt or financing to complete projects associated with these rebates. The sequencing, braiding and stacking with other low-income energy programs will be critical for achieving a comprehensive, whole home approach. There are pathways we support for multifamily property owners to have financing options, but the HEAR rebates and associated costs must remain in the spirit of point-of-sale rebates. OER must ensure that housing programs can cover the full costs for low-income households.

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?

It is important that the program and OER have both a short-term and long-term perspective on reducing energy burdens and costs for LMI and high energy burden households. It is imperative that low-income households do not see cost increases as a result of fuel switching or related interventions. It is also important that they are prioritized in the clean energy transition so as not to be left stranded on an aging and increasingly expensive gas infrastructure system. Related strategies can help in both cases.

First, it is important that electrification and efficiency programs are aligned so that homes can be weatherized before receiving electrification services. To ensure homes can receive weatherization services, it is necessary to dedicate funding and staff capacity to overcoming common deferral issues like mold, moisture, asbestos, and lead paint. These health, safety, and rehabilitation programs should also be a part of the coordinated whole home approach alongside electrification and efficiency.

This approach ensures program accessibility and maximizes the benefits to both households and the state. Including weatherization ensures that heating/cooling loads are minimized, and equipment can be right sized for the household, thus reducing costs. It also reduces system-wide electrical demand and the need for expensive investments in the electrical distribution system or electrical generation. Addressing the barriers to weatherization often has significant non-energy benefits for health and household stability as well. The administration should explore applying to use funding from the EPA's Climate Pollution Reduction Grants to ensure there are adequate resources to support a whole home approach.

Second, the state should ensure that electrification strategy is paired with affordability strategies. Ensuring access to community solar and rooftop solar can bring down energy bills significantly while moving the state towards clean energy. The state should also be thoughtful about how utility rates best support electrification and ensure appropriate protections for low-income households. Options such as tiered discounts or percentage of income payment plans may be worth considering.

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?

Following the strategies described in question #5 above to take a whole home approach (that coordinates interventions for electrification, efficiency, and health, safety, and rehab) with affordability strategies (such as bill assistance, solar, and rate design) will widen the pathways for low-income households to see benefits from electrification in the long term and allow them to avoid the long term risks of being left on an aging and increasingly expensive gas system.

From here, the state can work through existing programs for efficiency, energy assistance, lead poisoning, and asthma to identify clients in need of housing interventions and ensure they are connected to services. Working with trusted partners including non-profit organizations, weatherization networks, and health providers can lead to strong referrals and build trust in communities as well.

Within the context of a whole-home assessment, the program can require energy cost modeling to determine potential bill impacts of electrification measures. It is important that any analysis is inclusive

of the weatherization measures and opportunities for bill savings from community solar or energy assistance programs. The program should be designed to facilitate the energy savings necessary so as to minimize the installation of new fossil fuel equipment across the state. Installing new fossil fuel equipment in the coming years can lock households in to 15 years of reliance on fossil fuels, which brings the financial risks of paying for gas infrastructure costs that will be shared among a smaller customer pool, risking the volatility of gas prices, limiting opportunities for accessing distributed energy resources (DERs), and risking the need to replace equipment before the end of useful life. Having a strong community/client engagement strategy can ensure that households can make informed choices about the interventions in their homes and can also offer input into program design and implementation. Having culturally competent client engagement and education will support these efforts.

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

Certification process of contracts, state investments in workforce development programs, and effective quality assurance processes for the programs will be important in ensuring best practices and effective delivery of services.

For energy savings, we also caution about an overreliance on measured savings to verify the quality-of-service delivery. From Respondent 14 experience serving low-income households, we know that many of our clients face life circumstances outside of their control that can impact the energy usage in the home. Having occupancy changes with family members, changes in employment status affecting time at home, or the reality that the baseline energy usage was not meeting the client needs for heating or cooling and thus an imperfect comparison to the post-intervention usage can all impact how representative measured outcomes are of the improved efficiency of the building.

13. How should OER 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?

To measure the success of the program, OER should consider multiple energy and non-energy metrics. From our own work and through research on evidence-based practices nationally, Respondent 14 has found that a healthy and energy efficient home yields a multitude of energy and non-energy benefits for residents, particularly low-income residents who can benefit the most from hazard remediation and energy efficiency improvements in terms of economic mobility, housing stability and wealth retention over the long-term. Benefits of the Maryland Whole Home Model include:

Health, Housing, Energy and Social Outcomes

- Reductions in asthma related hospitalizations and emergency department visits
- Reductions in asthma related missed school days and improved school performance
- Reductions in asthma related missed workdays and increased income for parents/adults

- Reductions in childhood lead poisoning and health disparities
- Reductions in household injuries for children and trip and fall injuries for seniors
- Increased mobility and accessibility in the home for older adults who are able to age in place in the homes and communities where they choose to live
- Reductions in greenhouse gas emissions

Cost savings and System Change

- Improved service delivery to low-income households and reductions in deferral rates from housing program services that clients are otherwise eligible to receive
- Program and government cost savings from efficiencies in implementing comprehensive assessment and housing intervention models utilizing cross-trained assessors and contractors
- Government innovation through the utilization of an integrated, comprehensive housing intervention model by state agencies that attracts new federal and philanthropic investment
- Reductions in medical costs including Medicaid costs
- Reductions in energy consumption and energy costs
- Reductions in housing maintenance costs

Furthermore, electrification measures improve indoor and outdoor air quality. Increased attainment of NOx standards, and improved respiratory and cardiovascular health in households and neighborhoods with program interventions could also be measured.

15. 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?

A key to the sustainability of the program will be building the administrative infrastructure to delivering a whole-home program for electrification. This will involve aligning programs that may be coordinated across agencies, utilities, and implementer networks. In the long term, Respondent 14's research has shown that this leads to program efficiencies and cost reductions for the administrators. It does require investment of time and resources on the front end though, and we encourage OER and the state of Rhode Island to make this commitment.

16. 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)?

Respondent 14's research and practice has shown that taking a comprehensive approach to housing interventions is necessary to effectively serve low-income households. The steps listed in this question are important steps to take; completing weatherization before electrification so as to right size equipment and improve building shells is a key way to drive higher energy savings which reduces energy burdens. But OER must also consider the non-energy implications as well for both the sake of overall equity and for long-term energy savings. Interventions must be delivered in a way that ensures homes will remain safe, habitable, and energy efficient. Making the investments to ensure that homes with

existing deferral issues are able to reach this standard stabilizes neighborhoods and households in a way that allows those energy investments to be fully realized. We encourage OER and the state to not look at energy savings in isolation.

17. 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)?

At least 75% of the rebates should be dedicated to the low- and moderate-income market segment. Low-income households have the highest needs due to disproportionately high energy burden and health risks. Point of sale rebates through HEAR are also designed to be fully accessible to low-income households. Higher income market segments are better equipped to utilize other funding mechanisms through the Inflation Reduction Act such as tax credits or financing options supported by the Greenhouse Gas Reduction Fund programs. Given the widespread need in the state, and the existing programs with which the programs can align, the state ought to allocate at least 75% of the funds to the most vulnerable market segment. This will also allow for contractor training and capacity to develop to serve these clients knowing that there will be demand for the interventions paired with the rebates.

23. How can OER encourage programming 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 to make this successful?

There is a need for a simple process of receiving comprehensive intake and audits that can identify needs that will be served by the Home Energy Rebate programs and other state programs. There is also a need to engage contractors on electrification and the programs available to serve clients. By focusing the rebates on low-income households and aligning tightly with efficiency programs, the programs can expand the statewide capacity to reach the households that will most benefit from interventions by reducing energy burdens and while creating healthier housing.

To reduce high deferral rates, a one-stop shop and whole home approach to retrofits have great potential. To reach homes at the scale needed for the full energy transition, the state will also need to increase the resources for pre-weatherization work in low-income households. This includes rehabilitation, lead remediation, and other health and safety measures. In addition to allocating new state funding sources for these measures, the administration should explore applying to use funding from the EPA's Climate Pollution Reduction Grants for that purpose.

b. How should OER encourage programs and participants to leverage other resources and/or provide seamless services?

As described throughout this response, programs should be aligned and braided. This involves:

- A common application for housing programs across agencies.
- A coordinated intake process across agencies providing multiple pathways for clients to apply for housing programs and receive comprehensive services, also known as a “no wrong door” policy.
- A comprehensive audit including electrification considerations.
- Coordinated delivery of multiple programs into projects.
- Adequate flexible funding for services to minimize program deferrals.
- Adequate administrative funding to coordinate projects. An informed community engagement strategy with staff such as community navigators for support.

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

Financing: The Department of Energy has made an exception regarding financing consumer protections for Tariff-on-Bill (TOB) in its FAQ#16. We strongly urge the state to not permit financing for low-income consumers. Instead, the state should use aligning, braiding and coordinating of existing energy programs, particularly efficiency programs to leverage the reach of the IRA home rebates. TOB adds unacceptable disconnection risk for low-income residents.

Strong concerns regarding retroactivity: Offering retroactive incentives for previously installed heat pumps or other measures is not feasible for installation contractors because the current installations do not meet all of the requirements for the DOE home rebates, including post-installation data requirements as well as a customer satisfaction survey. Trying to gather this retroactively will add expense and will not necessarily be compliant with DOE guidance. We urge OER to not create a retroactive rebate pathway in Rhode Island.

Respondent 15

Question 15: 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?

We view the IRA rebate programs as a once-in-a-generation opportunity to improve Rhode Island’s residential housing stock for the better, and also to establish a sustainable market for energy-efficiency products and services that endures in perpetuity after the federal incentives are expended. To ensure that this opportunity is realized, it is important not to repeat the mistakes of the last major Federal energy efficiency rebate program.

To this end, we believe that being able to confidently say the HER and HEAR rebate programs have transformed the Rhode Island market for residential energy efficiency investments should be a major measure of program success.

Respondent 15 played public policy and program management leadership roles while implementing the 2009 American Recovery and Relief Act (ARRA). The ARRA programs were intended to stimulate long-term consumer demand for energy upgrades but ultimately did not. When the programs ended, consumer demand for efficiency improvements dried up, and contractors shelved their blower doors

and returned to previous business practices. The experience of ARRA program implementation did generate a wealth of information about program design, homeowner perspectives on efficiency, and on the way information about efficient homes was used - it was not being received and used by the real estate industry.

From this experience, we know that while rebates can lower consumer costs, ultimately, the market will be transformed when homeowners, appraisers, lenders, and real estate agents value the features and benefits of high-performing homes. Homeowners can then factor added equity value into their home investment decisions. We believe this catalyzing effect of third-party certification can serve as a critical piece of your Market Transformation Plan. Both IRA rebate programs mandate market transformation, with 25% of funds contingent on DOE approval of a Market Transformation Plan. We have published a detailed Market Transformation Playbook to help states navigate the complexity of creating market transformation plans. We want to acknowledge that the playbook does not cover a handful of related issues that we know are crucially important considerations: financing, the full range of potential socioeconomic issues limiting home access, and rebate structures. We are working with partners to provide additional information on these topics in the future.

The fundamental idea behind third-party certification as a vehicle for market transformation is straightforward: a quality certification makes the energy-efficient and other high-performing features in a home visible and exciting to homeowners and home buyers. The buyers pay more money for the home, validating the equity value of investments made by the seller. This is a critical market signal for other homeowners: when efficiency translates into home equity, they have a powerful new motivation to improve efficiency. The buyer also has confidence that real energy savings and non-energy benefits offset the price premium they pay. Respondent 15 as published a white paper to help understand how third-party certification drives market transformation.

This dynamic is particularly important for a low-income household, where even a modest increase in home equity has more significance than an upper-income household. The increase in home value directly contributes to building individual generational wealth for the homeowner. The transformational effect of driving more demand for high-performing homes translates to more low-income homeowners having access to high-performing homes and enjoying their benefits, including lower monthly operating costs and lower monthly payments (when lenders actually consider high-performing features). In other words, certification and its transformational effect in the market supports wealth building in lower-income communities. This isn't just a theory; Respondent 15 has commissioned four independent appraisal studies in four different markets that show their Certified homes command a 3% to 5.5% premium.

Question 29. What software tools provide any of the following capabilities?

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

There is a critical disconnect between the real estate and energy efficiency industries that limits the potential impact of residential efficiency and electrification programs. If you ask an energy efficiency expert whether energy-efficient homes should be more valuable than comparable non-efficient homes, they almost invariably say they should be. And yet, if you talk to almost anyone who has made their

home more efficient and sold it, or to the average real estate agent, they will tell you that, no, efficient homes don't sell for more. Addressing this issue in your program design is critical for long-term sustained financial and market investment and accelerating market adoption.

Consumer sentiment suggests efficient homes should come with a higher price tag. Studies, both national and regional, carried out by a range of reputable firms, from Consumer Reports to the National Association of Realtors (NAR, 2023) to the National Association of Home Builders (NAHB, 2021), consistently show that homeowners value efficient homes and efficient home features. Many respondents say that they would pay more for efficient homes; however, the energy efficiency features are rarely factored into the value of a home. This is partly because real estate agents lack the tools to market high-performing homes' benefits to their clients. Appraisers also lack the data they need in the appropriate format to assign value to a home's efficient features.

We've found that a report should effectively communicate a home's energy-efficient features in a way that resonates with homeowners, aids real estate agents in marketing, and enables appraisers and lenders to assign value. In summary, a certification report should:

- Prioritize the real estate industry, aligning with IRA guidance for the HOMES rebate program.
- Highlight energy-efficient and renewable home features during sales or refinancing.
- Feature an "energy dashboard" incorporating the Home Energy Score and other labels if data is available.
- Offer continuous homeowner education through Respondent portal, storing documentation for future sales or refinancing and providing tools for further improvements.
- Stay with the home, ensuring the next homeowner continues to capture the equity value of the high-performing home.

To support this need, we've created a Certification Report and supporting materials that are tailored to help Rhode Island fulfill the third-party certification requirement of the HER program. The Certification Report, rooted in extensive consumer research, aims to stimulate homeowner interest in high-performing homes and features. It's fully developed, tested in the private market, and efficiently meets Rhode Island's statutory requirements.

Our Report is a comprehensive, straightforward solution detailing retrofit specifics, projected energy outcomes, and supporting accurate valuation, meeting statutory requirements. The BPI-2101-compliant certification, part of the Certification Report, details rebate-supported installations. Acting as a third party, Respondent 15 generates a report that's easy for contractors to share, providing homeowners with a clear understanding of upgrades and benefits. The Certification Report also covers other aspects of a home's energy-efficient and high-performing features.

Our software can create all the data necessary for third-party certification; per the LBNL workflow diagrams, the data will likely be transferred from the program implementer to the certification provider.

Question 4: How can OER 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?

We believe that a comprehensive and community-centric approach is crucial to ensure widespread access and uptake of the HER program in disadvantaged communities or low-income households. We recommend implementing targeted outreach strategies to raise awareness and engage communities, collaborating with local Community-Based Organizations (CBOs), including churches, neighborhood associations, and advocacy groups. These organizations can help bring people together and gather residents for informational sessions, workshops, and events to educate residents about the benefits of the HER program.

To further engage residents, we recommend facilitating local workforce development programs that encourage residents within these communities to participate actively in the program. This includes offering training and employment opportunities for community members ensuring that the workforce delivering energy efficiency upgrades reflects the diversity and local expertise of the community. Taking advantage of DOE's Training for Residential Energy Contractors grant program is an excellent step in this direction. Ultimately, this approach works to address economic disparities and foster a sense of community ownership in your program. Finding organizations to administer this program with strong connections to CBOs and demonstrated success in program uptake in underserved communities is critical.

These residents also need targeted educational materials and support systems that cater to their unique needs and preferences to empower them to participate. This includes translating technical information into accessible formats, offering multilingual resources, and providing personalized assistance to guide residents through the program. It's also critical to speak to your residents in ways that emphasize the long-term benefits, including energy savings, increased home comfort, and other non-energy benefits.

Question 45: Is there anything else OER should be aware of as it develops program design guidance and support for these rebate programs?

We recommend including real estate agents and appraisers in the planning process. These professionals influence homeowners' purchasing decisions and can offer invaluable input on the program's market appeal. Overcoming historical barriers in the real estate industry, where disinterest or opposition to residential energy certifications has been common, is crucial. Real estate agents' active support and engagement are vital, as their involvement ensures that certifications deliver tangible benefits to homeowners and contribute to meaningful market transformation.

Engaging with these professionals in a community's real estate and appraisal industries is a key component of succeeding in those communities. We have found that partnerships with industry professional organizations like the Appraisal Institute and the National Association of REALTORS ensure that the certification supports real estate sales. Real estate agents within the network showcase Certified homes, leveraging Certification Reports and supporting materials to educate clients about electrification and high-performing homes. They also utilize our training resources and educational support to further enhance their capacity as professionals in marketing or appraising homes with a Certification, significantly increasing the likelihood that energy-efficient homes command a premium. We also partner with Elevate, a Chicago-based nonprofit that designs and implements programs to ensure everyone has clean and affordable heat, power, and water in their homes and communities.

For appraisers specifically, our Certification Report provides essential documentation, supported by an energy efficiency calculator that facilitates the income-based approach for assigning value. Validated by NREL modeling and appraiser-approved methodologies, the calculator evaluates energy efficiency upgrades and provides necessary documentation for appraisers. Additionally, the Certification Report automatically generates the Appraisal Institute's Residential Green and Energy Efficiency Addendum. This critical document ensures the standardized communication of a home's certifications, energy consumption, and efficient features so an appraiser can translate to equity value.

These efforts to work with realtors in the affected communities collectively contribute to removing barriers and fostering inclusivity and accessibility in energy efficiency programs. Integrating these elements into the HER program's structure ensures a holistic, inclusive, and impactful initiative that actively addresses challenges faced by households in disadvantaged communities and those with low incomes. We believe this approach facilitates access and ensures active and meaningful participation, fostering sustainable energy efficiency improvements in these communities.

We also strongly encourage the OER to actively engage contractors, leveraging their firsthand interactions with homeowners to provide crucial insights into the practicality and effectiveness of energy-efficient products and services. These contractors are the boots on the ground for the IRA rebate programs, ensuring a practical and impactful implementation.

Lastly, we advocate for the involvement of successful private enterprises with a track record in residential energy efficiency initiatives, such as a Certification. These enterprises bring valuable experience and industry best practices to the table, significantly enhancing the program's chances of success. Leveraging the insights and expertise of such entities contributes to a robust and effective rebate program that aligns with market transformation goals, meeting the market where it is at and driving meaningful change.

Question 38: What types of quality assurance and/or quality control should OER require? What are recommendations for best practices?

Implementing nationally recognized standards and best practices is critical to ensuring an IRA HER program runs effectively and efficiently in the marketplace. Respondent 15 leverages several standards and best practices and recommends considering the following standards based on where we have strong expertise, including in-home certification, contractor networks, real estate engagement, and appraiser education.

Respondent 15 recommends adopting the QA/QC framework of the DOE Home Performance with ENERGY STAR (HPwES) program. It is a robust model for program quality assurance and workforce standards and includes a scalable pathway to quality that also helps contractors build their businesses. The program holds contractors accountable for quality work through clear and understandable standards, promoting positive customer experiences. HPwES encourages contractors to develop internal quality management systems aligned with nationally recognized frameworks like ENERGY STAR Home Upgrade, Title 24, and DOE specifications. On the state level, Rhode Island Energy's EnergyWise. Home Energy Assessment is the only HPwES program operating in Rhode Island. Respondent 15 believes in strong contractor standards and is proud to be the only national sponsor of the HPwES program,

leveraging it as the foundation of our contractor network and allowing us to support programs like EnergyWise.

The DOE HPwES program advocates collaboration with market-based contractor accreditation organizations to foster market transformation. Aligning QA/QC requirements with existing frameworks avoids redundancy and ensures contractors adhere to recognized industry standards. Respondent 15 recommends that the OER consider pursuing virtual QA, in accordance with HPwES standards, which can reduce barriers to contractor participation, increase the speed at which work and rebates can be completed and issued, as well as prevent overburdensome in-person visits to a participant's home. Additionally, the program supports contractors taking a 'high value' instead of a 'lowest cost' approach with their business. This approach encourages businesses to invest in their workers and systems for long-term sustainability and positive outcomes for employees and customers. It's worth noting that the DOE guidance for the IRA rebate programs also allows for remote QA.

To enhance market engagement and support accurate valuation of energy-efficient homes, we recommend adopting and aligning with the standards set forth by the Real Estate Standards Organization (RESO). RESO provides a consistent framework and language for real estate agents, empowering them with tools to navigate the sale process effectively. RESO's Data Dictionary 2.0 ensures uniform inputs across local Multiple Listing Services (MLS), fostering consistency and accuracy in presenting energy-efficient homes to local markets.

Finally, we know that appraisers are critical to market transformation in Rhode Island as they assign the value of energy efficiency improvements, helping incentivize homeowners to pursue energy-efficient investments that contribute to the state's decarbonization effort. Appraisers need clear and accurate data presented in an industry-accepted format. Each Home Certification Report includes a completed Appraisal Institute Green and Energy Efficient Addendum with citations to support the appraiser's opinion of value. It's of utmost importance for all improvements to be included in this standardized addendum so that value is properly and equitably assigned to current or prospective homeowners.

Additional industry tools have been developed to support the use of the Addendum. Sandra Adomatis' Residential Green Valuation Tools, published by the Appraisal Institute, stands out as a comprehensive guide, continually updated to incorporate emerging technologies and issues related to energy-efficient homes. The new standard 1004 appraisal forms adopted by Fannie Mae and Freddie Mac also provide additional space for information on energy efficiency and renewables, aligning with market transformation goals. Training initiatives by organizations like McKissock and the Appraisal Institute, along with collaborative efforts between Respondent 15 and the Appraisal Institute, offer valuable educational resources for appraisers.

Conclusion

Thank you again for the opportunity to share our perspective and experience. We are happy to discuss these recommendations with the OER at any time if that would be helpful to your effort. We look forward to supporting OER in achieving its goals and making the most of these programs for Rhode Island's residents.

Respondent 16

Respondent 16 has over 10 years of experience with measured savings, and we believe the measured pathway of the Home Efficiency Rebates (HOMES) Program has the potential to transform the energy efficiency market—turning every home that participates in the program into a virtual power plant (VPP) and improving grid reliability. We are excited about the opportunity to participate as an aggregator in the HOMES and Home Electrification & Appliance (HEAR) Rebate Programs.

Our core recommendations as outlined below are:

- Offer both the measured and modeled pathways of the Home Efficiency Rebates Program.
- Leverage rebates to spark market transformation across building types and income levels.
- Increase access to energy usage data while also allowing for flexibility to obtain energy usage data.
- Standardize implementation data specifications and APIs. Our comments are included below. For reference, our full RFI response to the DOE can be found [here](#). Thank you again for the opportunity, and we look forward to working with Rhode Island to successfully implement these important programs

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?

Respondent 16 believes that disadvantaged communities (“DACs”) and Low to Moderate Income (“LMI”) households will best be served by program designs that empower aggregators to minimize soft costs and incentivize aggregators to invest in education and outreach to these communities. See [here](#) for more information.

3. How can OER 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?

The measured pathway of the Home Efficiency Rebates Program ensures equitable program outcomes by almost always providing higher rebates than the modeled pathway, especially for low-income households pursuing weatherization and electrification retrofits projects. In Rhode Island, we estimate that the measured pathway will provide average rebates of approximately \$18,000 for low-income homes with the highest energy usage (such as poorly insulated, leaky homes with average energy usage above 130% of the state’s average), whereas the modeled approach will provide rebates up to \$8,000. Including the measured pathway is an essential strategy for meeting Justice40 goals and improving low-income affordability, particularly for combined weatherization and electrification projects.

In addition, Respondent 16 believes that Rhode Island must minimize the soft costs associated with income verification. Rhode Island can minimize barriers for households to access the program by thoughtfully setting up income verification. Respondent 16 recommends that Rhode Island rely on applicant self-attestation for income qualification for single-family households. This method offers a

quick and consumer-friendly experience, particularly for households that might find other methods challenging or intrusive. This also allows households to maintain privacy and understand eligibility before even engaging a contractor. Additionally, providing households with multiple options for income verification will further reduce barriers to participation. Respondent 16 recommends that Rhode Island allow categorical eligibility based on state and federal programs with income requirements (such as SNAP and Medicaid).

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?

Respondent 16 believes that the Home Energy Rebate Programs can minimize energy burden and costs for all households, including LMI and high energy burden households, by prioritizing the measured pathway of the HOMES program. Many studies have demonstrated that deemed and modeled approaches do not typically realize the estimated energy savings, particularly for LMI households. The measured pathway, on the other hand, is much more likely to significantly reduce energy burdens given the higher average incentive levels it provides and the accountability for work quality and accurate savings predictions taken on by aggregators

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?

Respondent 16 believes the measured pathway of the HOMES program is the best program design to minimize the chance that upgrades will increase annual household bills. The measured pathway creates market accountability for incentivizing projects that maximize total energy reductions and therefore lower energy bills. Fundamental to the measured savings approach is the use of data analytics to measure program performance. As part of that, utility data access and data analytics can be used on the front-end to quantify likely bill outcomes and Respondent 16 supports a requirement that incentives wouldn't be provided for low-income projects that were predicted to increase overall energy bills.

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

The measured pathway of the Home Efficiency Rebates Program can help ensure quality control and high energy savings realization rates as rebates are only provided based on actual, measured energy savings. In the measured pathway, contractors and households DO NOT have to wait during the measurement period to receive their rebate. Instead, aggregators provide rebates immediately, upfront, and take on the performance-risk of the project achieving those energy savings.

Contractors are paid based on the quality of their work in the measured pathway (i.e. projects with higher energy savings result in higher rebates for the contractor/household), which in turn creates an incentive for contractors to do high-quality work that saves the most energy possible.

As a result, the measured pathway protects consumers and taxpayers from waste, fraud, and abuse because the state will only be providing rebates based on actual, measured savings that can be verified.

11. 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

Respondent 16 believes that as many program elements as possible should be implemented together. Income verification, in particular, will create additional unnecessary soft costs if managed separately across programs.

In addition, Respondent 16 believes that program branding and communications should be implemented together. Marketing, however, should be executed primarily by market actors (aggregators, etc.) in order to minimize program administrative costs and ensure that consumers have concrete and specific “next steps” when responding to direct marketing messages.

Respondent 16 encourages Rhode Island to allow aggregators to participate in the Home Energy Rebate Programs as they can be helpful with program implementation (but are not program implementers) and reduce administrative costs.

Respondent 16 is excited about the opportunity to participate as an aggregator in Rhode Island’s Home Energy Rebate Programs. The DOE’s guidance on the Home Energy Rebate Programs broadly defines an aggregator as: “An entity that engages with multiple single-family homes and/or multifamily buildings for the purpose of combining or streamlining projects as allowed by the State.”

Respondent 16 recommends that Rhode Island further define an aggregator as any commercial, government, or non-profit entity that receives rebates from the HOMES and/or HEAR programs within a given state or territory, but does not receive administrative funds from the HOMES or HEAR Programs from that same state or territory.

States, implementers, and/or utilities must provide an open “Request for Qualification” process that enables any qualified entity to register and serve as an aggregator in their state or territory. This will ensure the development of a competitive and open aggregator market, where aggregators are responsible for:

- Marketing to customers and/or contractors

- Collecting customer energy data (both before and after energy upgrades)
- Predicting energy reductions
- Submitting project information to government programs and market administrators
- Taking project performance risk in the measured pathway

Aggregators will also be responsible for much of the administrative work currently placed on energy efficiency contractors, empowering contractors to do what they do best: installing great projects.

In addition, aggregators can operate as Virtual Power Plant (VPP) developers by taking on peak demand and grid optimization management across a portfolio of homes. VPPs are crucial to maintaining reliability and affordability as Rhode Island continues to decarbonize by moving to a more decentralized energy system powered by distributed energy resources. See this link for information on how the Home Efficiency Rebates Program can be a downpayment on Rhode Island VPPs.

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

As an example of a successful measured savings program, Respondent 16 recommends that Rhode Island look at the Tri-County Regional Energy Network (3C-REN) residential single-family program in California. The program delivers rebates based on measured savings to contractors and households for energy efficiency and electrification upgrades. Respondent 16 is an aggregator in the 3C-REN program. In that program, Respondent 16 provides fast, upfront rebates to contractors based on projected energy savings of the projects they install. In other words, contractors and households do not have to wait to receive their rebate in the measured pathway, instead aggregators provide it up front. Respondent 16 then takes on the performance risk of those projects achieving the energy savings over the measurement period and is paid back by the program based on the actual, measured energy savings achieved.

13. How should OER 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?

Ultimately, success should be measured based on quantification of actual bill savings, actual energy savings (overall and peak), and carbon emission reductions.

15. 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?

Respondent 16 recommends that Rhode Island offer both the measured and modeled pathways of the Home Efficiency Rebates Program. Deploying both the measured and modeled pathways is the no-

regrets strategy to assure equity, affordability, accessibility, and impact when it comes to the Home Efficiency Rebates Program.

In particular, the measured pathway can ensure households receive the most benefits of energy efficiency measures and can unlock market transformation to spur durable market demand for efficiency and electrified homes after the IRA funding is depleted. Including the measured pathway of the Home Efficiency Rebate Program is a key strategy for Rhode Island to achieve its building decarbonization goals while maintaining and improving affordability and grid reliability.

By shifting performance risk from households to aggregators and enabling a guarantee of energy savings, the measured pathway has significant consumer benefits, especially for LMI households. Including the measured savings pathway:

- Ensures equitable program outcomes by almost always providing higher rebates, as described further in question 2.
- Protects consumers and taxpayers from waste, fraud, and abuse by only providing rebates based on actual, measured savings that can be verified, as described further in question 10.
- Saves more energy than the modeled pathway. In Rhode Island, we estimate that the measured pathway will provide 61 GWh of energy savings, compared to only 24 GWh from the modeled approach throughout the program's lifetime. With the measured approach, the household is also more likely to be presented with accurate energy savings predictions, as aggregators have an incentive to be as precise as possible, a dynamic that will build trust in energy efficiency projects and programs over time.
- Assists with grid reliability issues as grid operators require that both demand-side and supply-side resources be measured and verified. The measured pathway can thus be a downpayment on the robust participation of residential energy efficiency in VPPs. Maximizing the value of VPPs, in turn, is a critical component of Rhode Island maintaining and improving both grid reliability and affordability going forward.

Deploying both the measured and modeled pathways of the Home Efficiency Rebates Program will also help Rhode Island reach the most households and offer options and flexibility to the market. Both approaches have advantages and they can be deployed simultaneously—which was reinforced by the U.S. Department of Energy's (DOE) program guidance. And this is not only legally possible, but also eminently practical. A core tenet of the Home Efficiency Rebates Program is that household energy savings are driven by analysis of energy data, regardless of whether savings—and rebates for energy upgrades—are provided via the modeled or measured program option.

The administrative costs associated with deploying both the measured and modeled programs will be minimal, since the IRA requires that energy data be shared across program pathways. In fact, nearly 80% of the required DOE workflows are the same for each pathway, and of the 31 required tasks for implementation, there is overlap between 24 of them.

16. 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)?

Rhode Island should incentivize the market to maximize energy savings per dollar by enabling states to prioritize the measured savings pathway of the HOMES program. The measured savings pathway provides aggregators with strong incentives to leverage existing (or create new) best practices that drive higher energy savings per dollar invested.

17. 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)?

Below are key considerations that Rhode Island should take into account when determining the percentage of funding allocated for various income groups and housing types.

- **Equity:** HOMES funding can significantly benefit low- and moderate-income households. While providing HOMES funding to only low-income households would maximize equity, it would stymie program accessibility for households with other income levels and market transformation. Therefore, a large portion of HOMES funding should be allocated for both low- and moderate-income households.
- **Market transformation:** HOMES funding for a broad range of households is especially important for market transformation. Early adopters will be the first to take advantage of rebate programs and therefore can help establish a thriving market for energy efficiency and electrification retrofit projects. Ensuring that the rebates are available to a broad segment of the population will help build momentum for the program and reduce overall costs through market development.
- **Accessibility:** Rhode Island can ensure that HOMES funding is available for all households to increase program accessibility. This will allow households across the state to access the highly coveted HOMES rebates.

Based on the above considerations, Respondent 16 recommends that Rhode Island reserve at least 50% of the Home Energy Rebate Program funding for low-income households or homes in disadvantaged communities, which is in-line with DOE's guidance. For the HOMES Program, Respondent 16 recommends that Rhode Island allow moderate-income and market-rate households to be eligible for the remaining 50% of funding. For the HEAR Program, Respondent 16 recommends that Rhode Island allow moderate-income households to be eligible for the remaining 50% of funding.

Engaging moderate-income and market-rate households, in addition to low-income households, will be critical for achieving market transformation as they are likely to be the first adopters of energy efficiency and electrification. In addition, this approach will allow Rhode Island to engage a wider population of the state to balance equity, market transformation, and accessibility.

Rhode Island should ensure that at least 80% of funding for both of the rebate programs is set aside for single-family homes. Retrofitting single-family homes at scale remains a key challenge for Rhode Island residents, as each home is unique and brings individual challenges regarding optimal energy efficiency measures, making it especially important that the rebates are available to help spur market transformation in this sector.

In addition, Respondent 16 recommends that Rhode Island allow for existing construction to be eligible for at least 80% of HEAR rebates. The HEAR funding will make the most impact in retrofitting existing homes. However, there are other policy opportunities, such as improved building codes, that the state could explore to ensure new homes are efficient and electrified.

19. What practices should OER 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?

Rhode Island should ensure program rules allow contractors and aggregators sufficient flexibility in managing and retaining a portion of the incentive to cover the full range of program costs, including competitive incentives for households, contractor incentives, hiring, administrative costs, and value-add services for households (e.g. lower financing costs).

This incentive model has been field-tested in existing measured savings programs in California and is shown to create tangible incentives for contractors to initially join and remain as participants in programs for the long term, enabling successful market transformation and building a qualified, experienced contractor workforce.

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

Respondent 16 believes it is important for Rhode Island to empower aggregators and other trade allies and market actors to provide education and outreach to households. Energy efficiency has historically been a top-down effort, where regulators or administrators try to entice consumers to adopt home energy upgrades. While this plays a key role in educating consumers, top-down education is necessary but not sufficient. By empowering market actors such as aggregators – including the broad network of contractors and partners that aggregators provide – the reach of consumer education efforts can be extended to greater effect and at lower administrative cost.

Contractors interface directly with consumers during projects. They must be empowered to communicate comprehensive and accurate information about rebate amounts, availability, and eligibility to households. To that end, the state should develop simple, comprehensive program materials that can be leveraged by all stakeholders (aggregators, contractors, community groups, etc.). Ideally, Rhode Island can also work with utilities to include inserts about the rebate programs in utility bills and mailings, which would include information, as well as QR codes, links, and phone numbers to state-supported information (utilizing multiple methods to address accessibility concerns).

Aggregators can help Rhode Island distribute informational resources about the program to contractors and ensure that they are well prepared to explain the rebates to households. In addition, aggregators can provide contractors with tools and software to estimate rebate values in real time while they are in the home—which is what Respondent 16's software does. This can help more contractors and households take advantage of IRA rebates.

21. 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?

Respondent 16 believes that the HOMES program's measured pathway provides the best program design to increase investment in new business models. See here for examples of new business models that can be created.

Respondent 16 encourages Rhode Island to include aggregators in the design of its Home Energy Rebate Programs. Figure 1 below details the relationship between program administrators, program implementers, aggregators, contractors, and homeowners in the Home Efficiency Rebates Program.

22. 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?)

Respondent 16 believes it is important for at least 80% of the HEAR funding to go towards existing construction. There is a significant need to electrify existing buildings in Rhode Island, and the Electrification Rebates will make the biggest impact in this sector.

23. How can OER encourage programming 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 to make this successful?

b. How should OER encourage programs and participants to leverage other resources and/or provide seamless services?

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

Respondent 16 believes it is important for Rhode Island to ensure that IRA rebates are stackable (and coordinated with) with other state, local, and utility incentives. Consumer-facing incentives allow aggregators and contractors to grow the market for home weatherization and electrification.

29. 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.

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. Respondent 16 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).

31. 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?

The IRA requires states to value savings based on time, location, and/or greenhouse gas emissions. Respondent 16 encourages Rhode Island to value savings on one or multiple of these factors. In addition to the \$200 installation incentive available to aggregators and contractors for verified projects in disadvantaged communities (per program guidance), Rhode Island should consider providing additional rebates for projects located in disadvantaged communities as defined by the DOE Climate and Economic Justice Screening Tool. This will help direct additional funds to areas with higher energy burdens.

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

Respondent 16 believes that local code should not impact incentive eligibility, especially for replacement of existing equipment in homes that are not likely to be replaced without incentives.

35. What should OER consider when drafting energy usage data sharing guidelines?

A foundational piece of providing households with the potential utility bill cost impacts of their electric appliances and energy-efficiency upgrades is ensuring that contractors and aggregators have a simple and secure way of accessing a customer's utility data. Access to an individual customer's utility data, particularly energy usage, costs, and rate information, empowers energy service providers and contractors to estimate utility bill impacts of various upgrades. Without this data, contractors and aggregators cannot accurately estimate the utility bill impacts of their proposed upgrades, which limits the ability of consumers to participate in the Home Energy Rebate Programs.

Rhode Island should empower aggregators, contractors, and others to leverage multiple pathways for gathering energy data across all households. Respondent 16, for example, captures household energy data in numerous ways, including from utility companies via Electronic Data Interchange (“EDI”) that includes monthly energy usage data provided by utilities in certain states; third-party data providers via data-management tools; energy bills, including records for delivered fuels, provided by customers; and wireless sensors, which transmit energy data from homes.

36. 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?

Respondent 16 encourages Rhode Island to utilize aggregators to minimize the complications of data collection. Energy usage data is paramount to both the modeled and measured pathways of the Home Efficiency Rebates Program. Aggregators are responsible for collecting energy usage data and providing it to the program, which can reduce the program's administrative costs and simplify the experience for contractors and households.

Respondent 16 would also like to highlight the opportunity for Rhode Island to leverage the Green Button Connect My Data Standard for the IRA rebate programs. In doing so, OER would be acting consistent with DOE's guidance providing, “states are encouraged to leverage established data-sharing processes and guidelines” including “standards that have been developed through the Green Button Protocols.” Green Button functions to connect consumers with authorized third parties over utility data. Respondent 16 supports UtilityAPI's comments on this subject.

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

Standardize APIs

Respondent 16 encourages Rhode Island to allow aggregators to leverage the Pacific Northwest National Laboratory's rebate API. This will ensure that there is standardization for aggregators who may be working across several states and it will reduce costs for program implementation as implementers will not have to design their own API. Aggregators do not need to directly send the data to the DOE, but allowing aggregators to leverage the same data infrastructure for data collection and sharing will help streamline the program.

Use site energy to measure energy savings

Respondent 16 recommends that Rhode Island use site energy to measure energy savings. The DOE guidance requires calculation of energy savings from fossil fuel sources for Home Efficiency Rebate projects consistent with BPI 2400-2015 section 4.3.2. The guidance gives states the option to use an alternate factor in calculating kWh equivalents, providing states a method to account for “site energy” rather than “source energy” in their energy savings calculations. Rhode Island should use a factor that accounts for full site energy savings and should not decrement on-site fossil fuel savings in calculating kWh equivalents. This “site energy” methodology best reflects the customer experience and provides

rebates that better align with customer energy and utility bill savings and Rhode Island’s decarbonization goals.

Retroactive rebates are not feasible

Offering retroactive HOMES incentives to households who have previously performed energy efficiency upgrades is not feasible for installation aggregators or contractors. Virtually none of the current projects will meet all of the program requirements established by DOE and Rhode Island, which will leave gaps in required program documentation and create a double standard between older and newer upgrades. This will likely cause households to request additional testing and verifications, performed after-the-fact and at the aggregator’s or contractor’s expense, in an effort to apply for a retroactive rebate.

DOE guidelines establish specific post-installation data requirements, and asking aggregators to go back to previously completed jobs to reformat or re-collect data would generate significant program expense without incentivizing any new energy efficiency installations. Additionally, DOE guidelines require a customer satisfaction survey be sent to program participants within 3-6 months of installation; it will be impossible to meet this requirement for any installation completed more than 3-6 months from Rhode Island program standup. We urge Rhode Island to clearly establish, within program guidelines, that installations that did not meet all requirements at the time of installation are not eligible, and that data collected after-the-fact is not sufficient to meet the program rules.

46. What evaluations, research, reports, or other resources can help inform OER's program guidance?

The Flex Coalition created a “Program in a Box” to provide a model for implementing the Home Efficiency Rebates measured savings approach.

Respondent 16, Pearl Certification, and Recurve prepared a sample application for implementing the Home Efficiency Rebates measured and modeled approaches together. This sample application builds on the application provided by the DOE.

Respondent 17:

Key Aspects of Implementation

- We believe Rhode Island should deploy the HEAR rebates for all eligible income levels under the law simultaneously. It is important to drive momentum behind the rebate programs and deploying to both low- and moderate-income communities will be key for awareness building and massive attention.
- Rhode Island should consider providing sufficient lead time for communities to digest details through thorough communications on income verification and various aspects of the IRA home rebate programs. Advance notice will provide disadvantaged and low-income communities more time to prepare and remove the risk of overwhelming burdened households at launch given the complexity of the programs. There is tremendous opportunity for state energy offices to communicate to residents such as through websites and active calendar updates for state specific availability (i.e. when will a specific state go live with rebates to consumers).

- Retailers may want to consider targeted advertisements for retail locations in low and moderate-income areas. Given that smartphone penetration is high across all income levels, utilizing websites and sharing tools such as benefit calculators would be helpful. Moreover, state energy offices can consider mailers for marketing and communications in a way that serves their goals.
- Rhode Island should support community-based organizations on staying updated on the latest information and communicating in a simple and accurate manner to the communities that will benefit from rebates.
- Some utility companies have payment assistance programs that may be leveraged for braiding of funds. Moreover, utility marketplaces could be used for braiding of funds as well. Categorical eligibility is a critical aspect to reach certain covered households. There is opportunity to tap into participants of SNAP, LIHEAP, Weatherization Assistance Program and Medicaid for automatic prequalification and targeted education.
- Based on Respondent 17 analysis, a more granular definition of Area Median Income (AMI) (i.e. zip code vs county level AMI) will be more beneficial to a larger number of households in any given region. States should use an AMI threshold that benefits the largest amount of households in their state.

Importance of Advancing Consumer Education through ENERGY STAR

- The EPA ENERGY STAR program has 90% brand awareness and exercises great influence over consumers. Rhode Island should consider requiring ENERGY STAR appliances for the HOMES rebate program and ENERGY STAR is already a requirement for HEAR if applicable. Electric cooking products present a great opportunity for low- and moderate-income communities to benefit and ENERGY STAR has developed the first specification for this category. Rhode Island should work to ensure that only ENERGY STAR certified electric cooking products receive rebates from consumers. For example, how fast an induction cooking product can boil water –twice as fast – is very helpful for overly burdened households. Putting less stress on the home HVAC system is another critical aspect, which is important given Rhode Island’s diverse weather conditions. Improved efficiency compared to non-induction are among the many benefits.
- ENERGY STAR appliances present an opportunity under HOMES to achieve greater energy savings. For example, the BPI 2400 reference in the IRA HOMES program is important to note. This standard references RESNET HERS standards, which highlight appliances. Rhode Island should include ENERGY STAR and/or Most Efficient appliances such as washers and refrigerators for HOMES rebates.
- Respondent 17 wants to underscore the importance of EPA allowing all-in-one washer dryers to be ENERGY STAR certified as heat pump dryers. The HEAR rebate program requires ENERGY STAR products where applicable while allowing for heat pump dryer rebates. In order for the all-in-one washer dryers to receive these rebates and amplify energy efficiency benefits, they should be considered for ENERGY STAR certification so consumers of all economic means can benefit from this growing and sustainability-enhancing segment of the market. If and when all-in-one washer dryers are considered ENERGY STAR heat pump dryers, they should be provided rebates under the IRA home rebate programs by state energy offices.

Critical Statutory Interpretation of HEEHRA

- We ask Rhode Island to support and implement our interpretation that the IRA clearly states that electric cooking products, heat pump dryers, and heat pump HVAC products, among others, are included in a “Qualified Electrification Project” and they must be ENERGY STAR if applicable. Respondent 17 encourages state energy offices to follow the requirements of the law for a “Qualified Electrification Project” and therefore, states should include all of the different requirements of the law and provide rebates for all allowed categories. This will provide consumers with greater choice about which products to use rebates for and follow legislative intent. This will also help manufacturers and retailers market more consistently to consumers. We believe states should interpret the IRA home rebate provisions as they are written and for HEAR, and in our view, there is no opportunity for expansion or narrowing of what a “Qualified Electrification Project” is.
- Moreover, we ask Rhode Island to provide maximum rebates for eligible products to offer consumers choice about the purchases they wish to make. This will help advance the interest of low income communities in particular.

Benefits of Assessing Time, Location and Greenhouse Emissions

- States are allowed to address location, time and greenhouse emissions in their plans to DOE. We wanted to ensure Rhode Island is aware of the ENERGY STAR Smart Home Energy Management System (SHEMS) as a way to increase energy savings from participating homes under the measured approach because such systems add thermostat and other device controls that can create operational and behavioral savings, along with savings from equipment and envelope upgrades. SHEMS provides an opportunity for demand response measures to be combined with the energy efficiency focus of HOMES. This will help put less stress on the grid at peak and will allow further recognition of the energy efficiency benefits of all energy using and connected devices in the home.
- In addition, such systems can be the way to implement the section of the HOMES legislation that allows states to value savings for time, location and or GHG emissions.
- Respondent 17’s SmartThings Energy, which obtained the first mass-market qualification for SHEMS ENERGY STAR, is compatible with over 200 other companies’ products.
- SHEMS and IOT platforms with energy use data integration, and marketing can educate, enroll, and execute rebates. Platforms can increase engagement across a variety of energy saving methods over time as users engage with these platforms more often than utility marketing assets.
- Utilities should formalize best practice for data integrations so platforms can invest in this space to help educate the customer

Offering Choices for Energy Efficient Options for Consumers

- Rhode Island should not limit rebates to US manufactured goods as this would significantly limit the available options for consumer choices and would be counterproductive to the environmental goals of a successful rebate program. There is no statutory basis in the IRA home rebate programs for counterproductive Buy American restrictions, domestic content requirements, or reducing incentives for imported goods.

- Manufacturers are prepared to address demand increase as it occurs. Industry addressed a rapid increase in demand for home appliances during the COVID-19 pandemic and will continue to do so successfully.

Respondent 17 would like to serve as a resource to Rhode Island as the state implements IRA home rebates. Respondent 17 is committed to net zero carbon emissions (Scope 1 and 2) for our consumer-facing business by 2030 and by 2050 across global operations. Moreover, we are among the top ranked companies in the US Environmental Protection Agency's Green Power Partnership 100% Green Powers Users list. Energy efficiency is a key part of our sustainability strategy and we aim to continue raising the bar higher in efficiency in key product categories.

Respondent 18

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?

To help minimize energy burden and costs for LMI and high energy burden households, OER should consider encouraging rebate recipients to install smart panels. These technologies offer two main benefits to keep electrification costs down for residents of Rhode Island:

- Grid flexibility: Smart panels provide whole home load flexibility that enable participation in programs such as demand response, virtual power plants, firm service limits, ancillary services, and more. These programs allow for residents to be paid to support the strength and resilience of Rhode Island's grid, and keep energy costs low without sacrificing comfort or convenience. Given that Rhode Island is introducing Advanced Metering Functionality (AMF) in the coming years, providing tools that make it as easy as possible for customers to take advantage of the associated programs should be a priority for OER.
- Distribution system and service upgrade avoidance: Electrification requires significant infrastructural costs, including upgrades to utility service lines, transformers, and substations. Some smart panels, offer the ability to throttle loads according to resident preferences such that the resident's usage never exceeds the service line capacity. This feature enables electrification without time-consuming upgrades to utility infrastructure that can cost ratepayers or utilities several thousand dollars per Household. If smart panels are deployed in a specific neighborhood, they can also help defer distribution system upgrades, keeping rates down for even more utility customers in Rhode Island.

By educating retailers, distributors, and residents on the benefits of smart panels and encouraging their adoption, OER can help minimize costs incurred by Rhode Island residents and help promote energy equity across the state.

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?

One consideration for discouraging contractors from using rebates for upgrades that will likely result in higher annual household energy bills, OER should offer stronger incentives or otherwise encourage contractors to install technologies that support and enable seamless participation in demand flexibility programs and time-varying rates.

With the deployment of AMF, Rhode Island is slated to help residents make smart energy choices that strengthen the grid and reward customers for making clean energy choices. Certain technologies such as smart panels allow customers to participate in these services.

As Rhode Island introduces time-varying rates and other demand flexibility programs, there is a once-in-a-generation opportunity to incentivize adoption of technologies that help residents take full advantage of these programs.

8. What are best practices for implementing successful 'point of sale' rebates, including when considering contractor needs?

Respondent 18 recognizes that offering point of sale rebates is an essential component of successful Home Energy Rebate program design. Respondent 18 encourages OER to allow for contractors to claim rebates for both HER and HEAR in order for them to efficiently provide rebates to their own customers. Contractors must have confidence that they can receive the rebates quickly and with ease – thus, Respondent 18 encourages OER to adopt simple income verification requirements such as self-attestation and quick approval via cross-referencing participation in state or federal aid programs. Once residents are verified, contractors should be able to access rebate funding as soon as possible. If contractors have doubts that they can meet the requirements to be reimbursed quickly after a customer, OER may face a situation where individuals under going electrification projects are not made aware of the available rebates.

13. How should OER 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?

Respondent 18 recommends that OER account for a number of factors to measure success, including but not limited to:

- **Customer satisfaction:** OER can measure customer satisfaction with energy systems at the time of installation, and provide customers with the opportunity to respond to a survey six and twelve months after installation to assess changes in customer satisfaction.
- **Impacts on energy bills:** OER can confirm customer energy bills at the time of installation, and provide customers the opportunity to indicate energy bills 6 and 12 months after installation.
- **Peak demand:** OER can measure peak energy demand as projected under a status quo situation without rebates, and compare to actual average peak demand across the summer and winter seasons each year.

- **Time-varying rate signup:** OER can measure the total number of households that enroll in time varying rates. OER can compare the rate at which households that received HER or HEAR funding enroll in time-varying rates, which will be available as part of Rhode Island’s AMF rollout, against the enrollment rate for the general population.
- **Demand response signup:** OER can measure the total number of households that enroll in demand response programs, if and when these programs are made available to residential customers in Rhode Island. OER can compare the rate at which households that received HER or HEAR funding enroll in demand response against the enrollment rate for the general population.

17. 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)?

OER should consider setting aside a portion of rebate funding for high-impact measures such as the installation of next-generation technologies. These are technologies that, in addition to helping to electrify Rhode Island homes, offer benefits to Rhode Island’s grid and ratepayers.

Smart panels offer a number of benefits to Rhode Islanders, including bill savings, service capacity upgrade avoidance, demand flexibility, resilience, and more. Setting aside a portion of HEAR funds for the deployment of smart panels will encourage Rhode Islanders to adopt this class of technologies. Smart panels are deployed at scale in a number of neighboring states through utility pilots, including New York and Vermont. In many cases, smart panels can be installed without exceeding the \$6,500 combined home wiring and electrical panel upgrade allowance dictated by HEAR.

OER can also consider allocating smart panel funding specifically to low income customers. Since smart panels provide whole-home load flexibility, the set aside will be particularly effective in supporting lower-income households in “future-proofing” the homes and ensuring that demand flexibility programs are easily accessible – and financially rewarding – to all.

Overall, by allocating a specific portion of the HEAR or HER rebates to next-generation technologies, OER will have the opportunity to introduce more cost-saving and grid-strengthening technologies to Rhode Island.

18. 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?

Respondent 18 does not recommend bulk purchasing or other measures that would restrict technology deployment. OER should ensure that rebates are easily accessible and as flexible as possible, accounting for guidelines set by the Department of Energy (DOE). From our experience working with builder communities in dozens of states, different households have different energy needs, which can be challenging to meet when limitations are placed on the technologies that can be deployed. Ensuring that homeowners have wide latitude to choose the devices that work best for their unique circumstances will ensure rebate funds are deployed in a manner that is both equitable and effective.

Furthermore, bulk purchasing, or otherwise restricting eligible technologies to only a handful of options, risks preventing Rhode Island residents from accessing next-generation technologies. New energy technologies are critical to helping Rhode Island reach its ambitious goals to decrease emissions to 45% below 1990 levels by 2030, as specified in the 2021 Act on Climate.

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

OER should play an active role in educating Rhode Island residents on the electric technologies that can provide the most benefits to each homeowner. This process can help illuminate barriers to home electrification and how some technologies can provide benefits beyond energy savings. OER should consider building a webpage that articulates the different types of eligible technologies in each product category. For example, OER could provide households with an overview of the benefits of smart panels compared to traditional panels. OER can source details from trusted nonprofit organizations such as Rewiring America and the Building Decarbonization Coalition for information on these technologies.

Additionally, Respondent 18 would recommend that OER educate Rhode Islanders on utility service upgrades, which may occur in the process of electrification. OER can indicate to residents that technologies such as smart panels can help avoid the need for expensive and time-consuming service upgrades. The webpage can provide clear instruction to homeowners and contractors on the technologies with this capability.

22. 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?)

OER should ensure that funds are made available for both existing buildings and new construction of affordable housing, as long as guidelines meet standards set out by the DOE. While rebates are an important device to encourage operators of existing buildings to upgrade to low-carbon technologies, it is also true that rebates incentivize developers of new affordable housing to install these same technologies and future-proof homes for the energy transition. Given the financial pressures that developers face, low-carbon appliances are not a priority area for investment when not required. By providing similar rebates for new construction as for retrofits, OER will be able to maximize the benefits to Rhode Island's residents, electricity grid, and overall climate targets.

46. What evaluations, research, reports, or other resources can help inform OER's program guidance?

Respondent 18 recommends that OER consult the following sources to inform program guidance:

- CPUC Electrification Impacts Study Part 1: A comprehensive state-level source on the distribution system upgrades required to electrify a state.
- National Grid Massachusetts Electric Sector Modernization Plan: A report on how neighboring state Massachusetts will leverage.
- Rewiring America’s overview of smart panels: Overview of how smart panels help homeowners smooth demand curves and prevent homeowners from exceeding the limits of their utility service line.
- EnergyNews on Minnesota’s embrace of smart panels: Article on how Minnesota’s incentives for smart panels will help homeowners avoid thousands in service upgrade costs.

Respondent 19

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?

Enabling digital access to customer utility data can help ensure that Rhode Island's disadvantaged communities and low-income households have easy access to both the HER and HEAR programs in three key ways.

First, access to customer utility data is required for households to participate in either of the HER Program’s rebate pathways. The HER program-modeled pathway requires a contractor or aggregator to model a home’s forecasted energy savings using software approved by the Department of Energy (DOE) to meet the Building Performance Institute’s (BPI’s) 2400 standard, and that has been “calibrated” using historical energy usage of the home. The HER program measured savings pathway requires access to a household’s historical energy usage and ongoing energy usage data.

This means that regardless of the household's location or socioeconomic status, without access to a customer’s energy usage data, that household will be unable to participate in the HER program.

Second, enabling digital access to customer utility data is one of the easiest ways to expand the opportunity to participate in the HER program. As noted above, access to customer energy usage data is a prerequisite for any household to participate, which has historically been achieved through time-consuming and expensive manual processes. These time-consuming processes include, but are by no means limited to:

- Downloading and printing bill PDF copies from a utility website,
- Making copies of physical bill PDFs,
- Scheduling a phone call with a consumer to have them read energy usage numbers from a recent bill,
- Estimating usage based on a customer’s best estimate of their monthly utility costs.

Each manual process can take weeks or months to complete for an individual home and often can take even longer in low-income households. This time consuming process disincentives contractors and

aggregators from participating in programs, working in disadvantaged communities, and with low-income households.

Instead, digital access to customer utility data through a statewide data access platform turns this weeks or months-long challenge into a minutes-long opportunity for consumer engagement by removing a key barrier to participation in the HER program.

Third, enabling digital access to customer utility data will also ease the implementation of the HEAR program and help increase participation in other Rhode Island energy efficiency and clean heating programs. A non-comprehensive list of ways digital access to customer utility data can enable this is below:

- Digital access to a customer's utility bill can be used to confirm participation in Rhode Island's Home Energy Assistance Program and potentially be used as a qualification for a HEAR program rebate;
- Digital access to a customer's energy usage data can be used to forecast if a HEAR program electrification upgrade will increase overall utility costs;
- Digital access to a customer's utility bill can help braid or stack Rhode Island Energy's heat pump incentives with HER or HEAR program rebates and the 25C federal tax credit;
- Digital access to a customer's utility bill can help maximize the scope and impact of a low-income household's participation in both Rhode Island's Weatherization Assistance Program and the HER or HEAR programs.

By enabling digital access to customer utility data regardless of utility and fuel type, OER will increase the rate at which households can participate, more efficiently using technical assistance funding, and decrease the energy burden for Rhode Island residents, especially those located in disadvantaged communities.

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?

Digital access to customer utility data can help minimize energy burden and utility costs in numerous ways. Some of these ways are detailed in our response to question two above.

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?

One of the best ways OER can discourage contractors from providing rebates to homeowners where the energy efficiency or clean heating upgrade will increase energy bills is by providing them with a standardized tool for accessing a household's historical energy usage and cost data for analysis. Without a standardized way of collecting this customer utility data, contractors and aggregators cannot accurately model the utility bill impacts of their proposed upgrades.

Additionally, OER could incorporate utility bill monitoring requirements and incentives into its program design. For example, OER could provide contractors or aggregators with an additional incentive for tracking and reporting annual bill impacts across both modeled and measured homes. This could provide multiple benefits to the HER program, including, but not limited to:

- Increase consumer confidence in the HER program,
- Incentivize contractors or aggregators to propose and complete only high-quality installations,
- Simplify and standardize data collection requirements across both modeled and measured savings;
- Empower OER to compare and contrast the effectiveness of modeled vs measured projects, and
- Streamline OER's program reporting requirements to DOE.

This type of incentive would require that contractors or aggregators have a standardized way of accessing customer utility data in an ongoing and affordable fashion.

Given the importance of having access to customer utility data, Respondent 19 recommends that OER provider contractors, aggregators, and all HER program stakeholders with a standardized tool for accessing customer utility data statewide.

13. How should OER 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?

Respondent 19 recommends that OER measure success based on measured impacts of the program (i.e., utility bill savings, energy savings, and greenhouse gas emission reductions), and consumers' satisfaction with the program overall. With a standardized tool for accessing customer utility data, these metrics can be calculated and tracked in a near-real-time fashion throughout the program's life.

21. 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?

Two of the best ways to increase private sector investment in new models are:

1. To allow for a wide range of stakeholders to participate in the program implementation;
2. To provide program participants with a standardized and affordable way of accessing the customer utility data required for innovation.

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

The HER's program-modeled rebate pathway, requires a contractor or aggregator to model a home's forecasted energy savings using software approved by the DOE to meet the BPI 2400 standard and that has been "calibrated" to the historical energy usage of the home. The HER's program measured savings rebate pathway, requires access to historical energy usage and ongoing energy usage data.

Regardless of the Rhode Island household's location or socioeconomic status, without access to a customer's energy usage data, that household will be unable to participate in the HER program.

31. 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?

While Respondent 19 doesn't have expertise in calculating savings based on "time, location, or greenhouse gas emissions" savings, the valuation of these different metrics is simply the "monetization" of the grid or greenhouse gas emissions generated by kWh reductions of a project.

For example, California's energy efficiency programs recently shifted away from annual kWh savings goals to a total system benefit metric that monetizes the locational and time value (i.e., avoided transmission and distribution costs, greenhouse gas emissions reductions) for each hour of the year. These values are generated by Energy and Environmental Economics (E3), approved by the California Public Utilities Commission (CPUC), and published on E3's website for use by stakeholders.

While the Rhode Island PUC hasn't adopted hourly values similar to California's avoided cost calculator, OER should still explore ways to quantify energy savings on a time, location, or greenhouse gas emissions basis. This is especially true given Rhode Island Energy's forthcoming deployment of smart meters which will enable the HER and HEAR programs to measure energy reductions on an hourly basis nearly statewide.

However, for OER to realize the additional benefits of quantifying energy savings on a time, location, or greenhouse gas basis, will require a simple, secure, and digital way of accessing customer utility data throughout each household's program participation lifecycle. Respondent 19 believes the best way to realize these benefits and enable seamless household participation in the HER program is for OER to procure a statewide data access platform.

35. What should OER consider when drafting energy usage data-sharing guidelines?

DOE's Data Access Guidelines provide a framework for OER to follow in creating its Data Access Plan for the HER program. There are six elements to a Data Access Plan listed in the Guidelines. OER should focus on the elements of data access that impact Rhode Island's household and consumer experience, such as the Consent, Notification, and Revocation Processes. OER should:

- Identify factors that will make HER in Rhode Island different from those programs in other states with regard to data access;

- Dedicate attention to how Rhode Island residents learn about and participate in HER and HEAR; and
- Consider who OER would like to help most with the programs and how those people would ideally navigate the consumer authorization process for accessing utility data.

OER should also carefully consider the contractor experience of requesting and using consumer utility data to best serve Rhode Islanders most in need of these programs. OER should:

- Identify any existing pools of contractors worthy of helping to execute these programs;
- Dedicate time to learning from those contractors about how digital access to customer utility data can enhance their work; and
- Consider how the contractor and consumer interaction could be enhanced by digital access to customer utility data.

Once these factors have been considered, OER can identify a trusted industry partner to turn OER's vision into reality. The same partner may also be equipped to take responsibility for the back-end elements surrounding consumer privacy and data security, data aggregation and anonymization, and data quality.

Respondent 19 is one such partner. Respondent has heard from states that the consumer experience accessing HER program rebates must be seamless. Respondent 19 works nationwide with hundreds of clean energy companies to ensure that accessing customer utility data is seamless. Respondent 19 can take responsibility for OER's Data Access Plan, making Rhode Island's data access objectives a reality.

36. 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?

The HER program implementation presents OER with a generational opportunity to streamline and improve the security of how consumers enable third-party access to customer utility data throughout Rhode Island.

First, by pursuing a statewide data access platform that covers all of Rhode Island's electric and natural gas utilities, OER will be creating a standardized and secure experience where the following activities can occur:

- Third-party contractors and aggregators can register and become approved providers of the HER program rebates;
- Third-party contractors and aggregators can digitally send and receive consumer authorization to access data;
- Consumers can review approved program contractors, aggregators, and if needed revoke access to their utility data;
- Consumers would share the ability to initiate the data access process by authorizing access to their data and then seeking an approved contractor; and

- OER and program administrators can review and approve registrations, set differentiated pricing for different platform users, track program participation, and access all the data required for reporting to DOE.

Second, Rhode Island’s opportunity to leverage the Green Button Connect My Data Standard to benefit OER’s HER and HEAR programs is greater than many states. In a September 2023 decision, the Rhode Island Public Utilities Commission (RIPUC) adopted a requirement that Rhode Island Energy take two important actions:

1. Deploy a Green Button Alliance-certified data access platform; and
2. Within two months of commencing smart meter installation, file a Green Button Connect plan that will address a number of utility data access issues relevant to the HER and HEAR programs.

With this decision, the RIPUC set the stage for OER to capitalize on the Green Button Connect My Data Standard for Rhode Island consumers seeking HER and HEAR rebates. In doing so, OER would be acting consistent with DOE’s guidance providing, “states are encouraged to leverage established data-sharing processes and guidelines,” including “standards that have been developed through the Green Button Protocols.

39. What data should OER and program administrators collect to ensure their ability to conduct effective quality assurance and/or quality control?

Given the importance of digital access to customer utility data in participating in the HER program and providing a high-quality consumer experience, Respondent 19 recommends that OER integrate a statewide data access platform into its program design to support the HER and HEAR programs.

Respondent 20

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?

- Create a single point of entry for disadvantaged communities and low-income households. A one-stop-shop or “concierge” approach consolidates the delivery of energy efficiency and electrification services to qualified low-income households via a single point of entry. This approach benefits all customers but is particularly important for reaching members of disadvantaged communities, who often face barriers such as limited time or limited internet access. A single point of entry reduces marketplace confusion, avoids the duplication of services, and makes it easy for customers to find and obtain program services. Rather than needing to sort through a wide range of programs providing rebates, financing, and technical assistance, customers can weigh all available options from one entry point.
- Partner with community-based organizations (CBOs) which already have strong relationships with target populations. Many low-income and disadvantaged households face information and trust barriers to program participation, even when that participation requires no upfront cost.

Hiring CBOs to offer program outreach and education builds on existing communication channels, which increases customer participation.

- Provide program and outreach materials in languages other than English that are predominant in Rhode Island, such as Spanish, Portuguese, Chinese, and Creole.

3. How can OER 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?

- Set annual targets for all HER and HEAR programs that prioritize communities and households meeting Justice40 requirements. Annual, specific goals for program participation are essential.
- Solicit and remunerate community-based organizations and other community representatives for input on program design, outreach, and implementation.
- Provide opportunities to braid funding from HER and HEAR that are exempt from Least Cost Procurement and other cost effectiveness requirements but are not exempt from Justice40 requirements. One of the reasons that current energy efficiency programming for LMI and disadvantaged communities—in Rhode Island, as in most other parts of the country—has been unable to reach these populations adequately is that service delivery typically requires more labor and/or higher incentives. Because efficiency programs face budget constraints and must meet ever-increasing energy savings goals, programs are often unable to allocate the additional resources required to deliver meaningful results to disadvantaged communities.
- Consider aligning federal reporting with ongoing development of equity-related metrics. Effective data collection and reporting can track program participation levels and benefits that are reaching disadvantaged communities

4. How can OER 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?

- Meet community-based organizations and marginalized groups where they are. Physically attend community meetings and work directly with community representatives throughout the program design process, in addition to partnering with them to support program implementation. Build relationships to foster local, CBO-based program champions. Choose program representatives who share not only demographics, but also lived experience, language, and culture, with communities of interest.
- Follow CBO guidance on specific communities to engage in pursuit of equitable process. Leveraging existing working groups such as the Equity Working Group, facilitated through the Energy Efficiency Council (EEC), or the Health Equity Zone Initiative, managed by the Department of Health, can help jump-start this effort.

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?

- **Bundle clean energy measures.** To minimize the typically substantial energy burden among LMI customers, Rhode Island should place a high priority on bundling clean energy measures to maximize the energy and cost savings realized by LMI households. In the concierge model, HER programs can prioritize updates for each home—for example, non-energy-related updates first, then insulation and air sealing, and then major equipment/appliances. While heat pumps should be an element of a comprehensive installation strategy for major-ticket energy efficiency measures (like air sealing and insulation), HER programs should also complete a comprehensive costing exercise to ensure that each customer’s energy burden does not increase. This assessment should also identify out-of-pocket expenses and target below certain thresholds that relate to the level of benefits to be provided.
 - Adding heat pumps can also add cooling capacity, which may raise utility bills. This is not necessarily against the occupant’s interest if that cooling provides needed health, comfort, or safety benefits. Bundling electrification measures with energy efficiency (and potentially solar, per below) helps ensure reductions in total energy bills and therefore energy burden.
- **Coordinate services with national programs** to make comprehensive strategies the cornerstone of Rhode Island’s new service delivery model. To encourage comprehensive solutions, program administrators should promote the HER and HEAR rebates in concert with LMI programs such as the Weatherization Assistance Program (WAP), the Low-Income Home Energy Assistance Program (LIHEAP), and ratepayer-funded efficiency programs. It also should have administration and funding frameworks in place not to burden HER funding with the same requirements that other programs may have (for example, limitations on fuel switching)
- **Coordinate services with renewable energy measures, particularly solar projects.** Integrating rebates into a comprehensive strategy should also involve coordinating with low-income solar and community solar providers to pair electrification measures with low-cost electricity supply.
- **Coordinate with existing energy efficiency and decarbonization programs.** The PUC’s ongoing work to identify and evaluate measures currently offered by energy efficiency programs that also qualify for IRA incentives is an important step to maximize benefits and reduce energy burdens. We recommend a similar exercise with the Clean Heat program.
- **Use targeting to find customers who may benefit the most.** Program administrators can use a range of strategies to identify and reach customers with the biggest opportunity to reduce energy burdens. These strategies depend on the source of data available, ranging from utility usage data to census information to lists of customers receiving energy assistance.

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 OER also incentivize multifamily affordable housing property owners to participate in these programs?

- **Engage tenants and landlords in dialogue during the design of programs to help both sides find common ground.** Balancing tenant and landlord interests is necessary to improve the

energy performance of multifamily buildings. Some jurisdictions have required landlords to enter agreements to stabilize rents as a condition of receiving incentives. If these agreements lack an enforcement mechanism, they can exacerbate concerns about tenants' rights. If they are overly burdensome, they discourage participation, which benefits no one. Comprehensive retrofits increase the value of assets for landlords—if programs encourage landlords to approach projects with this in mind, they might feel less pressure to seek short-term revenue increases.

- **Right-size the set-aside.** OER should analyze what share of the state's low-income population lives in multifamily housing. DOE calls for a minimum of 10 percent of HER and HEAR funding to be allocated to multifamily housing. OER can choose to set aside a higher amount and should consider a multifamily set-aside commensurate with the share of the low-income population living in multifamily housing.
- **Allow a reservation system.** OER should offer a reservation system for multifamily rebates. The reasons for this: (1) The timelines for multifamily retrofit projects are long, particularly when coupled with other property upgrades; and (2) it is important for affordable housing owners to have committed funding in place before they proceed with projects.
- **Accommodate properties qualifying for the Low-Income Housing Tax Credit (LIHTC; HUD).** As with other grant funding, HER rebates structured as grants can adversely affect the basis for LIHTC properties. OER should offer an option for rebates to be structured as soft loans, to serve LIHTC properties fairly.
- **Address multifamily housing on a property basis.** To be successful in the multifamily market, OER should ensure that program guidance addresses multifamily housing on a property basis to mirror multifamily legal ownership structures and avoid administrative barriers to multifamily program participation.

15. 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?

- **Engage the supply chain.** Manufacturers, distributors, and retailers of eligible electrification technologies ("midstream" market actors) play a critical role in developing lasting, durable markets that will persist after IRA funding is depleted. Respondent 20's own experience in designing and implementing midstream programming has resulted in a high level of enthusiastic cooperation from manufacturers, wholesalers/distributors, and retailers to stock equipment and provide training on high-quality installations in support of program goals.
- **Make programs very simple for contractors.** Adding HER and HEAR to the rebate environment for contractors could drive business growth. However, if not well-designed, these programs could also exacerbate the administrative burden borne by contractors as they pass along customer rebate requests. There are several good models Respondent 20 has helped launch that successfully engage contractors as rebate brokers for installed equipment which OER could reference: Vermont's Heat Pump Program, Wisconsin's Focus on Energy Trade Ally Program, the District of Columbia's Work with Us webpage for Participating Contractors, and California's

Switch Is On: Find a Contractor. Each of these websites describes a contractor program that has trained installation professionals to help customers obtain rebates.

- **Match supply chain and workforce development with customer demand.** Demand and supply must move together and need distinct but coordinated strategies. If contractors become experienced with electrification technologies—from a technical and a customer perspective—those technologies will become part of their business model over a longer term. Complimentary policies such as building codes and appliance standards also help lock in cleaner technologies, but they are only feasible once the technologies gain traction with contractors and others in the supply chain.

16. 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)?

- **Characterize electrification opportunities.** There can be significant costs associated with the repairs and health and safety measures necessary to ready a home for electrification, insulation, or air-sealing. Some states have started to characterize buildings that are the least complicated to electrify and will receive the greatest payback. Prioritizing those customers can increase energy savings per investment dollar. Homes heating with propane, oil, or electric resistance, for example, should see substantial energy savings from installing heat pumps. This strategy also helps accelerate market transformation.
- **Note.** While we are strong believers in cost effectiveness and maximizing energy-saving benefits, we would suggest that, for LMI programming, OER not place too strong of an emphasis on energy savings per dollar invested. The barriers to access experienced by so many LMI people and communities revolve around issues that have historically been beyond the scope of energy efficiency programs—like health and safety and building repairs. Over-emphasizing energy savings per dollar invested can disenfranchise precisely those communities where energy burdens are highest and where energy efficiency and electrification measures can deliver the greatest benefit. Opportunities to use IRA funding to address these barriers should be leveraged whenever possible

17. 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)?

- **OER should assess demographic attributes** of those that have been served, and not served, by existing programming, and consider setting targets for those specific communities tied to IRA funding.
- **Generally, OER should prioritize the LMI market,** because of its historical experience of being underserved by energy efficiency programming. LMI households also require more investment than do market-rate customers—to cover the extra labor costs for outreach, recruitment, enrollment, and measure installations, and these program elements' attendant financial incentives.

- **OER should develop distinct budgets**—and program strategies—for single-family and multifamily housing and consider how LMI populations can be served within each of those.
- **Set-asides.** As described above, targeting certain incumbent heating fuels is a way to achieve high benefits but, strict budget set-asides based on fuel will hinder program flexibility and reduce the efficiency of delivering services to meet customer needs

23. How can OER encourage programming 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 to make this successful?

- Experience has shown that, absent mandates and/or structural consolidation (e.g., “one stop-shop” models), it is challenging to establish coordinated funding across multiple program implementers. Each program usually has its own program implementers, funding requirements, and project timelines to contend with.
- That said, program coordination is critical to alleviating barriers to participation. Absent a “one-stop-shop” approach, many organizations dedicated to serving LMI communities will rise to the challenge if procedural hurdles can be addressed, such as customer data access, single applications that provide access to multiple programs, and common protocols for installation of measures.

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

- A comprehensive content strategy will identify key messaging and content that addresses the needs of consumer, contractors, retailers, and other stakeholders at every stage of their efficiency or electrification journey. Partnering with and compensating local CBOs can provide a way to test content, ideas, and approaches and make sure information related to qualified products and projects is accessible to every audience. Translating content for non-native speakers of English is also essential.
- Maintain qualified product lists. OER should maintain qualified product lists that identify all products eligible for each specific incentive or rebate. These should be publicly available on the program website, circulated with program information to CBO partners, supplied to retailers and distributors, and provided to contractors through an affiliated contractor network.
- Build relationships with “midstream” market actors (manufacturers, distributors, and retailers). These stakeholders play a critical role in educating customers about efficiency and electrification technologies and about available incentives and rebates.
- Provide training for CBOs and contractors. OER should provide or coordinate training for contractors and for CBOs involved in administering weatherization, heat assistance, and other relevant programs.

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

- OER should work to coordinate funding streams so that programs can address multiple barriers at once. If OER aligns its HER and HEAR programs with other IRA bill funding streams, other existing federal programs, and existing state incentive programs, these funding streams could help address barriers in existing programs. For example, having a single coordinating entity can avoid having to navigate multiple applications to fund the same project. As the third-party administrator of Vermont’s statewide energy efficiency program, Respondent 20 was able to secure federal funding to remediate health and safety hazards that were preventing some low-income residents from participating in weatherization programs. These funds were integrated into already-existing weatherization programs offered in coordination with WAPs to streamline the process for property owners, renters, and contractors.
- Collaborate with partners to address market challenges. Early and strategic collaboration with market partners can alleviate delays in delivering services. For example, working with “upstream” supply chain partners (manufacturers and distributors) to align sales, marketing, and inventory practices with energy efficiency program goals can mitigate supply chain challenges. This kind of collaboration ensures that when the efficiency program offers an incentive on, say, heat pumps, those units are available locally for installation. In this way, it increases partner revenue and streamlines program delivery to customers.