



May 21, 2024

RE: Inflation Reduction Act (IRA) Home Efficiency Rebates (HER) and Home Electrification and Appliance Rebates (HEAR) – NJ Board of Public Utilities (BPU) Request for Information Docket No. Q023100733

To Secretary Golden,

Thank you for this opportunity to comment on the BPU’s Request for Information (RFI) for the design and implementation of the IRA HER and HEAR programs.

MaGrann Associates is a New Jersey based engineering and sustainability consulting company actively engaged in the Residential New Construction Program since its inception in 1987, as well as the utility-led Engineered Solutions Program since its statewide expansion and PSE&G’s predecessor Whole Building Multifamily Program since 2010.

With a focus on multifamily and affordable housing, we deliver thousands of high-performance new construction and major retrofit units each year under these and other programs throughout the Mid-Atlantic and Northeast region.

We offer the following comments for your consideration:

1. How well does this approach align with the goals of HER, HEAR, and the IRA more broadly?

- Overall, the BPU’s approach described in the RFI does align with the goals of the HER and HEAR programs cited in the Department of Energy (DOE) Home Energy Rebate Guidance. The decision to allocate the majority of funds to affordable multifamily households and/or properties located in low-income communities aligns well with the DOE’s goal to “increase installations of efficient and clean energy equipment in underserved and underrepresented communities.”
- While this over-arching structure appears to be in alignment, it is ultimately the more granular details to follow that will dictate whether these programs produce end results that are aligned with these goals. See our responses to the remaining questions for more detail.

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2. What would be the best analytical approach – measured or modeled – for calculating energy savings in multifamily buildings? Are there scenarios where one would work better than the other?

- Modeled and measured calculation methodologies can both produce a high level of reliability in determining savings. However, for the funding allocated to multifamily under the M-RISE program, we believe the modeled approach should be used exclusively. Comprehensive multifamily retrofit projects tend to have long implementation timelines that necessitate staged funding to support the assessment, design and installation phases. Significant barriers already exist to participation in the multifamily sector. The measured pathway would put a significant additional financial strain on multifamily property owners since the incentives cannot be paid out until project completion, and we are unaware of an aggregation model for multifamily projects that would provide the bridging financing necessary to overcome this obstacle.
- The modeled pathway would best allow the HER program to integrate more seamlessly with existing utility programs, most of which use an “up-front” modeled or deemed savings approach to determine incentives.
- If included, we believe that the measured approach is best suited to single family deployment. Since the methodologies and market preparedness for delivering measured approaches are relatively new, it may be most appropriate to allocate funding to the measured approach on a pilot basis.
- We encourage the BPU to carefully consider how to best address the DOE’s BPI-2400 modeling requirement. The DOE Home Energy Rebate Guidance recognizes that “not every home will have conditions that allow for modeled savings consistent with BPI-2400 calibration methodology”, acknowledges that “multifamily homes” are among conditions inconsistent with the BPI-2400 calibration methodology, and allows States to provide alternative approaches. MaGrann submitted previous comments to the BPU on this topic (attached), referencing more in-depth recommendations developed by our partners at PSD. We encourage the BPU to review these comments, and we would be happy to engage in further discussion on this topic.
- Additionally, we encourage the BPU to allow for modeling approaches that match the scale of different multifamily size categories. A full ASHRAE 90.1 energy model may be appropriate for large mid and high-rise buildings, especially those with centralized existing systems. However, the significant time and cost involved in producing this level

of assessment make it typically both cost prohibitive and technically unnecessary to support the level of modeling appropriate for smaller buildings or low rise projects with fewer than 50-100 units.

- If the M-RISE program is braided with utility initiatives, or stacking is allowed, the modeling approaches should be aligned to the greatest extent possible to avoid duplicative or conflicting effort. Additionally, utility cost effectiveness testing or other constraints specific to utility implementation should not impede the ability of projects to maximize decarbonization outcomes consistent with the intent of the IRA funding.

3. What criteria and process could be used to select buildings for the M-RISE Program?

- Ideally, the initial intake/selection process for determining program eligibility should be consistent for every multifamily property. In order to produce a truly functional multifamily one stop shop, this entry point would not just screen for the M-RISE Program, but would also screen for compatibility with all other multifamily-eligible utility programs. The BPU should therefore consider merging the M-RISE Program intake process with the Core Multifamily Program intake process that has been proposed within the Utility's Triennium 2 filings. This approach will likely be needed to ensure ongoing streamlined program coordination, and optimal end results and savings potential for both customers and the utilities.
- Recognizing the need to keep costs as low as possible to maximize the impact of limited dollars, while ensuring a path to comprehensiveness that minimizes lost opportunities, we recommend the initial screening process include the following:
 - o Benchmarking: All eligible applicant properties could be required to benchmark using the EPA ENERGY STAR Portfolio Manager Tool. Multifamily applicants that fall below the average performance level for the building category could then be prioritized under the M-RISE program. This would leverage and potentially help increase compliance with New Jersey's benchmarking requirement, as well as maximizing impact from IRA program dollars.
 - Buildings that do not fall within Portfolio Manager's benchmarking eligibility criteria may be routed to a simplified track within M-RISE, or to other utility programs if more appropriate.

- Walk-Through Analysis: All properties would undergo a whole-building walk-through to visually inspect and identify energy savings opportunities. This analysis should also include an electrification feasibility component. A report would be produced that includes a property description and an Energy Efficiency Measure (EEM) list, including approximate levels of investment/savings.
 - The results of the report should be assessed to determine which program(s), M-RISE and/or others, will result in the most comprehensive savings and optimal results for the customer. Given the Triennium 2 program budget is substantially larger than the M-RISE program budget, existing utility programs should be leveraged for any given project to the greatest extent possible before tapping into the M-RISE budget.
 - For utility programs subject to measure level cost-effectiveness standards, the M-RISE program may be an effective way to offset any costs that make decarbonization solutions otherwise infeasible. In particular, M-RISE funds should be used to offset the hard (implementation) and soft (engineering design) costs of making the building electrification ready, including unit and common area panel upgrades and property service upgrades.

4. Does this approach address the unique needs of our state in terms of A. the need for efficiency and electrification upgrades in multi-family buildings, and B. the need for efficiency and electrification upgrades in low- to moderate-income households?

- We support the decision to allocate the majority of funds to affordable multifamily households and/or properties located in low-income communities, and feel this approach will help address the unique needs of low to moderate income households in New Jersey, particularly underserved multifamily renters.
 - Multifamily properties have often struggled to fit neatly into the existing NJ utility program structure. The utility programs do not currently offer a single *comprehensive* pathway specific to multifamily, though this may be addressed through modifications under Triennium 2. These buildings often incorporate a mix of residential and commercial attributes, including both residential and commercial meters, and centralized and individual HVAC and hot water systems. Categorization of a property as “residential” or “commercial” can severely limit

what a property can accomplish when pathways are defined by this categorization, which should be avoided by simply creating a unified “multifamily” program.

- One of the most common barriers to entry is that multifamily property owners are almost universally unwilling to invest in discovery and engineering “soft costs” that are not considered part of a project’s capital budget but are necessary for determination of project viability and optimal project scope.
 - o Multifamily building decarbonization strategies in particular are at the leading edge of engineering design and are far from being a commoditized service. The proper engineering essential to ensure positive outcomes can be complex and expensive – for example, as required for a switch from centralized hydronic distribution boilers to in-unit minisplit or VRF systems coupled with envelope improvements to reduce load, and hot water replacement with centralized or in-unit heat pump water heaters.
 - o If the initial assessment phase determines an electrification project may be feasible, the program should provide support for a comprehensive assessment of a property’s electrification readiness, including everything from the electrical supply capacity (e.g. do site interconnection and in-unit panels require upgrading?) to existing structural design limitations (e.g. can in-unit water heaters be replaced with heat pump water heaters given space and airflow requirements) to whether envelope upgrades would be necessary to ensure the desired energy, operating cost and comfort performance.
 - o Because administrative funds appear to be limited via the M-RISE Program, it may be that the initial program screening will need to identify other utility programs to tap into to support funding some of these pre-development costs, such as the proposed Triennium 2 Building Decarbonization Programs.
 - o Low to no cost financing will also serve as an effective tool to help bridge the gap between incentives and total project cost, and would help to break down the financial barriers to entry.
- Along with allowing for categorical eligibility under the list of recognized federal housing programs stated in the DOE guidance, the BPU should ensure the income qualification/ verification process for Naturally Occurring Affordable Housing in the multifamily sector

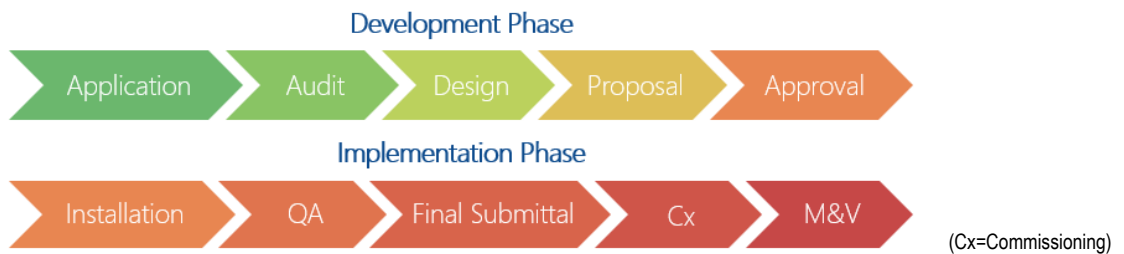
is not so burdensome as to become a barrier to entry into the M-RISE program. The BPU should also allow for categorical eligibility under NJ-specific LMI programs.

5. Do you believe the proposed budget allocations for the M-RISE Program and the CP-HEAR program are appropriate?

- Yes, we support the proposed allocations for the M-RISE Program and the CP-HEAR program.
- Note comments above re leveraging utility program dollars through braiding or stacking, with attention paid to avoiding unintended limitations that such integration may create.

6. Do you have any other concerns regarding this approach or additional ideas for consideration?

- Program Delivery: The BPU should ensure a market-based implementation structure for the M-RISE Program, irrespective of the degree of integration with utility programs. Property owners should be able to use their preferred *qualified* service providers/contractors for each stage of the process to avoid limiting outreach and delivery capacity to just one or a few program providers, and maximize leverage of existing client relationships. A qualification mechanism should be in place to ensure providers are properly credentialed and experienced. For multifamily properties, companies performing existing building assessments, modeling and/or measurement and verification services should be required to hold at least one of the following credentials: Professional Engineer, Certified Energy Manager, or BPI Multifamily Building Analyst depending on the scope for each of the project stages illustrated below:



- Cost Shifting: it is important to note that there is the potential for a significant cost shifting issue associated with electrification in the multifamily sector. Many larger, older multifamily buildings utilize centralized boiler systems such that heating fuel costs are paid by the property owner and incorporated into the rent structure. If these systems are replaced by individual in-unit systems, the direct cost shifts to the resident and may now include cooling when it did not do so before. If rents are not adjusted to correlate

with the cost shift, tenants can end up effectively double-paying for heating. There are many mechanisms for addressing this cost shift conundrum equitably through both technological and financial approaches (for example, rent adjustment based on the HUD Utility Allowance Study methodology), but should be considered proactively in any programmatic design.

- Cooling: The addition of what becomes a property-provided cooling solution intrinsic to heat pumps may further add operating cost, but is likely to be more cost effective overall than old tenant-owned wall/window units and provide greater comfort – and the addition of efficient cooling in low income housing is important as climate change drives higher outdoor and indoor temperatures.
- Split Incentive: The allocation of funding to the multifamily rental sector, particularly for officially designated *and* naturally occurring low income housing, will have a positive impact on addressing the “split incentive” that arises when property owners must bear the cost of equipment and upgrades but the efficiency gains accrue to the tenant paying the bills. One of the keys to reducing the split incentive barrier is to ensure the up-front costs of assessment, project design and compliance oversight are covered by the program, or incorporated into financing in such a way as to remove the perceived risk of investing in a step in the process that has no direct benefit to the property owner.
- Workforce Training: The BPU and utilities should consider funding support for workforce development with respect to all decarbonization initiatives. Specifically, HVAC contractor and technician training is needed to help them develop the skills and confidence to deploy new heat pump technologies, overcome old negative preconceptions of heat pumps, and boost the numbers of minority contractors and technicians engaged in the industry. Critically for the long term, support is needed for vocational high schools and adult trades schools to embrace and incorporate clean energy training, as well as to encourage minority participation in higher education for professional fields including mechanical engineering and architecture.
- Setting Up for Positive Outcomes: New technologies are emerging daily, the industry is still learning, and there is a lot of misinformation being propagated in the marketplace that is actively working against effective and accurate understanding by property owners, residents and policy makers. We cannot afford the missteps of early solar, CFL and first generation conventional heat pump deployments. Simply switching out systems will sometimes, but not always, result in an optimal cost and comfort outcome. It is critical

that decarbonization efforts be supported by properly qualified practitioners, as well as funding for the essential assessment and design phases without which projects may result in less than ideal energy, comfort and participant experience outcomes.

- Customer Education: Rental residents have no influence over and limited awareness of the systems they encounter in their apartment (including what fuel they use or, if centralized, where they are located). Many new electrified systems, such as ductless minisplits, have a long way to go in providing truly user friendly consumer controls and guides to best practice operation. Numerous strategies are available to more effectively prepare and educate residents and property O&M (operations & maintenance) personnel through a combination of simple written/illustrated guides, allowing time for resident and staff education at time of install, resident workshops and other approaches. We encourage the BPU to consider programmatic support for development of educational materials and other strategies needed to ensure equipment is operated and maintained for maximum efficiency and comfort.

Thank you for this opportunity to provide comments. The MaGrann team would be happy to engage in further discussions with the BPU or utilities on these topics.

Sincerely,



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February 28, 2024

Sherril L. Golden
Secretary of the Board
NJ Board of Public Utilities
Via email: board.secretary@bpu.nj.gov

Re: Applying BPI-2400 to Multifamily under the Home Energy Rebate (HOMES) Program

Dear Secretary Golden,

The Inflation Reduction Act (IRA) requires that Home Energy Rebate (HOMES) projects following the modeled approach to quantifying savings must use calibrated energy models consistent with the BPI-2400 standard. BPI 2400, as it is currently written, can only be applied to single-family, duplexes, and townhomes, and does not present a clear way to apply the standard to multifamily.

On July 27 last year, DOE issued the attached guidance (Home_Energy_Rebates...pdf) recognizing that “not every home will have conditions that allow for modeled savings consistent with the BPI-2400 calibration methodology.” Section 3.2.4.1.1 acknowledges that “multifamily homes” are among conditions inconsistent with the BPI-2400 calibration methodology and allows for States to provide alternative approaches.

We encourage the BPU to carefully consider how best to address this issue so as not to create barriers for multifamily participation under the modeled pathway for calculating energy savings. To assist in this process, we are providing below a set of recommendations specifically on this topic developed by our partners at PSD. These recommendations were originally crafted to inform NYSERDA on how they might apply BPI-2400 to multifamily under their own programs, referencing criteria outlined in NYSERDA’s Multifamily Performance Program (MPP) Simulation Guidelines, as well as The Department of Housing and Urban Development’s (HUD) meter sampling protocols.

We realize this input necessarily ventures deep in the weeds of modeling methodology as it relates to this issue. The MaGrann team would be happy to engage in further discussions with the BPU or provide other assistance as may be helpful.

Sincerely,

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Guidance for Applying BPI-2400 to Multifamily Properties

Purpose

Currently, the BPI-2400 standard states that it may be used for single-family homes, duplexes, or townhomes yet there is a pressing need to extend the standard to multifamily buildings. For the purpose of this document, multifamily buildings are considered to be residential buildings that are not currently covered in the BPI-2400 standard.

The purpose of this document is to serve as an informative guide of how to apply the BPI-2400 standard to multifamily buildings when it is required that savings estimates must use a calibrated energy simulation. For the most part, the BPI-2400 standard can be applied to multifamily buildings as written, however, the following sections of the current standard require some guidance and will be addressed in the sections below.

- Section 3.1. Energy Simulation Software Criteria
- Section 3.2.2. Model Calibration Utility Bill Criteria
- Section 3.4. Model Input Constraints

Note: This guidance document was developed by PSD under a NYSERDA contract and provided to the Building Performance Institute to support potential requirements for multifamily energy model calibration under the BPI 2400 standard. These comments were written prior to the release of the DOE Guidance for multifamily buildings in the Modeled Savings path.

Guidance for Section 3.1. Energy Simulation Software Criteria

The current BPI-2400 standard has requirements for qualifying single-family energy simulation software. For multifamily, one should adhere to the non-program specific requirements of section “3 Simulation Software” of the NYSERDA MPP Simulation Guidelines May 2022.

<https://www.nyseda.ny.gov/-/media/Project/Nyserda/Files/Programs/MPP-Existing-Buildings/library/mpp-simulation-guidelines.pdf>

Guidance for Section 3.2.2. Model Calibration Utility Bill Criteria

The following describes the process for obtaining sufficient utility data of multifamily properties needed to meet the requirements of Section 3.2.2 of BPI-2400. Unlike single family properties, most multifamily properties have many energy meters, both owner-paid and resident-paid, and sometimes trucked fuel sources. For the weather normalization of the energy data, the regression analysis can be performed on individual meters or groups of similar meters. In general, it is best to combine all meters of the same fuel type that serve similar space types of the property as this will provide the best information for the model calibration process.

For example, in a 100-unit building each apartment has one electricity meter and one natural gas meter for cooking that the residents pay. Additionally, the owner pays for the main gas meter that serves the boiler and five electricity meters that serve common areas. For this example, it would be best to have four regression analyses, one for all 100 apartment electricity meters, one for all 100 apartment natural gas meters, one for the five common area electricity meters, and one for the common area natural gas meter. This will allow for the most accurate

calibration of the energy model and keep the applicable utility rates separate for a more accurate cost savings analysis. The end-uses of apartment cooking are separated out from the common area natural gas which the regression analysis can determine the portion used for heating versus domestic hot water. Similarly, the regression analysis of the electricity should be able to determine the portion that is baseload, cooling, and/or heating related.

Owner-Paid Utility Meters

All energy meters and trucked fuels (e.g. fuel oil, propane) paid for by the owner that serve the building(s) of the property shall be included in the utility bill analysis.

Resident-Paid Utility Meters

When the residents pay the utility meter charges for their apartment unit, the data collection becomes increasingly difficult to obtain access to all resident-paid utility meters. There are two options described below for obtaining a 12-month history of the energy consumption data for all apartment units.

Aggregate Meter Data

Certain utilities will provide a file of the aggregate, anonymized data for all meters on the property including those paid for by the owner. This is by far the easiest way to obtain the complete utility data history for a property and should be used if the utility provides this. Typically, the aggregate data file will provide 12 to 24 records of monthly sums across all meters by the same utility rate class.

The following link from the EPA Portfolio Manager site can be used to determine if the utility provides aggregate meter data.

https://www.energystar.gov/buildings/owners_and_managers/existing_buildings/use_portfolio_manager/find_utilities_provide_data_benchmarking

Sampled Meter Data

When there are apartment meters that are paid for by the residents and it is not possible to obtain aggregate meter data from the utility, the following meter sampling protocol from the Department of Housing and Urban Development (HUD) should be followed. See section “Sampling Protocols for Tenant-Paid Utility Data (Method D)” of Multifamily Utility Benchmarking Toolkit and use the Tire 2 Sampling Protocol

<https://www.hudexchange.info/programs/utility-benchmarking/toolkit/utility-benchmarking-step-by-step/>

To make the process easier, HUD Exchange references and provides links to two helpful resources:

Tenant-Paid Utility Data Sampling Calculator

<https://www.hudexchange.info/resource/133/tenant-paid-utility-data-sampling-calculator/>

Multifamily Utility Benchmarking Plan Template

<https://www.hudexchange.info/resource/8/multifamily-utility-benchmarking-plan-template/>

When using the Tenant-Paid Utility Data Sampling Calculator, follow Steps 1 through 6 of the Instructions tab using the Tier 2 Sampling Protocol to get the estimated aggregate energy records that can be used for the weather normalization regression analysis as well as for benchmarking in Portfolio Manager.

Guidance for Section 3.4. Model Input Constraints

The model input constraints in the BPI-2400 standard are applicable to most multifamily buildings and should be adhered to. Because of the complexity of multifamily buildings and the challenges of translating field observations to energy simulation inputs, sections 5 through 13 of the NYSERDA MPP Simulation Guidelines May 2022 should be followed.

<https://www.nyseda.ny.gov/-/media/Project/Nyserda/Files/Programs/MPP-Existing-Buildings/library/mpp-simulation-guidelines.pdf>