



Home Efficiency Rebates and Home Electrification and Appliance Rebates (IRA Sections 50121 and 50122): Market Transformation Plan Guidance

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Introduction

The Inflation Reduction Act (IRA) provides an unprecedented level of federal investment in residential energy efficiency and electrification, including the Home Energy Rebates,¹ residential energy tax credits, and other funding sources. But even these resources are insufficient to benefit the vast majority of approximately 125 million households in the U.S. Although the \$8.8 billion in Home Energy Rebates will reach only about 1 percent of these homes,² they provide an opportunity to act as a catalyst to unlock additional flows of capital and business innovation.

The intended purpose of requiring states³ to develop and implement Market Transformation Plans is to ensure that state programs stimulate additional and continued investment in residential energy upgrades beyond the tenure of the rebates. States and implementers may use their plans to ensure that rebate programs are designed to help to meet the long-term goals of the Home Energy Rebate program.⁴ With plans that articulate the state's more specific long-term objectives and define activities in support of them, state programs are more likely to succeed in improving their delivery of rebates over time and in driving benefits beyond the reach of the rebates such as lower costs, sustained increase in supplier participation and consumer demand for energy efficient and efficient electrification upgrades, and accurate valuation of retrofits.

Section 3.3.1 and Section 4.3.1 of the U.S. Department of Energy's (DOE) [Program Requirements & Application Instructions](#) (Program Requirements) describe the timing and scope of the Market Transformation Plan for the Home Efficiency Rebates Program (IRA Section 50121⁵) and the Home Electrification and Appliance Rebates Program (IRA Section 50122⁶), respectively. States must develop and submit their Market Transformation Plans to DOE within one year after initial award of rebate funds under [Administrative and Legal Requirements Document, Version 2](#) (ALRD 2).

¹ As defined in Section 1.0 of the [Program Requirements & Application Instructions](#).

² Of the \$8.8 billion appropriated to the DOE through IRA Sections 50121 and 50122, up to 23% of these funds are available for administering and overseeing the programs, leaving about \$7 billion available in rebates to households. Depending on how much the average participating household receives in rebates, rebates will improve approximately 1 to 4 million homes. For example, if nationwide the average Section 50121 rebate is \$3K and the average Section 50122 rebate is \$4K, 2 million households, or a little under 2%, will receive upgrades nationwide. On the other hand, if Section 50122 rebates are more frequently applied to higher cost upgrades such as heat pumps, and/or a greater number of Section 50121 rebates fund deeper retrofits of low-income residences, fewer homes will be improved. As another example, assuming participating households on average receive \$5K for Section 50121 projects and \$7K in Section 50122 rebates, then about 1.2 million or 1% of homes will receive upgrades.

³ For the purposes of this document, state means, collectively or individually, the 50 states, the District of Columbia, the Commonwealth of Puerto Rico, the U.S. Virgin Islands, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands.

⁴ Section 1.5 of the [Program Requirements & Application Instructions](#) includes: **Proven value streams and roles for sustained investments to continue market transformation.** A successful program will prove the business case and catalyze a sustained increase in supplier participation and consumer demand for energy efficient and efficient electrification upgrades, including ongoing access to upgrades for low-income households and disadvantaged communities, while showcasing how a combination of federal, utility, private, and public funds provide value to households and local communities during the transition to a clean energy economy.

⁵ See 42 U.S.C. 18795(b).

⁶ See 42 U.S.C. 18795a(b).

DOE must review and approve the Market Transformation Plan prior to the state being eligible to receive the third tranche of funds.⁷

This guidance document is intended to assist states in developing approved Market Transformation Plans. It is organized as follows:

- Section 1 provides a framework for considering how the IRA Home Energy Rebates programs may help drive greater demand of residential efficiency and electrification improvements after the rebate funds are exhausted.⁸
- Section 2 summarizes key content requirements for a Market Transformation Plan that will be approved by DOE and provides a template for states to use in developing them.
- Section 3 briefly outlines potential market transformation topics and indicates priority topics for which DOE will provide full sample plans.

Section 1. Market Transformation Framework

Setting Market Transformation Goals

While there is no single definition, the process of market transformation can be described as carrying out strategic interventions to spur lasting changes in the structure or function of a market, and/or the behavior of market participants.⁹ As stated in the Program Requirements and Application Instructions, a successful rebate program will prove the business case of upgrades to the market, and thereby catalyze a sustained increase in supplier participation and consumer demand for energy efficient and efficient electrification upgrades.¹⁰

A first step in developing the Market Transformation Plan and strategy is to consider the state's vision for clean energy in housing and the conditions needed to realize that end. Examples of desired conditions, or long-term outcomes, may include but are not limited to the following:

- ✓ The full value of energy efficiency and/or efficient electrification (i.e., the full range of benefits) is recognized by all relevant market actors (e.g., consumers, suppliers, contractors, utilities, real estate markets, and investors).
- ✓ Efficiency and/or efficient electrification upgrades are reliable and deliver intended outcomes including energy and cost savings, comfort, decarbonization benefits, and/or grid benefits.
- ✓ Cost barriers for home upgrades are reduced or eliminated given more affordable equipment and attractive financing for consumers and contractors.

⁷ [Home Energy Rebates ALRD 2](#), see Part II.C.

⁸ See Section 1.5, 3.3.1, and 4.3.1 of the [Program Requirements & Application Instructions](#).

⁹ More information is available on the DOE website, [Using Home Energy Rebates to Support Market Transformation](#).

¹⁰ See Section 1.5 of the [Program Requirements & Application Instructions](#).

- ✓ Homeowners and renters understand the characteristics of an efficient home, can easily access information on a home's energy performance, and seek energy efficiency and/or efficient electric home features.
- ✓ The residential energy upgrades workforce is trained, properly equipped, and widely available to deliver energy upgrades to households at all income-levels given profits relative to other work.
- ✓ Utilities count on energy efficiency options to reduce capacity needs and deliver grid benefits and incorporate energy efficiency in resource and/or procurement planning.
- ✓ The State Energy Office understands the business case for all market actors to provide relevant energy efficiency-related goods and services, both during and beyond the period in which the Home Rebate Program operates and has developed working partnerships with them.

Figure 1 provides a construct in the form of a simple logic model to help states to consider potential types of market changes and identify activities with potential to drive these changes (i.e., create more ideal market conditions).

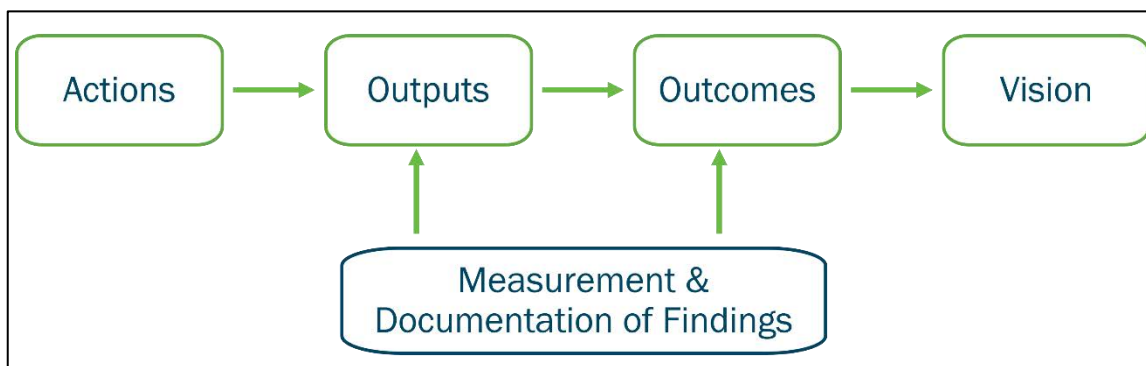


Figure 1. Simplified Logic Model Framework¹¹

The following questions, associated with each portion of the logic model, are intended to help states apply this framework to their Market Transformation Plans. Although Figure 1 depicts how actions lead to a vision, the questions begin by recommending the state first define its vision and then work backwards to determine the necessary supporting activities.

- **Vision:** What is the state's long-term vision for housing across the state, particularly in terms of energy use? A vision statement may include multiple components, even if the state's Market Transformation Plan will only focus on one portion of the vision.
- **Outcome(s):** Of the many market conditions needed to realize this vision, what specific outcome(s) (objectives or goals) are the state targeting?

¹¹ DOE developed this simplified figure to illustrate typical logic models commonly used in program development and management. While a wealth of information on this approach is available, the following document provides a brief overview: [Logic models: A tool for effective program planning, collaboration, and monitoring \(betterevaluation.org\)](https://www.energy.gov/scep/betterevaluation.org).

- **Outputs:** What deliverables or milestones aimed at realizing the intended outcome(s) (desired market condition(s)) will the state complete?
- **Actions:** What activities will the state undertake to fulfill its planned outputs (deliverables, milestones)?
- **Measurement & Findings:** How will the state track progress toward reaching its milestones, measure impacts on the targeted outcome, and document findings?

Section 2. Market Transformation Plan Requirements and Template

This section provides a template for states to use in developing plans. States are **not** required to use this template but must address all required points noted below.¹² Plans approved by DOE will include elements of all sections outlined below, unless marked as optional.

As specified in the ALRD 2, DOE must review and approve the Market Transformation Plan before the state becomes eligible to receive the third tranche of funds.¹³ The Market Transformation Plan would be formally approved by DOE and become binding for each separate rebate award; however, given the fact that market transformation relates to both rebate programs, states are encouraged to submit one (1) Market Transformation Plan to DOE covering Sections 50121 and 50122 awards.

Summary

Provide a succinct overview of the state's Market Transformation Plan, summarizing the state's vision, desired outcome(s), market barriers to be addressed, primary activities, and how progress or results will be measured.

Market Landscape (Optional)

This section is intended to set the context for the state's plan with a brief discussion of the conditions and barriers the state intends to tackle to spur change to achieve market transformation. At a minimum, states will likely benefit from considering existing analyses of their residential building stock, current investment in energy upgrades, affordable housing needs, and/or other relevant conditions (e.g., state climate goals, relevant regulations) before finalizing their Market Transformation Plan. Relevant sources include but are not limited to analyses submitted as part of other state applications, statewide comprehensive or strategic plans, and technical analyses from national laboratories or other experts. Topics covered and the level of detail will depend on the state's proposed plan. While content will vary depending on a state's particular circumstances and the focus of its market transformation activities, recommendations of market landscape topics to analyze can be found on the DOE website.¹⁴

¹² States may want to align their plans with methods used in other state strategic plans or processes.

¹³ [Home Energy Rebates ALRD 2](#), see table in Part II.C.

¹⁴ More information is available on the DOE website, [Using Home Energy Rebates to Support Market Transformation](#).

Vision and Outcomes

For a plan to be approved, it must:

- ✓ Convey the state's vision for its housing stock, particularly as relates to residential energy use.¹⁵
- ✓ Identify priority outcome(s) (objectives or goals) and briefly explain how the state seeks to make progress toward those outcomes.
- ✓ Explain how the state's strategy aligns with market needs and opportunities, including at least one condition or barrier it will address.¹⁶
- ✓ Explain how these efforts will encourage continued uptake of residential energy improvements after the rebate funds have been exhausted, attract private capital, and support accurate valuation of upgrades.¹⁷

Key Activities, Milestones, and Timeline

Describe the activities the state will undertake to advance progress toward its stated outcome(s). Include a timeline and associated milestones or deliverables for each set of activities. States are encouraged to leverage existing parts of their rebate programs and/or other available programs and infrastructure to meet programmatic requirements.¹⁸

Wherever possible, the milestones/deliverables should be quantifiable and Specific, Measurable, Achievable, Relevant, and Time-Bound (SMART). The plan must have at least one SMART milestone or output per program year to allow the state to monitor progress, assess the likelihood of making progress toward its outcome(s), and refine its strategy and activities if needed.

Given that Market Transformation Plans are not due until one year after the receipt of the program award, states may propose activities that augment or affect their program design. While many activities can be seamlessly integrated into program execution, states should contact their DOE project officers to discuss implications of proposed market transformation activities on their overall program implementation. DOE project officers will work with states to facilitate changes if needed.

¹⁵ In relation to the first two requirements for this section of the Market Transformation Plan, Section 1.1 of the [Program Requirements & Application Instructions](#) sets forth stated outcomes that describe the overall intent of the Home Energy Rebates and declares, "States may take various approaches in developing their implementation plans to emphasize these outcomes."

¹⁶ Consistent with Sections 1.5, 3.3.1, and 4.3.1 of the [Program Requirements & Application Instructions](#).

¹⁷ Consistent with 42 U.S.C. 18795 50121(b)(4)(B) and Sections 1.5, 3.3.1. and 4.3.1 of the [Program Requirements & Application Instructions](#).

¹⁸ Additionally, per Section 1.2 of the [Program Requirements & Application Instructions](#), states may rely on existing programs and infrastructure that meet programmatic requirements and may outline how challenges or modifications to existing programs will comply with these requirements.

Using best practices in program design and implementation protocols, Figure 2 illustrates the major steps that a state should include among its activities. Each of the sample plans includes activities related to each step in this process.

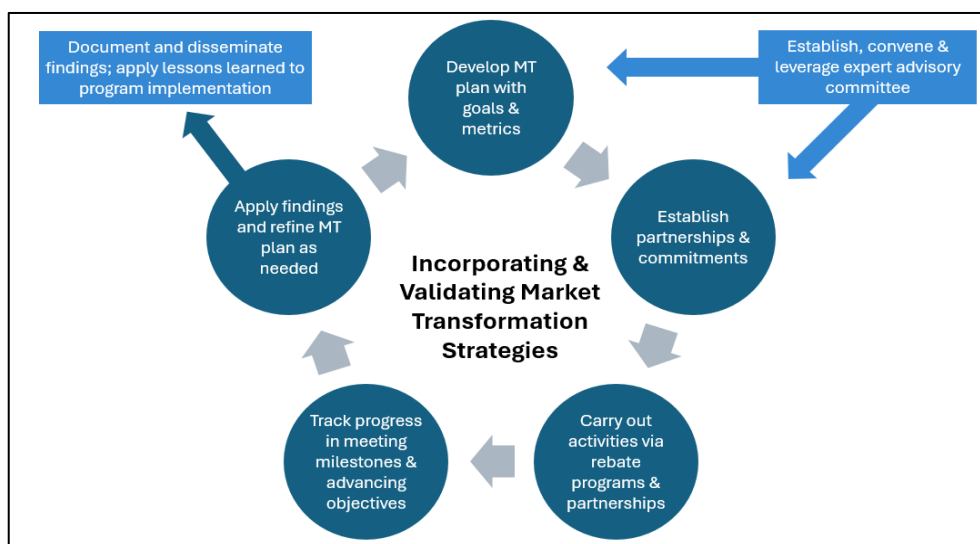


Figure 2. Structuring Plans to Encourage Continuous Improvement & Drive Change¹⁹

For a plan to be approved, it must:²⁰

- ✓ Show a relationship between the state’s activities and its intended outcome(s).
- ✓ Describe how market participants will be engaged in the development and execution of the Market Transformation Plan.
- ✓ Describe high level activities, including information such as what types of partners (or specific partners) will be engaged, deliverables and timing.
- ✓ Summarize the major milestones (at least one per year) and planned completion dates that will be tracked and reported to DOE, noting the intended frequency and the first completion date for each activity or set of activities.

Market Transformation Milestones Summary Table (Example Only)

Key Activity	Due Date or Frequency	Planned Completion Date
Plan Updates	Annually	
Major Deliverables	Annually	

¹⁹ Based on standard approaches to program management, DOE created this figure to help illustrate how effective market transformation plans should strategically incorporate steps that allow continuous improvement, documentation of findings, and drive change.

²⁰ Consistent with Sections 3.3.1 and 4.3.1 of the Program Requirements & Application Instructions, states must consider how their programs will stimulate additional and continued investment in residential energy upgrades, thereby encouraging states to take a holistic view of how market transformation efforts fit into their overall Home Energy Rebates plans.

Impact Tests Implementation	Annually	
Summary Findings Report	Within 12 months of completion of the rebate programs	

- ✓ Describe how the state's proposed activities will be integrated into the state's rebate program design and implementation contracts.
- ✓ If leveraging other existing programs or resources, describe what modifications to these efforts will be made where applicable.
- ✓ Confirm that all other information required as part of quarterly reporting to DOE (e.g., status, actual completion date) will be provided over the course of implementation.²¹

Measurement & Findings

This section describes how the state will assess the effectiveness of its market transformation activities²² and document findings.

For a plan to be approved, it must:²³

- ✓ Describe how the state will track progress in meetings its milestones.
- ✓ Explain how the state will measure the effectiveness of its strategy(ies) and activities as needed, based on findings or other market feedback (e.g., randomized controlled studies, customer surveys, workforce surveys).
- ✓ Define metrics the state will use to evaluate progress or effectiveness.
- ✓ Delineate the types of data the state will collect to support such analysis (e.g., utility usage; time requirements, labor costs).
- ✓ Confirm that the state will modify its approach as needed based on testing findings or other market feedback.
- ✓ Identify how the state will document and disseminate findings.

²¹ Refer to your state's award, Federal Assistance Reporting Checklist (FARC) I.A Performance Report - Narrative, and I.B Performance Report - Quantitative.

²² Measurements performed as part of a state's market transformation work can also feed into other market effects evaluations as described in the [Evaluation Recommendations](#) guide for the Home Energy Rebates.

²³ Measuring and disseminating the following required information in this section of the plan are integral to fulfilling the requirements per Section 1.5 of the [Program Requirements & Application Instructions](#): "A successful program will prove the business case and catalyze a sustained increase in supplier participation and consumer demand for energy efficient and efficient electrification upgrades, including ongoing access to upgrades for low-income households and disadvantaged communities, while showcasing how a combination of federal, utility, private, and public funds provide value to households and local communities during the transition to a clean energy economy."

Section 3. Market Transformation Areas of Focus and Sample Plans

Transforming the market for residential energy upgrades does not depend on one sole change, but targeting one particular need or opportunity is a good way to leverage the state's existing work on the Home Rebates Program to expand the value, increase participation and demand, and/or reduce costs of retrofits. To assist states in considering different options, this section outlines some market transformation opportunities. DOE is releasing sample plans for topics marked with asterisks. All states – even those that are not focusing on one of the topics covered by the sample plans – are strongly encouraged to review them for ideas on the types of information to include in their market transformation plans.

Depending on the level of undertaking required, a state may elect to address more than one topic. And, in some cases, one activity may accomplish more than one objective. For example, a state may use the post-upgrade certificate to educate consumers, help contractors more readily sell improvements, and create an opportunity for the market to more readily value energy upgrades at point of sale or lease.

Sample Plans

To demonstrate the breadth of possibilities, each sample plan lists numerous activities relevant to that particular market transformation opportunity. States are not expected to carry out the full set of activities. States should tailor their plans to meet their specific goals, needs, partner capabilities, and available resources.

DOE identified the topics covered in the sample plans as priority opportunities for spurring market transformation. With the aim of creating market pull across states, DOE will provide additional support to those states targeting these topics and facilitate information-sharing through topic-specific working groups. Although DOE cannot provide this level of assistance on other market transformation topics, DOE intends to circulate common information and share lessons learned on each state's area of focus to encourage collaboration between states when possible.

Potential Market Transformation Areas of Focus

Valuing Energy Efficiency in the Real Estate Market*²⁴

Investments in energy upgrades are largely invisible to home buyers and renters and not always accurately reflected in real estate listings and property appraisals. As a result, these investments are less likely to be valued by the market because consumers are not aware of them and/or do

²⁴ This area of focus supports 42 U.S.C. 18795(c)(3) and (4), which requires a post-installation certificate to provide details that support accurate valuation of the retrofit; valuation is a term commonly used in reference to real estate. Additionally, Sections 3.3.1 and 4.3.1 of the [Program Requirements & Application Instructions](#) specifically state that a Market Transformation Plan should “describe how the state program will enable the market to **recognize the value of homes** that have been upgraded through the Home Energy Rebates, including at time of sale/rental.”

not understand the benefits they bring. Additionally, leveraging a mortgage or line of credit—a relatively low cost of capital—to make upgrades is dependent on home equity; recognizing the “as-completed” value of efficiency upgrades is important for homeowners to be able to tap this low cost of capital to make such improvements. To help address this deficiency, one objective of the efficiency rebates, as indicated by the requirement for a post-installation certificate,²⁵ is to detail the work performed, the equipment and materials installed, and the projected energy savings or energy generation to support accurate valuation of retrofits.

To fully capitalize on this opportunity and help forge a path for highlighting and valuing a home’s energy-related conditions in real estate transactions, all relevant market actors (e.g., contractors, assessors, realtors, appraisers) need be engaged from the onset to address a number of important considerations such as consistent methods for documenting, communicating, valuing, and ensuring quality of upgrades; requisites for use in appraisals and lending; and, standardized inclusion of this information at point of listing.

Strategies may include engaging the real estate community, lenders, contractors and energy assessors, and other stakeholders to advise; leveraging the Home Rebates Program home assessment²⁶ and/or home certification²⁷ to make such data available to real estate stakeholders (e.g., real estate listing and sales/rental systems) and visible to buyers and renters; proving the value of energy efficiency in homes through data-driven analysis; strengthening opportunities for homeowners to access low interest rate financing for energy efficiency upgrades because the value of those improvements is recognized in the home; and reaching homeowners and other stakeholders through education and outreach to strengthen their understanding of the features, benefits, and value of energy efficiency upgrades.

Supporting Sustainable Business Models with an Aligned & Qualified Workforce* ²⁸

One significant barrier to scaling the market is creating sustainable business models that make upgrades appealing from both a supply and demand side. Homeowners need to want to pay for and afford upgrades and businesses need to want to provide these upgrades. For that to happen, businesses need to be able provide valuable services at what consumers consider reasonable and affordable prices while offering competitive wages to attract and retain qualified labor. The rebate programs provide an opportunity to test and prove out innovative approaches to deliver energy upgrades at lower cost and greater speed without compromising quality. Key to improved delivery is an appropriately skilled workforce trained to apply best practices at all points in the process including assessing the condition of homes, making sound recommendations for

²⁵ As described in Section 3.2.6 of the [Program Requirements & Application Instructions](#).

²⁶ As described in Section 3.2.2 of the [Program Requirements & Application Instructions](#).

²⁷ As described in Section 3.2.6 of the [Program Requirements & Application Instructions](#).

²⁸ This area of focus supports Sections 3.3.1 and 4.3.1 of the [Program Requirements & Application Instructions](#), which states that a Market Transformation Plan should “describe elements of the program design and/or activities the state program will undertake to support...**Sustainable business models** of home energy contractors.” States can use this opportunity to ensure there are useful linkages between their [Section 50123](#), 42 U.S.C. 18795b efforts and Home Energy Rebates rebate programs. Furthermore, efforts to grow and sustain demand and develop sound business models must be done hand in hand with workforce development.

improvements, ensuring quality installation and servicing of equipment, empowering residents to use and maintain equipment effectively after upgrades are completed, and providing homeowners with standardized documentation that can be used to value improvements at point of sale. Efforts aimed at addressing this opportunity might begin by identifying opportunities to streamline delivery of upgrades including analyzing how different tasks may be performed at lower cost without compromising quality. A state may then partner to attract and train workers, including those from underserved communities, as needed to perform all requisite functions effectively and efficiently.

Laying the Foundation for Virtual Power Plants* ²⁹

A Virtual Power Plant (VPP) is a network of distributed energy resources (DERs) that are aggregated and managed through a unified entity to provide energy services and grid support. By using DERs such as water heaters, heat pumps, smart thermostats, smart appliances, electric vehicle chargers, behind-the-meter batteries and rooftop solar, demand response programs or VPPs can expand the grid's capacity to manage peak demand at lower cost than traditional power plants. In addition to supporting load management, VPPs can increase resilience, reduce greenhouse gas emissions and air pollution, reduce transmission and distribution system congestion, give consumers greater freedom over their electricity supply and cost, create and retain good jobs, and be adapted over time to meet evolving grid needs.³⁰ Many states are just starting to consider the opportunities of leveraging VPPs for load flexibility. While policies, collaboration with utilities and/or grid operators, and measurement and evaluation of DER effectiveness may be required to establish a fully functioning system, smart thermostat demand response load control programs can be a first step towards laying the foundation for a full-scale VPP. States can leverage the rebate programs to integrate grid-connected devices in upgrades while developing effective approaches to customer enrollment, customer communications, event management, measurement and evaluation, etc. This phased or foundational strategy will also provide states and energy partners the time to assess the required policies and plans to control DERs installed as part of residential energy efficiency upgrades. By recognizing the opportunities that VPPs can afford, states could capitalize on rebate investments now and set themselves up for greater grid reliability and resiliency in the future.

²⁹ This area of focus supports Sections 3.3.1 and 4.3.1 of the [Program Requirements & Application Instructions](#), which states that a Market Transformation Plan should “utilize rebate programs to enable new business models in partnership with private capital to monetize grid benefits through vehicles such as FERC order 2222, demand management, and **virtual power plants**.” It also supports requirements under 42 U.S.C. 18795(b)(3) that says the Home Energy Rebate program must include a plan to “value savings based on time, location, or greenhouse gas emissions.” How much savings are worth depends on these factors, which can be controlled through deliberate efforts of virtual power plants.

³⁰ See Pathways to Commercial Liftoff: Virtual Power Plants, U.S. Department of Energy, September 2023 p. 6 ([Virtual Power Plants - Pathways to Commercial Liftoff \(energy.gov\)](#)).

Educating consumers on residential energy efficiency³¹

Many homeowners and tenants are not aware of the broader benefits associated with energy efficiency upgrades or the scope of options available to them. Those who consider energy efficiency are more likely to invest in visible options such as LEDs, ENERGY STAR® appliances, and windows. In terms of upgrades that have a much bigger impact on usage and comfort, consumers frequently rely on the advice of contractors or retailers to guide their purchase of HVAC and water heaters, with few seeking out opportunities like insulation and air sealing.

A market transformation strategy that tackles this information barrier might include one or multiple education and outreach activities such as the following: education campaigns co-funded with other stakeholders (e.g., retailers, manufacturers, utilities); outreach at community events (e.g., booths, raffles for energy audits); product demonstrations by trusted community members particularly in areas where newer technologies have not yet penetrated the market; mailers and websites; public interest news stories; partnerships with schools to integrate energy efficiency education in curriculum or as part of extra-curricular or special activities (e.g., science fairs, STEM groups, presentations by experts such as former Solar Decathlon participants who may also serve as mentors). States that focus on this area of market transformation could leverage other Home Energy Rebates program required education and outreach activities but would need to go beyond efforts limited to raising awareness of the rebate programs. For example, a state working with retailers, manufacturers, or community-based organizations to promote the rebates might leverage these relationships to undertake broader consumer education (e.g., collaborate with a partner to place an emphasis on residential education in existing community outreach or social responsibility programs). As other examples, a state might build off consumer education focused on low-income households to launch campaigns for broader audiences; launch a specific messaging campaign for key markets such as underserved communities; or test the relative effectiveness of different messaging, education approaches, or outreach avenues.

While it is difficult to measure the impact of outreach and education, states might consider some of the following options: pre- and post-questionnaires given to targeted groups to assess how educational efforts change views or expand knowledge; comparison of pre- and post- uptake of rebates in areas or among populations targeted in education/outreach campaigns.

³¹ This area of focus helps to drive long-term demand of upgrades, which supports a key overarching goal of the Home Rebates program – Proven value streams and roles for sustained investments to continue market transformation – outlined in Section 1.5 of the [Program Requirements & Application Instructions](#). To meet this goal, a “successful program will prove the business case and catalyze a sustained increase in supplier participation and **consumer demand** for energy efficient and efficient electrification upgrades.” As described in the Section 1 of the Program Requirements & Application Instructions, market transformation itself is about interventions that spur lasting changes in behavior of market participants. This type of activity is part of the overall Program Requirements but focusing on it for a Market Transformation Plan provides an opportunity to pursue more rigorous and wide-reaching outreach and education.

Integrating efficiency upgrades in non-energy efficiency focused projects³²

One reason that households do not invest in energy upgrades is inconvenience and the hassle of dealing with contractors. Consumers, nevertheless, invest billions in home upgrades every year. Many of these projects are missed opportunities to improve residential efficiency. For example, when homeowners do additions to their homes, contractors are not typically adding scope that's not required by permit and homeowners do not know to ask for work that could more easily be done when other upgrades are being made. Similarly, when homeowners contract with residing companies, they may not ask about opportunities to insulate, and contractors may be unlikely to suggest insulation if it requires coordination with other companies and may lead to potential delays.

The rebate programs offer a chance to engage remodelers, residing companies and/or other types of contractors and make them aware of the opportunity to leverage rebates as part of their projects. Activities might include developing and testing business models where insulation contractors and siding companies team up to perform these upgrades. A state might collect information that quantifies the incremental time needed to provide insulation upon residing, or how much homeowners value insulated residing vs. non-insulated residing after upgrades are made. Activities could consider how to reduce any delays associated with this combined approach; and document improved and/or utility bill savings as a means for siding companies to sell more projects (given the added benefits besides aesthetics to the home).

Sustaining energy efficiency upgrades to rental housing³³

Building owners are less likely to invest in efficiency improvements in their rental properties given that tenants are responsible for paying utilities. The Section 50122 rebates provide an opportunity to building owners³⁴ to encourage these upgrades but only as long as these funds are available. A state's market transformation activities might focus on how to sustain investment in upgrades beyond the rebates. Activities might include creation of a working group of rental property owners, tenants, utilities, and/or other types of stakeholders to identify longer-term solutions. A

³² This area of focus addresses the opportunity to do more expansive outreach to non-traditional players in energy efficiency and electrification. It also provides an opportunity to expand use of rebates, thereby supporting the requirements in Sections 3.3.1 and 4.3.1 of the [Program Requirements & Application Instructions](#) that states must consider how their programs will stimulate additional and continued investment after the rebates are exhausted. Americans spend over \$500 billion per year on residential renovations and repairs (source: [Joint Center for Housing Studies of Harvard University, Improving America's Housing 2023](#)) and these efforts can help to increase general awareness around the benefits of integrating energy efficiency in these projects (currently about one-third of projects include energy efficiency items), and strive to make it easier to do so. Overall, this effort supports a key overarching goal of the Home Rebates program – Proven value streams and roles for sustained investments to continue market transformation – outlined in Section 1.5 of the Program Requirements & Application Instructions. To meet this goal, a “successful program will prove the business case and catalyze a sustained increase in supplier participation and **consumer demand** for energy efficient and efficient electrification upgrades.”

³³ A Section 50122 program can serve to incentivize rental property owners with low- and moderate-income households to invest in energy improvements, thereby seeking to address the split incentive problem where renters are paying utility bills, but owners pay for upgrades. A Market Transformation Plan focused on rental properties would seek to find methods to maintain this incentive beyond the rebates. See 42 U.S.C 18795a.

³⁴ See 42 U.S.C. 18795a(d)(1)(b) <https://www.congress.gov/117/plaws/publ169/PLAW-117publ169.pdf>.

state's strategy might also build off the post-upgrade certificate to find ways to make these investments known to prospective tenants. A state might consider providing documentation of upgrades under Section 50122 (which does not require a post-upgrade certificate) to rental property building owners so that they can use this information to highlight beneficial upgrades to prospective tenants. Another activity, carried out through focus groups or in actual rental transactions, might test how renters interpret different types or presentations of information, what types of data or documentation help them accurately compare the energy performance of different rental properties, etc.

Based on data gained as part of the rebates (e.g., pre- and post-utility bill data), a state might pursue policies that require or encourage disclosure of utility bills and/or post-upgrade documentation to prospective renters, such as the certificate³⁵ provided through their Section 50121 program. Standardized information provided to renters – whether for all properties or only where improvements have been made – is more likely to drive renter expectations of receiving this information and create demand for more efficient properties.

Driving change with state equipment requirements³⁶

For many years, efficiency advocates have strived to have HVAC equipment more routinely incorporate features that facilitate quality installation as well as effective maintenance. These functions can ultimately lead to better-performing upgrades and potentially reduce long-term costs related to maintenance. These efforts have been stymied by a lack of consensus around performance specifications and testing procedures that can measure a system's effectiveness in providing these capabilities. States interested in this issue could commit to working with national stakeholders, manufacturers, EPA, DOE, and/or other others to finalize voluntary specifications to drive quality installation and maintenance. States can hasten this change by committing to only allowing products that meet certain specifications to qualify for Section 50122 rebates starting in a particular year. A state might work across other incentive programs (e.g., utility programs) to coordinate on the timing of adopting new specification requirements.

Establishing attractive financing for workforce and consumers³⁷

Even with rebates, homeowners may not be able to cover the additional costs of improvements. Similarly, contractors may be reluctant to "float" the cost of equipment (that is, pay out of pocket for equipment) while awaiting reimbursement for rebates applied at point of installation. A state's focus on these areas might bring together various financial institutions to develop and test out

³⁵ See 42 U.S.C 18795(b)(4).

³⁶ This area of focus would leverage a state's work to develop consistent and quality technical and installation standards (see Sections 3.1.2.1, 3.2.4.1, 3.2.5, and 4.2.5 of the [Program Requirements & Application Instructions](#)) and be able to support broader application, consistent with Sections 3.3.1 and 4.3.1 of the Program Requirements & Application Instructions, which require states to consider how their programs will stimulate additional and continued investment.

³⁷ This area of focus supports Sections 3.3.1 and 4.3.1 of the [Program Requirements & Application Instructions](#), which states that a Market Transformation Plan should "describe elements of the program design and/or activities the state program will undertake ... such as ... Cost sharing, braiding, and/or coordinated financing with potential funders and financiers of home energy upgrades."

innovative products such as loans backed by loan loss reserves, integration of costs in mortgage financing, small business loans, among other options. In particular, a state may want to work directly with lending institutions and capital markets players in developing and testing lending products that lower the cost of financing for an energy efficient home. Considerations in underwriting such products and in the education to support them can include the lower cost to operate an energy efficient home and the related ability to sustain homeownership as well as comfort and potential health benefits.

Sustaining investment in multifamily housing energy retrofits*³⁸

The number of multifamily households in the U.S. grew 5% to 21.3 million in 2022.³⁹ Additionally, multifamily is the largest rental housing type of all rental households.⁴⁰ Given this growth and the fact that many lower income households reside in these buildings, it's particularly important to develop ways of making efficiency and electrification standard features in multifamily buildings. For decades, retrofits of multifamily buildings have been deemed too difficult due to technical and/or financial complexities. Through a combination of federal and state incentives, and the requirement that states invest at least 10 percent of their rebate funds in low-income housing, states have an opportunity to prove out new strategies for addressing these challenges. Key to sustaining investment in low- and moderate-income multifamily buildings beyond the rebate programs is developing simplified ways of stacking incentives and private capital as well as expedited delivery of high-quality retrofits. Effective retrofit projects can reduce the cost of heating and cooling residential units and common areas, increase comfort and safety for renters, protect renters from rent increases, and reduce overall operating costs of the multi-family housing structures. States might bring together various financial institutions, low-income housing authorities, energy efficiency implementers, and energy management programs to develop and test out approaches for leveraging cost savings that can be used to propagate further program development and funding; identify ways to reduce risk associated with these investments; and/or encourage building owners to use innovative technologies and less disruptive renovation practices.

³⁸ Per Section 3.1.3 and 4.1.3 of the [Program Requirements & Application Instructions](#), multifamily buildings provide housing for over 19 million low-income households nationally and historically, the multifamily sector has been significantly underrepresented in energy efficiency program accomplishments. This area of focus can help ensure low-income multifamily homes are successfully served through the rebate programs and that the state can meet its requirements for successful impact of required use of funds for multifamily homes under the Program Requirements.

³⁹ See <https://arbor.com/blog/multi-family-households-reach-a-record-high/>.

⁴⁰ See <https://arbor.com/blog/multi-family-households-reach-a-record-high/>.