

INFLATION REDUCTION ACT HOME ENERGY REBATES: PROGRAM GUIDANCE FOR STATE ENERGY OFFICES

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EXECUTIVE SUMMARY

Rising energy costs and the climate crisis are affecting everyone, and the nation's citizens are paying the price in more ways than one. Fortunately new residential energy rebate programs, namely the [Home Efficiency Rebates](#) and [Home Electrification and Appliance Rebates](#), authorized by the Inflation Reduction Act (IRA), are giving states a historic opportunity to make unprecedented investments in their building stock that will help U.S. households lower energy costs, improve housing affordability, cut carbon emissions, and enhance social equity.

State Energy Offices (SEOs) are responsible for designing and implementing these new programs. Their efforts are key to ensuring the \$8.8 billion in federal funding allocated for these programs achieves these mutual goals.

Energy Innovation and Collaborative Climate LLC prepared this guide to help SEOs and their partners create and implement rebate programs

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using best practices and lessons learned from across the United States. Rather than reinvent the wheel, we encourage SEOs to emulate existing and established programs, particularly those that target low-to-moderate income (LMI) households, multifamily housing, and other underserved markets. In addition, we provide policy and regulatory recommendations to support durable market momentum for residential energy retrofits and electrification. Throughout the guide, we emphasize strategies and approaches to help SEOs develop programs that benefit traditionally underserved households, such as low-income and multifamily properties. The guide includes cross-referenced resources and examples, and the appendix provides a sample timeline for implementing the program design steps plus a checklist based on the featured principles. All guidance herein should be considered supplementary to rebate program rules and requirements published and under development by the U.S. Department of Energy (DOE).

Featured program design principles include:

- **Utilize data to inform program design and implementation strategies:** Leverage real-world information about the social, technical, and economic conditions within an individual state and its residential housing stock to inform program design while also prioritizing environmental justice metrics plus private sector and workforce needs.
- **Set clear program objectives and key results; adopt metrics to track progress:** Involve a diverse group of stakeholders in the goal-setting process and allocate resources to ensure ongoing progress evaluation, public sharing of information, and evolution of targets and goals, where appropriate.
- **Adopt strategic marketing and outreach strategies to reach target audiences:** Study lessons learned from other energy retrofit programs to inform marketing and outreach strategies that connect with diverse households, partner with trusted community organizations and messengers, and inspire energy efficiency and electrification retrofits within both the rebate programs and the broader residential market statewide.
- **Provide hands-on support to consumers and contractors:** Develop support models (e.g., a “one-stop-shop”) for households and contractors providing tailored hands-on guidance to answer technical questions, address different housing types (e.g., multifamily), navigate administrative requirements, and ensure a streamlined and positive experience for those interacting with the rebate programs.
- **Make it economically beneficial to adopt efficient, all-electric technologies (and insulate financially vulnerable customers from bill increases):** Understand the economics associated with residential energy efficiency and electrification measures and structure programs to support positive financial outcomes for participating households. Promote or develop complementary funding and financing to assist with up-front cost gaps and coordinate with contractors to communicate anticipated utility bill outcomes with program participants.
- **Incorporate measurable customer experience and quality assurance protocols:** Ensure positive customer and contractor experiences with the rebate programs by using quality assurance protocols that balance the need for third-party validation with streamlined contractor coordination and prioritization of a skilled workforce to deliver exceptional retrofit solutions.
- **Support durable market momentum and business model evolution with workforce and industry engagement:** Strive for market outcomes that build supply and demand for residential energy efficiency and electrification retrofits beyond the direct impact of the rebate programs by coordinating with private sector partners, utilities, workforce training specialists, and regulatory

and policy decision-makers on market transformation analyses and solutions implementation.



Topline recommendations for state policymakers and regulators:

- **Enable comprehensive building sector decarbonization:** Prioritize the sustained success of residential energy retrofit and electrification markets through state-level policy and regulatory solutions that support related goals, such as: addressing environmental justice and increasing equity; enabling fuel switching from fossil fuel equipment to efficient electric technologies; ensuring all-electric new construction; adopting building decarbonization incentives; investing in a skilled energy retrofit and electrification workforce; and requiring coordinated gas and electric utility planning and decarbonization solutions.
- **Leverage complementary federal funding to enhance rebate program impacts:** Investigate the broad range of federal funding opportunities that complement and enhance rebate program efforts and develop an in-state strategy with stakeholders to maximize local benefit, coordinate grant applications, and amplify program access and benefits for underserved households.
- **Provide state incentives, grants, and financing to complement rebate programs and reach priority households:** Invest additional state, local, and utility resources in complementary programs to cover up-front cost gaps for lower-income households, ensure renters have access to solutions, spur additional residential energy retrofits and electrification, and support workforce and economic development opportunities. Partnerships and funding sources may include new financing programs and partners, housing agencies, local governments, energy utilities, and state funding from various sources and programs.

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INTRODUCTION

States and U.S. territories² can now apply to receive their share of \$8.8 billion allocated in the IRA to develop and implement new Home Energy Rebates programs, namely [Home Efficiency Rebates](#) and [Home Electrification and Appliance Rebates](#). Funding will be allocated via formula award grants administered through the DOE Office of State and Community Energy Programs. In addition, states and territories can apply to receive \$200 million for workforce training, education, and professional development for residential energy efficiency and electrification contractors ([State-Based Home Energy Efficiency Contractor Training Grants](#)), which will help ensure the workforce is prepared to support these programs and provide quality installations and experiences for all customers.

Energy Innovation Policy and Technology LLC[®] and Collaborative Climate LLC prepared this guide to assist states and territories and their partners with creating and implementing rebate programs informed by lessons learned and best practices across the U.S. In addition to program guidance, we provide policy and regulatory recommendations that can support durable market momentum for residential energy retrofits and electrification, while also supporting related policy goals. Throughout the guide, we emphasize strategies and approaches to help SEOs develop programs that benefit traditionally underserved household types, such as low-income and multifamily properties. The guide includes cross-referenced resources and examples, and the appendix provides a sample timeline for implementing the program design steps plus a checklist based on the featured principles. A separate document with accompanying case studies, available on the Energy Innovation website, summarizes notable provisions from existing programs. All guidance herein should be considered supplementary to rebate program rules and requirements published and under development by the DOE.

OVERVIEW OF INFLATION REDUCTION ACT REBATE PROGRAMS

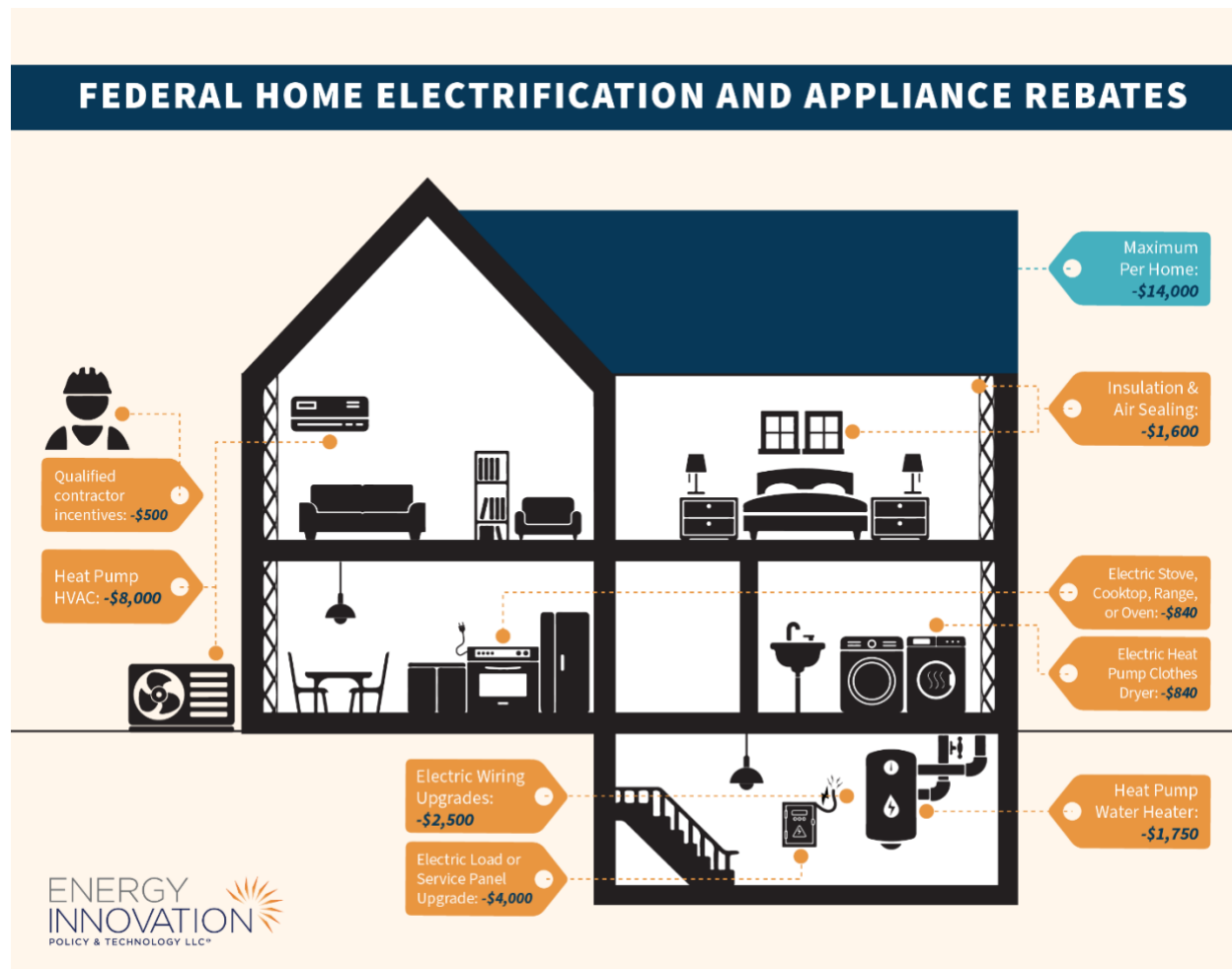
The IRA authorized nearly \$400 billion in tax incentives, grants, and loan guarantees designed to reduce greenhouse gas (GHG) emissions and accelerate the deployment of clean energy technologies, while also saving consumers money and mitigating the impacts of inflation on U.S. households. [Modeling from Energy Innovation](#) using the Energy Policy Simulator, along with several other independent analyses, shows that the IRA will cut U.S. GHG emissions roughly 40 percent by 2030, putting us on a path to greater climate stability while supporting millions of U.S. jobs and economic opportunities for all states. Associated investments will catalyze the building sector decarbonization movement, reduce energy bills, and spur demand for efficient electric appliances and equipment.

Among the law's numerous provisions, the IRA allocates \$9 billion for rebates for residential energy efficiency and electrification and workforce training programs. This 10-year historic investment in U.S. households will help millions of homes and multifamily buildings adopt energy-saving improvements to reduce energy bills. This funding will also make the U.S. building stock cleaner, healthier, and more resilient to extreme weather events. Notably, these rebate programs specifically target LMI households

² The IRA also includes up to \$225 million for grants to tribal governments and Alaska Native entities for Tribal Home Electrification and Appliance Rebates programs. These programs will provide up to \$14,000 per eligible tribal household for energy efficiency and electrification home upgrades. Guidance for these programs is forthcoming, and more information will be available through the DOE Office of State and Community Energy Programs website: <https://www.energy.gov/scep/tribal-home-electrification-and-appliance-rebates>. This resource focuses only on state program funding.

and multifamily buildings—two underserved market segments that stand to benefit the most from energy upgrades.

Figure 1: Home Electrification and Appliance Rebates*



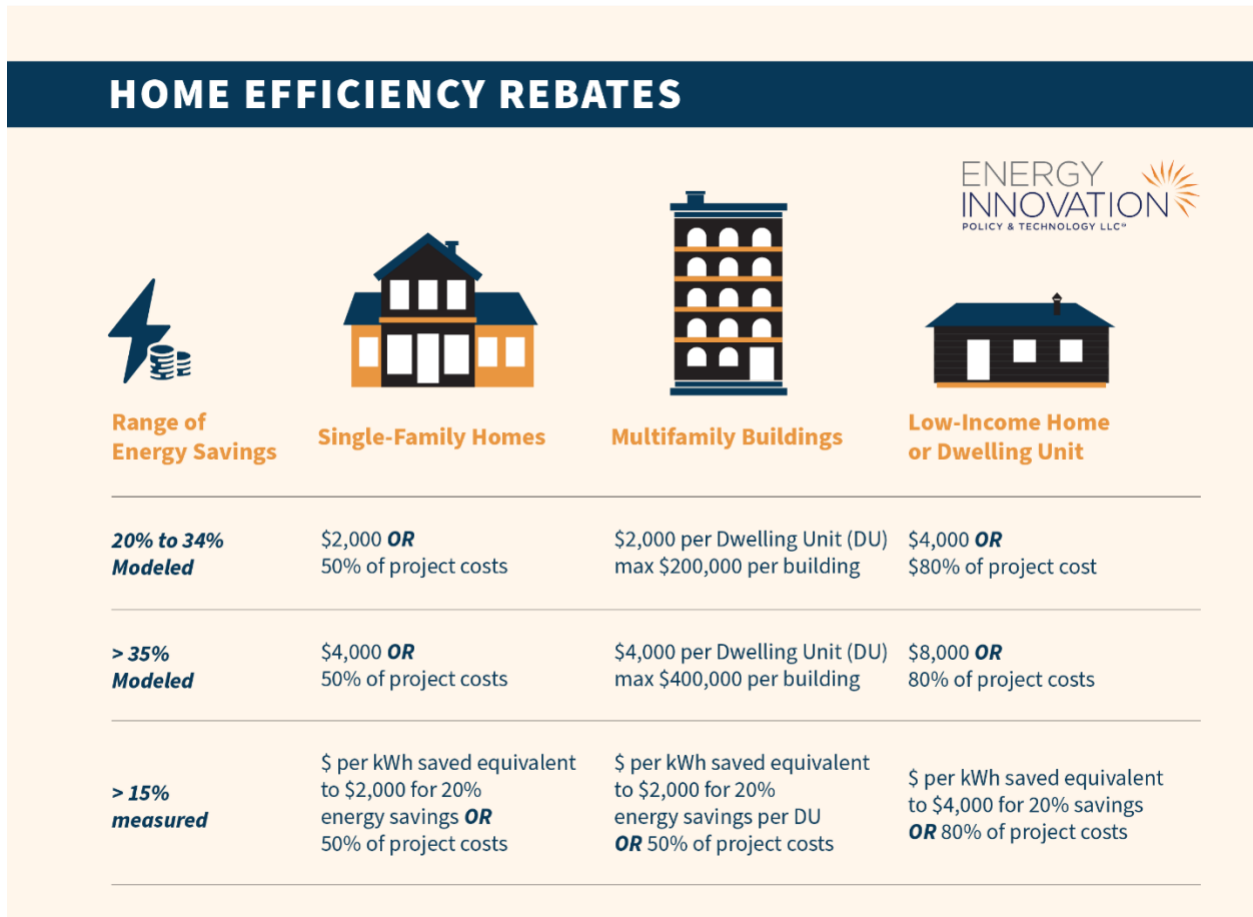
**Rebate and incentive amounts are maximum per dwelling unit. Households that earn up to 80 percent of the area median income (AMI) can receive up to 100 percent of project costs, or up to \$14,000 for all projects, whichever total is less. Households that earn more than 80 percent and up to 150 percent of the AMI are eligible for the lesser of 50 percent of project costs or up to \$14,000 for total combined project costs.*

The IRA Home Energy Rebate Programs for existing residential buildings are as follows:

- The \$4.5 billion for Home Electrification and Appliance Rebates³ are for energy-efficient, all-electric appliances and equipment. Rebate amounts vary by upgrade, housing type, and household income, as shown in Figure 1. Households with an income at or below 80 percent of the area median income (AMI) can receive up to 100 percent of project costs up to \$14,000. Households with an income between 80 and 150 percent of the AMI are eligible for the lesser of

³ This program was referred to as the High-Efficiency Electric Home Rebate Program in the IRA.

- 50 percent of project costs or up to \$14,000.
- The \$4.3 billion for Home Efficiency Rebates⁴ provides support across the income spectrum for a range of retrofit measures and packages. Incentive amounts are calculated based on measured or modeled energy savings, as shown below in Figure 2, and vary by housing type and household income (based on AMI).



** Below 80 percent AMI. Includes multifamily buildings with at least 50 percent of DUs occupied by low-income households.*

While incentives from both programs cannot be combined to cover costs for the same measure, eligible customers may take advantage of both rebates for *different* measures.

As of July 27, 2023, SEOs can submit applications to the DOE, and full application requirements and details are provided on the DOE’s [Home Energy Rebate Programs Guidance webpage](#). SEOs should familiarize themselves with all guidance the DOE has provided, and this resource guide should be considered supplemental to whatever the DOE has put forth. States can submit rebate program applications in this round through January 31, 2025, but we encourage swift action to help households benefit from these rebates in a timely manner.

⁴ This program was referred to as the Energy Performance-Based Whole House Rebates program.

The IRA Home Energy Rebate Programs will be available to states through September 2031, or until funds run out. Part of each allocation includes an amount to support the application process. States and territories can apply for up to 2.5 percent of their total allocations from each of the Home Energy Rebate Programs, capped at \$2.5 million. Applications for this up-front administrative funding must be submitted through the DOE's [Performance and Accountability for Grants in Energy](#) system.

When designing the programs described above, SEOs should be aware of other related federal programs, such as the DOE's [Weatherization Assistance Program \(WAP\)](#), the U.S. Department of Health & Human Services' [Low-Income Home Energy Assistance Program \(LIHEAP\)](#), and the U.S. Department of Housing and Urban Development's [Green and Resilient Retrofit Program \(GRRP\)](#).⁵ SEOs should consider how these other programs can be best leveraged to support home energy upgrades over time. The same should be done for other existing state program mechanisms, such as utility energy efficiency and electrification incentives. Where programs can be layered and combined, this can improve cost-effectiveness, increase net benefits to targeted households, and multiply market transformation effects such that building decarbonization can be more self-sustaining upon completion of the federal programs.

RELEVANT RESOURCES:

- The DOE's [Home Energy Rebate Programs Guidance](#). *Provides state, territory, and tribal governments with current and historical guidance documents for the IRA Home Efficiency Rebates and the Home Electrification and Appliance Rebates. The guidance includes a [recommendations page](#) with suggestions for deploying effective programs, reaching households in need, supporting the clean energy economy, developing a quick start program, and more.*
- RMI's [Breaking Down the Inflation Reduction Act. Program by Program. Incentive by Incentive](#). *Includes a spreadsheet summary of funding programs and tax incentives in the IRA. Includes grants, rebate programs, and tax incentives across all sectors impacted by the IRA.*
- RMI's [Unlocking the IRA: Six Key Opportunities for State Policymakers](#). *Highlights numerous federal grants and other federally funded climate efforts.*
- Energy Innovation's [Implementing the Inflation Reduction Act: A Roadmap for Federal and State Buildings Policy](#). *Summarizes IRA building-related provisions and offers program and policy recommendations for implementers.*
- American Council for an Energy-Efficient Economy's (ACEEE) [States Can Help Low-Income Residents with Rebates for Energy Upgrades under New Federal Guidance](#). *Provides recommendations on how rebate programs can serve low-income households and multifamily buildings.*
- ACEEE's [Residential Retrofits for Energy Equity \(R2E2\)](#). *Provides technical assistance to state, local, and tribal governments to support single-family and multifamily retrofits, particularly in frontline communities. The resources section on R2E2's website includes webinars on numerous topics including comprehensive retrofits, building decarbonization, engaging stakeholders, workforce development, and funding solutions.*

PROGRAM DESIGN PRINCIPLES FOR EFFECTIVE RESIDENTIAL ENERGY EFFICIENCY AND ELECTRIFICATION RETROFITS

⁵ We do not address these other programs in this guide but refer readers to consult relevant federal and state agencies for more details.

To support SEOs in their application process and development of IRA Home Energy Rebate Programs, we offer the following program design principles. We encourage SEOs to learn from existing and established programs, particularly those that target LMI households, multifamily housing, and other underserved markets.



The following sections detail best practices and principles based on real-world experience, drawing from decades of learning from various state and utility energy efficiency, renewable energy, and electrification programs. Applying these principles at the outset of program development and throughout implementation can help ensure states achieve the goals of saving households money on home energy bills, reducing energy burdens (especially for LMI households and those living in multifamily residential housing), improving public health, and reducing building sector emissions.

For each section, we provide a description of the design principle and its importance, followed by more specific implementation recommendations and examples from other successful state and utility programs. The resources listed are selected from a vast library available on the [DOE Home Energy Rebate Program webpage](#), among other places. For quick reference, we provide a sample timeline in Appendix A and a program design checklist in Appendix B. Our intent with these resources is to offer SEOs and other stakeholders an illustrative timeline and a strong foundation upon which to design and implement successful IRA Home Energy Rebate Programs.

1. UTILIZE DATA TO INFORM PROGRAM DESIGN AND IMPLEMENTATION STRATEGIES

WHAT: Rebate program design should be informed by real-world data reflecting social, technical, and economic conditions within an individual state and throughout diverse communities. Prioritizing data collection and analysis, or using other available data, at the outset will help guide stakeholder

engagement and program development. It can also ensure programs reflect and respond to real-time barriers, opportunities, and trends. Targeting program design elements with an eye to addressing and overcoming barriers based on data, not just anecdotes, will enhance the likelihood of program success. Consistent and targeted data collection can also inform success relative to goals and support iterative changes needed throughout the program.



HOW: Prioritize relevant data collection and analysis as part of the program design process. Appoint a lead entity (e.g., staff or hired consultant) responsible for data collection and analysis, development of regular reports on program progress, and consultation with other relevant stakeholders to fill gaps. Customer energy use data will be a key metric, and the DOE requires SEOs to submit a Utility Data Access Plan as part of their program application. The DOE has published [Data Access Guidelines](#) to inform associated requirements and responsibilities. The DOE also published a [Data and Tools Requirements Guide](#) with overall program guidance related to data collection, tracking, and reporting. In addition, the Pacific Northwest National Laboratory (PNNL) houses extensive free [Home Energy Rebate Tools](#) for states to use, which will help save time and resources as part of program implementation.

SEOs should allocate time and staff for up-front and ongoing coordination and information sharing with other state agencies, energy utilities, utility regulators, affordable housing organizations, consumer advocates, institutes of higher education, and nonprofit organizations. Early consultations can help identify how data collection and analysis might be streamlined, while also addressing issues relating to privacy and data security. SEOs should ensure that data can be disaggregated based on demographic factors so that equity objectives can be properly measured, assessed, and reached. When feasible, make data publicly available.

Collecting data and anecdotal information from the private sector, including energy contractors and equipment distributors that provide residential energy equipment and services, can enhance the real-world relevance of analyses. To ensure the experience of contractors and home energy workforce is accounted for at the outset, SEOs should consider establishing a nimble working group of workforce representatives who can help inform program design, relay key information to trade partners and allies, and provide input throughout the life of the program. However, be sure to balance this approach with the need for efficient decision-making and expeditious execution of the rebate programs. Ongoing engagement with the workforce will enhance understanding of energy retrofit market challenges and build critical working relationships with the stakeholders and businesses integral to success.

The following examples of datasets and analyses may be important to understanding the residential energy retrofit market and inform program design:

- **Environmental justice assessments** can help inform which neighborhoods and communities have been disproportionately harmed by pollution, historic underinvestment, and redlining. Example resources include the U.S. Environmental Protection Agency’s (EPA) Environmental Justice Screening and Mapping Tool, [EJScreen](#), and the [ArcGIS Living Atlas of the World](#) hosted by Esri. Greenlink Analytics offers [additional examples of data-driven EJ mapping and analyses](#). These types of analyses are key to ensuring program outreach, education, and engagement efforts are targeted at those households they are intended to serve.
- **Building and housing stock analyses** reflect data on building type, age, energy equipment (e.g., HVAC, water heating), utility costs, and other conditions within the built environment. The U.S. Census Bureau provides some great tools to access housing and community characteristics, including the [American Housing Survey](#) and [American Community Survey](#). The U.S. Department of Housing and Urban Development (HUD) similarly offers useful resources, such as its [Comprehensive Housing Affordability Strategy](#) data with metrics on housing issues, cost burdens, and state, county, regional, and neighborhood levels. The U.S. Energy Information Administration (EIA) [Residential Energy Consumption Survey](#) provides detailed regional and state analyses, with its most recent datasets collected in 2020 and early 2021. The National Renewable Energy Laboratory (NREL) has developed a publicly accessible residential housing stock analysis tool, [ResStock™](#), that can be used to identify home improvements that save the most energy and money. Regardless of approach, SEOs, local governments, governors’ offices, and utilities should coordinate to compile and share information at the most granular level feasible (e.g., county, city, neighborhood) to inform program design and outreach strategies. These types of analyses should overlay socioeconomic, environmental, and other indicators to inform equity priorities and alignment with federal Justice40 goals. See the Building Electrification Institute’s [Resources for Cities webpage](#) for more examples of holistic building and housing stock analyses.
- **Workforce analyses** focus on the primary occupations required for energy retrofits and reflect current conditions, trends, and forecasts of relevant metrics, such as available workforce, workforce demographics, geographic disparities in workforce availability, training and certification needs, and education or professional development priorities to ensure high-quality installations. These analyses should reflect the full range of workforce entities, from small to large. Inclusive Economics, a consulting firm historically specializing in workforce analyses and strategy, has published a [series of studies for state and local governments](#) that can serve as useful examples to consider when evaluating analysis approaches and outputs. The DOE recently published information about [State-Based Home Energy Efficiency Contractor Training Grants](#), which, among other possible state and federal funding opportunities, can be used to support additional, complementary residential retrofit workforce analyses and development.
- **Equipment and supply chain analyses** are closely related to workforce analyses, but they evaluate market readiness based on local supply of equipment and inform strategies to motivate

Justice40 is a whole-of-government approach with the goal of directing at least 40 percent of benefits of certain federal investments to disadvantaged communities that are marginalized, underserved, and overburdened by pollution.

IRA Home Energy Rebate Programs outcomes should align with the Justice40 Initiative.

manufacturers, distributors, and contractors to stock and prioritize installation of the equipment incentivized through rebates. The Building Electrification Institute webpage listed directly below includes a heat pump supply chain assessment example for the communities of San Jose and Berkeley, California.

SEOs should engage an array of stakeholders at the outset to understand what analyses or data exist, what is missing, and what is needed to inform a broader program strategy. Per DOE guidance, SEOs must submit various plans related to rebate program implementation, some of which might include data-driven components, such as the Community Benefits Plan, Market Transformation Plan, and Utility Data Access Plan.

EXAMPLES AND RELEVANT RESOURCES:

- **EXAMPLES:**

- **The Building Electrification Institute’s [Resources for Cities: Building Electrification Analyses](#).** *Includes examples such as building and housing stock analyses, a heat pump supply chain assessment, and job impact analyses centering equity and sensitive to multifamily housing needs and issues. The Los Angeles building stock report includes example data sources and methodology on slides 5-7.*
- **Greenlink Analytics’ [Greenlink Equity Map Publications](#).** *Provides examples of energy, health, housing, and other environmental burden mapping and metrics for a variety of communities across the U.S.*
- **Inclusive Economics’ [Workforce and Employment Analysis Examples](#).** *Includes state-level and regional employment impact analyses for building decarbonization and other types of workforces, along with policy and program recommendations for state and local governments.*
- **PSE’s [Energy Affordability in Maryland](#).** *This data-driven report outlines strategies to alleviate energy cost burdens, improve public health, and achieve state-level climate goals.*

- **RESOURCES:**

- **ACEEE’s [Ready to Upgrade: Barriers and Strategies for Residential Electrification](#).** *Includes tips for engaging and evaluating the building electrification workforce and supply chain participants such as distributors and manufacturers. Focuses on multifamily housing.*
- **Atlas Public Policy’s [Buildings Hub](#).** *Provides market, policy, and technical information to support building decarbonization efforts, including data-driven stories and other tools that can be customized to identify state-level trends for heat pumps and other electrification technologies. Staff from states, local governments, and tribal agencies are eligible for free licenses to the Buildings Hub.*
- **The DOE’s [Data Access Guidelines](#) and [Data Tools and Requirements Guide](#).** *Provide guidance on data collection, tracking, and reporting requirements for the IRA Home Energy Rebate Programs, including specific rules for customer utility data.*
- **The EPA’s [EJScreen: Environmental Justice Screening and Mapping Tool](#).** *This interactive tool has socioeconomic, demographic, and environmental data for geographic areas across the U.S.*
- **Esri’s [ArcGIS Living Atlas of the World](#).** *Offers a searchable resource with user-created maps, including socioeconomic, energy, public health, environmental justice, and other data related*

to Justice40 and other issues.

- NREL’s [ResStock™](#). Helps identify cost-effective home energy improvements by using a robust data set with tailored results reflecting regional and local conditions.
- The Urban Institute’s [Mapping Neighborhoods with the Highest Risk of Housing Instability and Homelessness](#). Reflects census-tract data on housing characteristics, demographics, and cost burden and includes renter-specific metrics.
- The U.S. Bureau of Labor Statistics’ [Occupational Outlook Handbook](#). Provides statistical overviews of common occupations, including energy retrofit workforce, with [links to statewide and other localized data](#).
- The U.S. Census Bureau’s [American Housing Survey](#) and [American Community Survey](#). Allow users to create customizable tables and data profiles with detailed housing characteristics, socioeconomic metrics, and demographic estimates for states, metro regions, and highly specific geographic areas.
- HUD’s [Comprehensive Housing Affordability Strategy](#). Includes statistical information on housing issues, cost burden metrics, and other data at state and local levels.
- The EIA’s [Residential Energy Consumption Survey](#). Reflects state and regional data on housing energy topics including energy and fuel sources used, appliance types, household demographics, and more.

2. SET CLEAR PROGRAM OBJECTIVES AND KEY RESULTS; ADOPT METRICS TO TRACK PROGRESS

WHAT: Using data analyses and soliciting diverse stakeholder input, SEOs should identify and publish clear objectives and key results (OKRs) for the IRA Home Energy Rebate Programs, along with specific metrics to measure progress. Objectives should be SMART (Specific, Measurable, Achievable, Realistic, and Time-bound), and key results should help inform progress toward those objectives over time. Certain OKRs can be developed using discrete housing, demographic, and environmental justice metrics collected to inform program design and reflect goals with a clear nexus to Justice40. Developing OKRs with targets for priority census tracts is one approach to orient program investments toward historically underserved neighborhoods. Program OKRs should also reflect other relevant state policies, goals, or ambitions related to climate, energy, and equity, including resilience and self-sufficiency goals for communities that are at greater risk of extreme weather, natural disasters, and public health epidemics. Goals must also reflect any requirements detailed by the DOE and should align with Justice40 and related federal efforts.

PROGRAM DESIGN PRINCIPLES
for Effective Residential Energy Efficiency & Electrification Retrofits

2 Set clear program objectives and key results; adopt metrics to track progress

HOW: Setting OKRs should be an iterative process informed by diverse stakeholder engagement and data collection and analysis. SEOs should allow opportunities for meaningful stakeholder input before program design details are finalized and should revise approaches based on feedback. Use a combination of in-

person and virtual meetings (held at different times of day to allow for ample participation), surveys, and workshops to gather input, but be efficient and respect people’s time and availability. Leverage the SMART goal-setting framework and identify metrics needed to demonstrate progress, while also incorporating strategies to track metrics efficiently over time. Not all goals need to be quantitative in nature, and allowing for qualitative objectives can offer flexibility within the process and acknowledge hard-to-define ambitions that are still important. To gauge customer satisfaction, SEOs or contractors could issue a survey to assess participants’ perceived improvements to comfort and other project results. The DOE’s Office of Energy Efficiency and Renewable Energy provides [guidance and examples of related goal-setting processes and metrics](#).

Integrating social equity outcomes such as reduced energy burden, improved housing affordability, lowered pollution exposure, and participation among lower-income households and multifamily housing should be a key part of the OKR process. The Urban Sustainability Directors Network published a [resource on equity and buildings](#) to help guide an approach. Below are select examples of primary goal categories, although numerous sub-categories may also be relevant. Collection of certain metrics within these categories may be required by the DOE, so SEOs (using DOE guidance and available tools, including any software) should determine in advance how they will track, measure, report, and analyze information at the outset while balancing data-related burdens on contractors and program administrators with a desire to capture essential and high-priority metrics. Support from third-party consultants and contractors may be needed for verification and quality assurance.

- **Program retrofits:** Number and type of energy retrofit activities supported by housing type, plus impact of retrofits such as energy saved, emissions avoided, and utility bill savings. The DOE published a [Data Tools and Requirements Guide](#) to support SEOs with related activities.
- **Measured or modeled energy savings per household or building:** A core component of the Home Efficiency Rebates program is measuring and modeling energy savings, which will require tracking specific metrics at the outset and over time to determine success. See DOE [Data Tools and Requirements Guide](#) for more information.
- **Equity:** Social equity and environmental justice outcomes, including type of households, characteristics of neighborhoods served, and overall impacts on energy bills, energy burdens, public health outcomes, and other indicators.
- **Workforce:** Workforce development and growth metrics including job creation, average pay and benefits, and demographic diversity indicators.
- **Private sector:** Measuring overall private sector business model evolution supporting HVAC, water heating, and weatherization markets that prioritize efficient home electrification. Metrics could include general retrofit market statistics, heat pump deployment figures, and the number of contractors offering services (e.g., energy assessments, whole-home retrofits).

SEOs should allocate sufficient resources and time to evaluate progress on OKRs and track relevant metrics, including sharing results with stakeholder groups and publishing data online that conveys progress. Ensuring ongoing transparency with program outcomes will help maintain public interest in related efforts and inform contractors and other private sector organizations of market activity and opportunities to advance residential retrofits.

EXAMPLES AND RELEVANT RESOURCES:

- **EXAMPLES:**
 - Southwest Energy Efficiency Project’s (SWEET) [A Path to Pollution-Free Buildings: Meeting Xcel’s 2030 Gas Decarbonization Goals](#). *Provides examples of goal-setting, data tracking, and program design recommendations specific to a utility’s decarbonization goals.*
 - Western Resource Advocates’ [Conservation Synergy: The Case for Integrating Water and Energy Efficient Programs Report](#). *Offers a checklist-style guide on implementing energy efficiency programs.*

- **RESOURCES:**
 - The DOE Office of Energy Efficiency and Renewable Energy’s [Program Design and Customer Experience: Set Goals and Objectives](#). *Highlights recommendations for setting residential energy efficiency goals with examples related to marketing and outreach, financing, contractor engagement and workforce, and overall program objectives.*
 - RMI’s [Equitable Home Electrification Toolkit](#). *Summarizes resources for communities to advance equitable electrification of existing housing, including advice on establishing a planning team, conducting preliminary research, engaging community, and drafting a roadmap.*
 - Urban Sustainability Directors Network’s [Equity and Buildings: A Practical Framework for Local Government Decision Makers](#). *Features a detailed overview on equity concepts and connections to housing, including category areas and guiding questions to help inform the goal-setting process. Page 28 provides guidance to set policy goals and define success metrics related to equity in the built environment.*
 - Urban Sustainability Directors Network’s [High-Road Workforce Guide for City Climate Action](#). *Offers a primer on high-road workforce principles and a goal-setting framework that can be leveraged by states and others to identify and align behind key objectives. See Section II starting on page 53 for program implementation examples, standards, and strategies.*
 - What Matters’ [Get Started With OKRs](#). *This website offers tutorials on how to create effective OKRs, with global examples.*

3. ADOPT STRATEGIC MARKETING AND OUTREACH STRATEGIES TO REACH TARGET AUDIENCES

WHAT: Development of marketing strategies can be included in the Education and Outreach Strategy, which is required by the DOE when SEOs submit their application for approval. As such, SEOs should spend sufficient time up front to develop robust marketing and outreach strategies that reach targeted households and communities while using data analysis, stakeholder input, and OKR processes to inform these efforts. **This deliberate approach will be particularly important for reaching historically underserved communities.** Tailor the strategies to connect with a diverse range of households and communities, being sensitive to different spoken languages and cultures, identifying trusted outlets for information exchange, and supporting households facing challenging circumstances. Partnering with trusted community organizations, reputable messengers, and local leaders are proven ways to reach people where they are and achieve successful program outcomes.

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**Adopt strategic marketing
and outreach strategies to
reach target audiences**

HOW: Residential energy retrofit programs are not novel. Hundreds of organizations, utilities, and governments in the U.S. in recent decades have administered programs aimed at providing energy upgrades and energy assistance to different types of households and buildings through various means—some more successful than others. In addition to SEOs engaging utility-supported energy initiatives, Weatherization Assistance Program implementors in states could offer valuable insights on outreach and lessons learned while serving target audiences. Beyond energy efficiency and electrification, successful distributed renewable energy programs and community solar programs offer insights into effective marketing and outreach strategies. SEOs should familiarize themselves with the lessons learned from these efforts, especially those most relevant to their state.

SEOs should review programmatic reports, consult with other program administrators, and consider hiring marketing experts to ensure approaches are informed by behavior change science and tailored to connect with key audience values, considerate of language and cultural attributes. Consult with residential contractors, equipment manufacturers, property owners, property managers, homeowner associations, tenant associations, and other entities familiar with home energy retrofits. Consult or partner with organizations focused on housing and social equity, as well as local energy utilities, to develop effective outreach strategies to reach lower-income and underserved communities. Solicit early input and support for developing outreach and educational materials from entities familiar with home energy retrofits. Hire or use language translation services to make all program materials and information available in multiple languages, ensuring that programs comply with relevant federal and state language access regulations.

Before designing programs, consider conducting focus groups and convening workshops⁶ to gain localized insights from target audiences, prioritizing the inclusion and equitable representation of voices from underserved households and communities such as rural areas, LMI households, Black, Indigenous/First Nation, People of Color (BIPOC) individuals, and community representatives. The Community Benefits Plan required by the DOE as part of the IRA Home Energy Rebate Programs submittal mandates at least one public input session, but offering more opportunities would be beneficial to securing robust feedback and ensuring multiple avenues for engagement. In addition, identify and partner with trusted messengers, such as local nonprofits, community organizers, members of faith communities, and spokespeople to support outreach and education in different communities—these individuals and groups should be compensated for their time and involvement. Community-based organizations, community

⁶ Any participation should be compensated to account for time away from work and time spent providing valuable input. Compensation should not be contingent on any outcome or result and participants should reflect priority households and stakeholders most directly impacted by rebate program efforts.

development financial institutions, and minority depository institutions are examples of organizations that might offer valuable guidance and support in reaching diverse and priority populations. Adopt outreach approaches that ensure target audiences receive information where they live and work and consider how to best reach and serve households without internet access by offering community workshops, tabling at libraries, partnering with community centers, and delivering information door-to-door.

Marketing and outreach efforts will ideally support broader market transformation and uptake of efficient electrification technologies beyond households directly participating in the programs. While rebate uptake should be a top priority, SEOs should leverage the programs to increase understanding of the benefits of energy efficiency and electrification upgrades to catalyze widespread consumer demand for the technologies and contractors providing these services. In addition to the IRA Home Energy Rebate Programs, SEOs should partner with existing energy and housing programs in their state to support user enrollment while also informing consumers on federal tax credits for home energy efficiency and local utility incentive programs that provide support for home energy upgrades. SEOs can encourage uptake of additional programs by cross-marketing programs (for example, reaching out to customers who recently installed new insulation to inform them about the benefits of heat pumps).

EXAMPLES AND RELEVANT RESOURCES:

- **EXAMPLES:**
 - **Beneficial Electrification League of Colorado’s [Love Electric](#).** *Features a home electrification campaign supporting Colorado households and contractors with resources, case studies, step-by-step guides, and FAQs.*
 - **Building Decarbonization Coalition’s [The Switch Is On](#).** *This California home electrification campaign has statewide incentive details, contractor listings, financing options, and connections to expert support. Also includes a section for renters.*
 - **Northwest Energy Efficiency Alliance’s [Boring But Efficient](#).** *Focuses on heat pump water heating in the Northwest U.S. with a website and consumer guide highlighting technology and economics, and helping consumers find contractors and rebates in their area.*
 - **Massachusetts Clean Energy Center’s [Whole-Home Retrofits](#).** *This informational webpage details weatherization, HVAC, solar, electrification, and other solutions, and it offers a searchable directory for contractors in the Northeast U.S.*

- **RESOURCES:**
 - **ACEEE’s [Behavior and Human Dimensions of Energy Use Program](#).** *Focuses on best practices to inspire climate action and energy use behaviors and includes educational webinars, tip sheets for energy professionals, and links to resources for program implementers.*
 - **NREL’s [The Solarize Guidebook: A Community Guide to Collective Purchasing of Residential PV Systems](#).** *Offers an overview of the First Solarize Campaign in Portland, Oregon, where residents coordinated solar adoption and negotiated a group discount. This guidebook highlights different outreach and engagement strategies for residential energy programs.*

4. PROVIDE HANDS-ON SUPPORT TO CONSUMERS AND CONTRACTORS

WHAT: SEOs should leverage the new IRA rebate programs to engage and educate households and contractors on efficient home electrification while also providing hands-on guidance to address technical and administrative questions. Households and contractors alike may struggle to formulate a holistic retrofit approach and coordinate across different trades (e.g., electricians, HVAC, plumbing, weatherization). Rebate programs should be designed with these challenges in mind to aid in understanding of the process, technical considerations, and expected outcomes associated with upgrading properties while also offering defined support to connect and coordinate contractors across different trade types.



HOW: Various innovative approaches have emerged in recent years to support households and coordinate contractor activities for home retrofits. These efforts have been led by the private sector, governments, nonprofits, and utilities. SEOs should offer built-in technical and administrative support to households and contractors throughout the program. Consider developing and housing a “one-stop-shop” approach or “program navigator” (using allocated administrative funding from the IRA), or leveraging existing tools such as the [Application Programming Interface](#) from PNNL. Under a one-stop-shop approach, a defined point of contact or organization provides holistic support to participants and helps answer technical questions, address different housing types, navigate administrative requirements, and connect households and contractors with solutions. A one-stop-shop can also orient participants toward other funding sources and financing, energy bill assistance programs, and related resources for home health and safety improvements. Investing in this approach can amplify program impact and facilitate streamlined data tracking over time. A good example of a one-stop shop for multifamily housing property owners is Madison, Wisconsin’s [Efficiency Navigator](#).

SEOs should coordinate with other existing energy programs and providers (e.g., utilities) to avoid confusion and ensure greater consistency of messaging. Good examples of the one-stop-shop approach are the [Neighborhood Energy Centers](#) in Philadelphia, Pennsylvania, located in 16 separate neighborhoods to support residents navigating energy retrofit programs, utility bill assistance, and other supportive offerings. The [EnergySmart program](#) in Boulder, Colorado, and BAYREN [Home Energy Advisor program](#) in the Bay Area of California are other examples of tailored guidance for residents electrifying their properties.

KEY TO SUCCESS: MAKE IT EASY FOR PEOPLE TO QUALIFY AND RECEIVE REBATES

SEOs should design the rebate application process and offer related administrative support that minimizes friction and overcomes barriers to participating in programs, including strategies that help

people qualify based on income eligibility. Proven strategies include offering multiple avenues to access information and apply for rebates, ensuring certified contractors play a lead role providing technical information, and investing in ongoing administrative support that addresses questions and facilitates completion of paperwork to efficiently qualify customers and disburse funds. Another proven strategy is providing hands-on support throughout the process by people familiar with the program, such as the [Heat Pump Coach model](#) in Massachusetts. SEOs should be sensitive to the balance between technical and accessible information, as most households will benefit from guidance with limited technical jargon. Additionally, all information should be culturally sensitive and available in multiple languages reflecting targeted demographics.

Income verification processes have historically proved burdensome in other programs, and SEOs should coordinate with utilities and other programs on related best practices while also consulting associated DOE guidance. Per [DOE Program Requirements and Application Instructions](#) for the home energy rebates, “DOE, in collaboration with the National Association of State Energy Officials[], will work with the States to assist in developing effective methods for carrying out this requirement and provide examples of acceptable methods. As part of this assistance, DOE will provide sample frameworks to help States work through the various steps of income verification and other processes involved in implementing rebate programs.” Rewiring America has also published [support guidance on income verification](#), and Illinois’ [Solar for All program](#), a low-income residential solar program, offers a streamlined way to help prospective participants determine eligibility through their website.

EXAMPLES AND RELEVANT RESOURCES:

- **EXAMPLES:**

- **BAYREN’S [Home Energy Advisor Program](#).** *Offers free third-party consultation to Bay Area homeowners in California for navigating local incentives and finding a participating contractor.*
- **Boulder’s [EnergySmart Program](#).** *Offers an overview of home electrification technologies and includes advisory services that support households seeking to install air-source heat pumps for HVAC, providing tailored technical support and help navigating local rebates and incentives.*
- **Energy Coordinating Agency’s [Neighborhood Energy Centers](#).** *This Philadelphia-based one-stop-shop supports household access to utility programs and other support through 16 resource centers housed within various organizations in locations across the city.*
- **Heat Smart Alliance in Massachusetts’ [Heat Pump Coach Program](#).** *Illustrates an innovative approach providing hands-on support to households converting to heat pumps. At least 14 such programs have launched across the country since 2020.*
- **Illinois’ [Solar for All Program](#).** *Offers a secure and streamlined way to help prospective participants determine eligibility based on income through their website.*
- **Madison, Wisconsin’s [Efficiency Navigator](#).** *A one-stop-shop website for efficiency programs for multifamily building owners.*

- **RESOURCES:**

- **ACEEE’s [Building Electrification: Programs and Best Practices](#).** *This is a survey of 42 building electrification programs in the U.S. and associated best practices, including sections on*

- general barriers and opportunities, homeowners and building managers, LMI customers, HVAC contractors, and more.
- ACEEE’s [Ready to Upgrade: Barriers and Strategies for Residential Electrification](#). Offers an overview of home electrification technologies, barriers, and solutions, including the one-stop-shop model and examples.
 - Canary Media’s [Private Sector Companies Supporting Home Electrification](#). Features companies providing holistic retrofit services, including weatherization and electrification.
 - Natural Resources Defense Council’s [How to Design Building Electrification Programs that Work](#). Provides takeaways from a three-part webinar series featuring electrification program design and delivery insights from the Association for Energy Affordability, Efficiency Maine, and Vermont Energy Investment Corporation.
 - Rewiring America’s [An IRA Implementation Memo: Frictionless Income Verification Methods](#). Provides overall guidance, potential income verification pathways (e.g., complementary program information sources such as LIHEAP), and software solution guidance for tracking and verifying income.
 - RMI’s [Funding Our Future: Creating a One-Stop Shop for Whole-Home Retrofits](#). Illustrates one-stop-shop concepts and program examples in California and Philadelphia.

5. MAKE IT ECONOMICALLY BENEFICIAL TO ADOPT EFFICIENT, ALL-ELECTRIC TECHNOLOGIES (AND INSULATE FINANCIALLY VULNERABLE HOUSEHOLDS FROM BILL INCREASES)

WHAT: Energy efficiency and home electrification investments can and should be a source of improved quality of life for households, but programs must be designed to ensure this is the case. Utility bills contribute to [home energy burdens](#)—the percentage of income spent on energy expenditures—which are disproportionately higher among LMI households, BIPOC communities, older adults, and those living in older homes and multifamily housing. Low-income households often face energy burdens of greater than 10 percent, making costs associated with home energy upgrades and electrification out of reach. In addition, renters and landlords often face a split incentive with respect to potential energy upgrades, depending on who pays the energy bills and who pays for a building’s energy upgrades. In places where rent affordability is a growing concern, building improvements could result in rent increases and displacement of existing tenants. Neighborhood-wide retrofits could contribute to gentrification trends that harm area residents, which is particularly common in BIPOC communities. Many homeowners and property owners lack access to affordable financing or up-front capital needed to make larger energy upgrades. And home electrification measures may not always result in immediate savings or could increase home energy bills, depending on the baseline conditions of housing, retrofit measures included, appliances and equipment installed, and prevailing local fuel costs and energy utility rates.

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Make it economically beneficial to adopt efficient, all-electric technologies (and insulate financially vulnerable customers from bill increases)

When designing IRA Home Energy Rebate Programs, SEOs should be highly sensitive to these realities and challenges, while also striving to ensure the home energy upgrades result in net economic benefits and energy savings. The Urban Sustainability Directors Network guide titled [Equity and Buildings: A Practical Framework for Local Government Decision Makers](#) is a great resource highlighting the intersection between equity and sustainable buildings, including sections on housing affordability, gentrification and displacement, economic inclusion, and other themes. Programs should consider what the most financially vulnerable households need to participate and benefit, and whether additional programs and services may be needed to address other issues, including existing utility bills in arrears.⁷ Where feasible, SEOs should coordinate with utilities and other relevant state agencies to avoid adverse impacts on those most vulnerable to any increase in home energy bills.

Fortunately, many energy efficiency measures result in savings from the start, and advancements in heat pumps and other technologies have made electrification increasingly cost-effective. With smart rebate program design and informed prioritization of retrofit projects, new programs can deliver economic, health, and environmental benefits to households and communities. Additionally, measures such as [percentage of income payment plans and utility rate reform to encourage electrification](#) are important steps to ensure electrification becomes economically feasible for low-income households.

HOW: SEOs should develop an understanding of the up-front costs, ongoing utility bill impacts, and life-cycle economics of efficient electrification based on local conditions such as common housing types, baseline property conditions, space heating and cooling equipment, water heating equipment, utility rates, and climate zones. Dozens of home electrification economic analyses have been published in recent years featuring outcomes in national, statewide, and local contexts, and a few examples are linked in the resources section below. SEOs should consult existing analyses and identify examples that most strongly relate to their specific conditions and consider performing their own supplementary analyses, if needed.

Electrification in many scenarios will economically benefit households, particularly when efficient equipment is selected. Examples of scenarios that often deliver life-cycle financial benefits along with operating cost reductions include the following and are featured in economic analyses by ACEEE, CLASP, RMI, and SWEEP (all listed in the resources section below):

- Replacing delivered fuels (e.g., heating oil and propane)
- Replacing electric resistance space and water heating
- Replacing central air conditioners and gas furnaces at equipment end of life
- Pairing electrification with energy efficiency upgrades and/or solar
- All-electric new construction (both single-family and multifamily)

In some instances, simply replacing gas furnaces and/or gas water heaters with efficient electric heat pumps can result in lower utility costs, particularly in more moderate climates or where there is a beneficial differential between electric and gas utility rates. Weatherization is also a strong enabler of cost-effective electrification, and a [2023 analysis by ACEEE](#) found that the average residential customer

⁷ For example, LIHEAP money could and should be used to cover any arrearages for income-qualified homes, while also pursuing any funding available through WAP or HUD to support more comprehensive home upgrades.

who weatherizes their home while electrifying can save between \$150 and \$1,200 per year, with most households saving between \$500 and \$800 annually, relative to a household that just adopts electric appliances or equipment. The IRA rebate programs along with new federal tax credits offer support for weatherization and other energy upgrades complementary to home electrification. Ensuring multiple upgrade measures are completed, including “low-hanging fruit” improvements such as attic insulation or LED lighting, is a proven strategy to ensure beneficial utility bill impacts for participating households.

The IRA rebates can help with higher up-front costs that may exist for electric equipment relative to certain “like-for-like” equipment replacements. SEOs should become familiar with and provide transparent, easy-to-understand information on the up-front cost differentials, particularly for high-performing equipment like cold climate and ductless heat pumps, and factor associated economics into program design. SEOs and program support staff should coordinate with contractors to ensure consistent messaging regarding estimated costs, benefits, savings, and performance. Publishing general guidance or offering an interactive online calculator or other tools are also useful methods to assist households and contractors with setting expectations for electrification upgrades and other retrofits. To the extent electrification may require an electric panel upgrade or additional wiring, SEOs and contractors should be aware of [strategies and new technologies](#) (such as new retrofit-ready 120-volt heat pump water heaters) and other energy efficiency measures that can mitigate more costly upgrades.

For rental housing retrofits, SEOs should consider more bespoke strategies to help overcome the split incentive challenge between renters and landlords. This should include up-front engagement and input on program design from representatives of property management companies, state chapters of applicable organizations (e.g., National Association of Residential Property Managers, Institute of Real Estate Management, National Apartment Association), tenant associations, and low-income and affordable housing groups. SEOs could consider recognizing (e.g., with formal certifications and awards) multifamily or rental property owners and management companies that invest in energy efficiency and electrification upgrades. Such recognition could provide increased PR and media attention for those making strides to improve buildings for their tenants’ benefit.

SEOs should also facilitate efforts to help property owners and managers stack the IRA rebates with funding from other programs—this can help tilt life-cycle economics in favor of home electrification while also covering any up-front cost burdens associated with highly efficient equipment and holistic retrofits, particularly those including health and safety measures. Braiding and stacking funding from other programs and federal incentives is not addressed in detail in this guide, but other organizations plan to publish resources in late 2023 on this topic. Partnering with green banks and other financing solutions, such as those supported by the EPA’s new Greenhouse Gas Reduction Fund,⁸ can also provide access to complementary low-cost capital while covering up-front cost gaps that might exist between rebates and the full costs of retrofits.

Over time, financing solutions should be added to the rebate program’s one-stop-shop resources and incorporated into marketing and outreach strategies. Contractors should also be provided with training to facilitate participants’ understanding of different financing options available. [Inclusive Utility Investments \(IUI\)](#), also known as tariffed on-bill financing, is one potential solution for states and utilities

⁸ The EPA’s [Greenhouse Gas Reduction Fund](#) provides \$27 billion of total support for affordable financing solutions, technical assistance hubs, and a Solar for All competition. All these efforts will help deliver lower energy costs, promote economic revitalization of communities, and prioritize solutions access for historically underserved households and communities.

to explore. IUI can support energy retrofits while also helping solve split incentive issues. SEOs should familiarize themselves with this utility-led solution and consider the potential for local implementation. More information on IUI is provided in the resources section below and is also covered in the Recommendations for State Policymakers and Regulators.

EXAMPLES AND RELEVANT RESOURCES:

- **EXAMPLES:**

- ACEEE's [Empowering Electrification Through Building Envelope Improvements](#). Offers an overview of economic, grid, and environmental benefits of providing weatherization alongside electrification, including both single-family and multifamily analysis examples.
- Efficiency Maine's [Residential Heat Pump Incentive Program](#). Highlights retrofit case studies from a program that has resulted in the installation of tens of thousands of heat pumps across Maine, in part supported by state rebates and other incentives.
- SWEEP'S [Benefits of Heat Pumps for Southwest Homes](#). Reflects modeled economic and GHG emissions impacts for heat pump space and water heating retrofits, along with an all-electric new construction example, in cities across four states in the West, including examples from colder and warmer climates.

- **RESOURCES:**

- ACEEE's [Equity and Electrification-Driven Rate Policy Options](#). Illustrates utility rate design solutions such as percentage of income payment plans and other solutions that promote equitable outcomes and encourage the deployment of efficient electric technologies like heat pumps.
- Building to Electrification Coalition's [Home Electrification: Service Upgrade Not Required](#). Discusses research, technologies, and strategies to avoid more costly electrical panel upgrades and approaches for optimized electrification.
- CLASP's [Combating High Fuel Prices with Hybrid Heating: The Case for Swapping Air Conditioners for Heat Pumps](#). Includes state-level data on utility bill impacts for heat pumps relative to electric resistance, fuel oil, propane, and gas heating.
- The DOE's [Low-Income Community Energy Solutions](#). Provides data, planning resources, and tools to identify and address energy burden, including suggested low-income terminology, online interactive data tools, and partnership examples to support solution adoption.
- The EPA's [Inclusive Utility Investments: Tariffed On-Bill Programs](#). Describes this accessible approach to financing residential energy upgrades and includes example programs and illustrative roles for state agencies, housing groups, and other stakeholders.
- Interstate Renewable Energy Council's (IREC) [Shared Renewable Energy for Low-to-Moderate Income Consumers: Policy Guidelines and Model Provisions](#). Features strategies to address and overcome LMI household financial barriers to program participation.
- National Low Income Housing Coalition's [Beyond Housing Stability: Understanding Tenant and Landlord Experiences and the Impact of Emergency Rental Assistance](#). Evaluates impacts of the Emergency Rental Assistance Program in five locations across the country, reflecting on how tenants and landlords were impacted by the program, and elevates suggestions for housing stability programs and policy.
- RMI's [The Economics of Electrifying Buildings: Residential New Construction](#). Reflects up-front costs, utility bill impacts, and 15-year life-cycle financial and GHG emissions impacts for

- *all-electric residential new construction compared to mixed fuel buildings that use gas in nine geographically diverse cities across the U.S.*
- **Urban Sustainability Directors Network’s [Equity and Buildings: A Practical Framework for Local Government Decision Makers](#).** *Presents a detailed overview on equity concepts and connections to housing. Part II of the guide, starting on page 30, highlights the intersection between equity and sustainable buildings with features on housing affordability, gentrification and displacement, and economic inclusion.*

6. INCORPORATE MEASURABLE CUSTOMER EXPERIENCE AND QUALITY ASSURANCE PROTOCOLS

WHAT: Ensuring a positive customer and contractor experience with rebate programs is a high priority and should be given appropriate attention as part of program design. SEOs should tailor program requirements and resources to support quality installations and periodic equipment maintenance while ensuring positive interactions between households, contractors, and program staff. Word of mouth can be a powerful marketing support or detractor, so programs should be designed to ensure that positive experiences remain the standard throughout the program lifetime. To facilitate retrofits that include electrical upgrades, gas distribution system decommissioning, or other potentially complicated processes, the program should aim to facilitate a coordinated process that avoids unnecessary contractor visits and disruptions. All requisite local and utility permits and inspections should be considered up front and incorporated into program design, customer expectations, and timelines.



HOW: SEOs should appoint a staff person or team (or hire third-party support) to be responsible for assessing and reporting on customer experiences, quality assurance protocols, and related activities throughout the life of the programs.

These activities include interactions with both contractors and participating households or property owners and managers. Program design should include strategies and approaches to measure and track quality and the overall experience for consumers and the contractors (e.g., through follow-up surveys, phone calls, assessment forms, rating systems), along with technical retrofit and equipment performance outcomes via quality assurance protocols.

SEOs should involve contractors and workforce representatives in the program design process to ensure that all program requirements are vetted and clearly understood and that appropriate training has occurred, ensuring consistency and quality among contractors. SEOs should also provide sufficient staff time to support contractors, respond to concerns, and reduce confusion associated with program

compliance. Program administrators must simultaneously enforce standards and monitor outcomes to ensure quality installations and positive customer experiences. SEOs can support these efforts with up-front contractor trainings and certification processes, which may align or correlate with similar utility programs and other energy retrofit programs. Supporting households with contractor identification and selection is important. Example programs in Boulder, Philadelphia, and the Bay Area of California are linked in the resources section of the Provide Hands-On Support to Consumers and Contractors section of this report.

Participating households should be selectively engaged during the retrofit process and as part of post-install surveys and interviews to gauge program effectiveness and address issues before they become systemic. This engagement should be designed with technical and language barriers in mind and strive to ensure input representative of equity goals and priority households. SEOs may conduct periodic inspections to guarantee contractors are completing installations in line with program rules and quality standards, but this must be balanced with associated time and resource constraints to not overburden installers and participants.

EXAMPLES AND RELEVANT RESOURCES:

- **EXAMPLES:**
 - Rocky Mountain Power’s [Wattsmart® Trade Ally Program](#). Offers a searchable database of certified HVAC, water heating, and weatherization contractors. Additional context on the Trade Ally program is available starting on page 30 of [this PDF](#).
 - Xcel Energy’s [Residential Trade Partners](#). Details resources and requirements for contractors and trade partners to offer rebates and participate in other utility incentive programs.

- **RESOURCES:**
 - ACEEE’s [Ready to Upgrade: Barriers and Strategies for Residential Electrification](#). Includes a section titled *Create Mechanisms for Quality Assurance with associated guidance*.

7. SUPPORT DURABLE MARKET MOMENTUM AND BUSINESS MODEL EVOLUTION WITH WORKFORCE AND INDUSTRY ENGAGEMENT

WHAT: SEOs should approach program design efforts with an eye toward market transformation, beyond the direct impacts resulting from the IRA Home Energy Rebate Programs. These programs can be leveraged to catalyze durable market momentum for efficient buildings, energy-saving electric equipment, and building decarbonization. This requires SEOs to consider all aspects of market transformation, including workforce needs, education and training, contractor priorities, equipment supply chains, up-front and ongoing project economics, and household motivations.

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Support durable market momentum and business model evolution with workforce and industry engagement

HOW: SEOs should take advantage of the stakeholder engagement process to solicit input, insights, and expertise from private sector partners, energy utilities, environmental justice groups, and consumer advocates on policy pathways and actions that can motivate a shift to efficient home electrification as the prevailing market standard.

This will require commitments to longer-term workforce needs, including those involved in the equipment supply chain such as distributors and manufacturers. The resources section below includes example programs and resources with ideas for how to prioritize efforts in individual states. SEOs should also use the rebate program as an opportunity to coordinate with trade associations, labor groups, and institutions of higher education to evolve workforce education, training, and certification efforts. For example, all HVAC and water heating service technicians and their distributors across a state should be sufficiently trained to provide quality installations of heat pumps. Contractors should be properly trained and incentivized to right-size HVAC equipment to maximize comfort and performance. Ideally, they should also be capable of educating households and providing complementary weatherization services. SEOs could partner with utilities and trade schools to facilitate new degree programs and certifications that support whole-home energy improvements. SEOs could also engage with builders and developers to promote all-electric new construction and energy code improvements to transition the future building stock to be more affordable, resilient, and aligned with climate goals.

EXAMPLES AND RELEVANT RESOURCES:

• **EXAMPLES:**

- The New York State Energy Research and Development Authority's [Clean Heat Connect](#). A network of distributors and manufacturers dedicated to expanding the adoption of heat pumps in New York, including hiring support, training resources, and financial incentives.
- Washington State Department of Commerce's [Weatherization Workforce Roadmap for Washington State](#). Describes key workforce challenges for the state's low-income weatherization program along with solutions to enhance the availability, preparation, and future development of a skilled weatherization workforce.

• **RESOURCES:**

- IREC's [Clean Energy Career Maps](#) and [Workforce Development Strategies](#). Reflect energy career examples and advancement routes for professionals, along with strategies and program examples for energy professional development and workforce diversity and inclusion.

- Northeast Energy Efficiency Partnerships’ [Energy Efficiency Workforce Recommendations](#). Documents ideas for growing and training the energy retrofit workforce, including program examples and suggestions for structuring rebates and certification programs.
- Regulatory Assistance Project’s (RAP) [Renovating Regulation to Electrify Buildings: A Guide for the Handy Regulator](#). Highlights suggestions related to programs, policies, and regulatory innovations that support electrification with guidance for both new and existing buildings.
- RAP’s [Workforce Development to Enable Building Modernization](#). Summarizes challenges, opportunities, and strategies for states to support workforce growth and upskilling opportunities related to energy efficiency and electrification with statistics focused on workforce growth and demographics.
- RMI’s [Regulatory Solutions for Building Decarbonization: Tools for Commissions and Other Government Agencies](#). Offers a robust set of programs and policy solutions, plus a resource library highlighting equitable electrification solutions.

RECOMMENDATIONS FOR STATE POLICYMAKERS AND REGULATORS

In addition to SEOs, regulators and other state policymakers have a role to play in successful implementation of the IRA Home Energy Rebate Programs and other federal funding for the building sector. We offer the following initial recommendations for states to consider alongside implementation of the IRA rebate programs. This is not a comprehensive set of solutions, but rather an illustrative group of opportunities for state policymakers and regulators to support the success of residential rebate programs and related building sector market transformations.

ENABLE COMPREHENSIVE BUILDING SECTOR DECARBONIZATION

Technological advancements and improved economics for heat pumps and other all-electric technologies are changing the market dynamics for building electrification, making decarbonization more affordable and beneficial for households. Climate change and public health issues exacerbated by burning fossil fuels in buildings are also motivating a shift to beneficial electrification. Through legislation or regulatory actions, states can play an important role in providing pathways for electrification as part of the broader effort to decarbonize the building sector. More detailed explanations of these pathways are featured in the resources listed below.

- **Support environmental justice and equity objectives:** State policies, agencies, and programs should align with Justice40 objectives to ensure equity and environmental justice outcomes by directing investments toward historically marginalized communities and tackling financial and non-financial barriers to energy measure adoption for these households. States should publish census-tract-level data and programmatic outcomes related to the IRA Home Energy Rebate Programs and other initiatives, including demographic and equity metrics, to ensure programs deliver for historically underserved communities while meeting or exceeding Justice40 targets.
- **Enable fuel switching:** Adopt consumer-choice policies that allow households the option to switch from fossil fuel to electric equipment and receive any relevant government or utility incentives.
- **Ensure new construction is energy smart from the start:** All-electric new construction is the low-hanging fruit of building electrification because it avoids costly upgrades and expensive future renovations and is often cheaper than building dual-fuel housing with gas lines. State building

codes should enable or require all-electric, highly efficient new construction to ensure all buildings are built energy smart from the start. States should also allow local governments to go beyond the base state code by adopting decarbonization policies and stretch codes.

- **Leverage the federal opportunity to multiply impacts of utility incentives:** Utilities and regulators should evaluate existing incentives and implement updates to support adoption of efficient electric technologies. For example, regulators and utilities should adopt or increase incentives for heat pump space and water heating, and they should reduce or eliminate incentives for fossil fuel-burning equipment while also considering commensurate changes to avoid costly gas system investments that may result in stranded assets. SEOs and regulators should also work together to reward program administrators that leverage IRA funds to garner greater energy and GHG savings. These conversations should address concerns about savings attribution and additionality related to current targets and goals.
- **Modify gas utility line extension policies:** Utility regulators should evaluate and consider eliminating ratepayer subsidies for expansion of the gas system, while also modifying policies relating to gas utilities' obligation to serve.
- **Require coordinated or joint utility system planning:** Regulators should require all regulated gas and electric utilities in the same service area to coordinate or file joint investment plans, which would allow for greater scrutiny of assumptions around growth, demand, and costs to ratepayers.

RESOURCES:

- ACEEE's [Building Electrification: Programs and Best Practices](#). Documents 42 building electrification programs in the U.S. and associated best practices, including a section for energy regulators and state policymakers starting on page 60 of the report.
- ACEEE's [Equity and Electrification-Driven Rate Policy Options](#). Illustrates utility rate design solutions such as percentage of income payment plans and other solutions that promote equitable outcomes and encourage the deployment of efficient electric technologies like heat pumps.
- Institute for Market Transformation's [Community Engagement Framework](#). Details best practices for meaningful engagement with frontline communities, including principles for a person-centered approach that strives for greater balance and shared ownership in policy and program solutions.
- RAP's [A Policy Toolkit for Global Mass Heat Pump Deployment](#). Focuses on government solutions to accelerate equitable deployment of heat pumps, including financial support, regulatory policy, market-based instruments, and stakeholder coordination efforts.
- RAP's [Renovating Regulation to Electrify Buildings: A Guide for the Handy Regulator](#). Details guidance on rate design, grid-interactive buildings, energy efficiency standards, building codes, program delivery, and other policy and regulatory tools to support efficient building electrification.
- RAP's [Under Pressure: Gas Utility Regulation for a Time of Transition](#). Provides an overview of gas system planning concepts, system mapping approaches, future scenario development, and programmatic and policy solutions to better align gas utility programs, policy, and investments for a decarbonized future.
- RAP's [Building Modernization Legislative Toolkit](#). A resource for legislators and policymakers who want to address barriers and accelerate building modernization in their states. The website provides resources on weatherization and home retrofits, funding and finance, codes and performance standards, electrification, and workforce development.

- RMI's [Overextended: It's Time to Rethink Subsidized Gas Line Extensions](#). *Frames financial costs, notable risks, and recommendations for gas line extension policy and related utility incentives reform.*
- RMI's [Regulatory Solutions for Building Decarbonization](#). *Shares tools for utility commissions and other government agencies to support decarbonization, manage energy system transition, and promote equitable solutions.*

LEVERAGE COMPLEMENTARY FEDERAL FUNDING TO ENHANCE REBATE PROGRAM IMPACTS

New federal funding offers states an unprecedented opportunity to equitably decarbonize the U.S. economy, and many of these new programs and incentives can (and should) be utilized to complement and enhance the impacts of the IRA Home Energy Rebate Programs. Below is a list of example programs and incentives that states can use to support residential retrofits.

- DOE [Clean Energy Tax Credits](#). *New federal tax credits are available through 2032 for a range of residential improvements, including for energy audits, electric technologies, energy-efficient appliances, weatherization, solar panels, and electric vehicle charging.*
- DOE [Energy Efficiency and Conservation Block Grants](#). *This \$550 million program offers formula funding to states, local governments, and tribes that can be used for residential energy efficiency and electrification projects, among other activities.*
- DOE [State-Based Home Energy Efficiency Contractor Grants](#). *This \$200 million effort provides formula awards to SEOs to train, test, and certify residential energy efficiency and electrification contractors.*
- DOE [Weatherization Assistance Program](#). *To bolster existing weatherization efforts, an additional \$3.5 billion of funding was approved through the Infrastructure Investment and Jobs Act for residential weatherization efforts in states.*
- EPA [Climate Pollution Reduction Grants](#). *This program includes \$5 billion of funding that will be disbursed to states, metropolitan areas, and tribes for climate planning and implementation activities that can include home retrofits and decarbonization of the built environment.*
- EPA [Environmental and Climate Justice Block Grants](#). *This \$2.8 billion program will disburse funds to benefit communities with environmental justice concerns and can support building decarbonization activities via funding and technical assistance.*
- EPA [Greenhouse Gas Reduction Fund](#). *This \$27 billion fund has three primary components with strong relation to housing decarbonization and affordability: Clean Communities Investment Accelerator, National Clean Investment Fund (e.g., Green Banks), and Solar for All.*

PROVIDE STATE INCENTIVES, GRANTS, AND FINANCING TO COMPLEMENT REBATE PROGRAMS AND REACH PRIORITY HOUSEHOLDS

State policymakers and regulators can amplify the impact of rebate programs by offering complementary funding and authorizing additional spending by state agencies and utilities. Additional state or utility programs could target lower-income households or buildings (like multifamily) that will likely need additional resources to bridge the gap between the IRA funding and full project costs, including supporting health and safety upgrades, where necessary. Policies could also prioritize owners of affordable housing to ensure renters have an equal opportunity to access and benefit from the retrofit improvements and energy bill savings. Targeted supplementary funding and financing can help address these gaps while also spurring efficient electrification retrofits for households not directly participating in the rebate programs. Below are a few opportunity areas for state policymakers and regulators to

consider.

- **Financing:** *A range of financing products can be offered to complement rebates and support retrofit market momentum. The graphic on page 10 of [this DOE resource](#) reflects the broad range of financing products for commercial and residential energy efficiency. The EPA’s webpage overview on [Inclusive Utility Investments: Tariffed On-Bill Programs](#) offers examples and more information on this innovative solution. States should evaluate this utility-led financing solution, while still exploring other options and considering public-private partnerships to reduce the barriers and costs of financing.*
- **Housing programs:** *States should explore ways to expand support for housing improvements and energy affordability in a manner that complements IRA funding. States should engage all relevant housing agencies to identify synergies and contemplate ways to stack funding and align existing housing policies and programs with residential decarbonization. States should also engage with state housing finance agencies to discuss how the rebates can be incorporated into their programs and funding.*
- **Local government:** *Counties, cities, and towns may have sustainability, equity, and climate goals that align with desired outcomes of new rebate programs. States should engage local government partners and invite input on program design and implementation.*
- **State funding:** *Federal funding provides a strong catalyst for retrofit market momentum, but states should simultaneously investigate ways to complement this funding with ongoing resources from in-state funding mechanisms such as budgeting, taxes, and fees. Funding for health and safety upgrades is one way states can apply local funding to prepare homes for energy retrofits and ensure more equitable access to rebates.*
- **Utility programs:** *Energy utilities often offer resources to support certain residential upgrades, and these programs should be bolstered or modified to help cover gaps with federal funding and enhance overall program effectiveness and sustainability. Utility regulators could conduct an audit of active rebate programs to ensure incentives are aligned with broader goals, including climate and equity goals.*

Additional funding opportunities may exist, and states should complete a resource-mapping and partnership exercise to explore all opportunities. Federal rebate programs provide landmark support for equitable home energy retrofits, but the most successful states will complement this funding with ongoing local resources that cover funding shortfalls and sustain efforts over time.

CONCLUSION

The IRA Home Energy Rebate Programs represent a landmark opportunity for states to accelerate residential energy retrofits and electrification solutions while advancing energy equity and environmental justice goals. With this guide in hand, states and their partners have tools they need to develop and implement successful Home Energy Rebate Programs. SEOs, along with state policymakers and energy regulators, should harness this defining moment to develop stakeholder-informed programs and ambitious policy solutions that deliver a lower-carbon, more affordable energy future for households in their state.

APPENDIX A – SEO IMPLEMENTATION TIMELINE (ILLUSTRATIVE EXAMPLE)

IRA RESIDENTIAL REBATES: STATE ENERGY OFFICE IMPLEMENTATION TIMELINE

PROGRAM DESIGN PRINCIPLES FOR EFFECTIVE ENERGY EFFICIENCY AND ELECTRIFICATION RETROFITS



Note: This timeline is offered for illustrative purposes only and suggested timing and activities should be adjusted to meet local needs. All program design and implementation activities should be conducted and coordinated in parallel to addressing DOE program requirements. A separate timeline with related activities and needs should be managed for DOE funding requirements.

APPENDIX B – PROGRAM DESIGN CHECKLIST

1. UTILIZE DATA TO INFORM PROGRAM DESIGN AND IMPLEMENTATION STRATEGIES

- ✓ **Resources:** Invest in program staff and outside resources to lead data-related analyses and inform program design strategy, including a focus on equity-driven metrics
- ✓ **Coordination:** Coordinate data efforts with other state agencies, energy utilities, housing advocates, higher education institutions, NGOs, and others
- ✓ **Holistic metrics:** Incorporate holistic metrics on equity, workforce, and market activities in addition to data on building stock and retrofit measures

2. SET CLEAR PROGRAM OBJECTIVES AND KEY RESULTS; ADOPT METRICS TO TRACK PROGRESS

- ✓ **Stakeholders:** Include stakeholders in setting holistic, clearly defined goals reflecting objectives and key results related to climate, energy, social equity, and other priorities
- ✓ **Accessibility:** Ensure goals are published online and accessible, including in multiple languages
- ✓ **Iteration:** Define future dates to revisit goals, evaluate progress, and update targets in coordination with stakeholders

3. ADOPT STRATEGIC MARKETING AND OUTREACH STRATEGIES TO REACH TARGET AUDIENCES

- ✓ **Lessons learned:** Survey existing program outreach examples and lessons learned to date while creating a baseline understanding of barriers and opportunities
- ✓ **Localize:** Conduct focus groups and convene workshops in coordination with community-based organizations and other partners to gain localized insights and ensure inclusion of priority households and voices
- ✓ **Market reach:** Support broader market evolution and efficient electrification by offering education and outreach beyond direct rebate program participants to bolster aligned efforts, programming, and market activities

4. PROVIDE HANDS-ON SUPPORT TO CONSUMERS AND CONTRACTORS

- ✓ **Partnerships:** Engage contractors, utilities, housing agencies, and other programs to develop hands-on support aligned with lessons learned and ensure efforts are broadly supportive of residential retrofits in the state
- ✓ **One-stop-shop:** Invest in a “one-stop-shop” or similar model offering a defined point of contact to assist households and contractors with navigating solutions
- ✓ **Simplify processes:** Make it easy for households to qualify for and receive rebates, while making it attractive for contractors to participate by mitigating administrative burdens and paperwork

5. MAKE IT ECONOMICALLY BENEFICIAL TO ADOPT EFFICIENT, ALL-ELECTRIC TECHNOLOGIES (AND INSULATE FINANCIALLY VULNERABLE HOUSEHOLDS FROM BILL INCREASES)

- ✓ **Existing research:** Leverage existing reports and conduct new analyses to understand the up-front costs, utility bill impacts, and life-cycle economics of individual upgrades and retrofit packages across a state while being sensitive to differing impacts and incentives for homeowners and renters
- ✓ **Educate:** Support households and contractors with publicly available estimates of utility bill

impacts from retrofits, and consider offering online calculators or other resources for individuals to evaluate economic outcomes using accessible terminology and retrofit examples

- ✓ **Enhance economics:** Improve the economics of residential electrification by pursuing complementary policy and regulatory solutions that better align government and utility programs with decarbonization goals, plus ensure rental property economic considerations are addressed

6. INCORPORATE MEASURABLE CUSTOMER EXPERIENCE AND QUALITY ASSURANCE PROTOCOLS

- ✓ **Balance goals:** Consider the dual goals of quality installations and streamlined processes when developing customer experience evaluation strategies and quality assurance protocols, and engage contractors to ensure buy-in with adopted rules
- ✓ **Align with market:** Align quality assurance efforts with workforce skill-building relevant to ongoing market activities and contractor success, plus leverage a one-stop-shop to support contractors and households
- ✓ **Certify and validate:** Coordinate with utilities and other programs to create or enhance energy contractor certification efforts, plus invest in third-party oversight and ongoing validation of retrofit outcomes that includes participant perspectives

7. SUPPORT DURABLE MARKET MOMENTUM AND BUSINESS MODEL EVOLUTION WITH WORKFORCE AND INDUSTRY ENGAGEMENT

- ✓ **Evaluate markets:** Partner with stakeholders and the private sector, including contractors and equipment supply chain participants, to scrutinize prevailing in-state energy retrofit activities and document key barriers and priority solutions
- ✓ **Decarbonize:** Develop programs and policies that elevate efficient electrification technologies such as heat pumps and accelerate their adoption as the market standard
- ✓ **Market transformation:** Adopt a paradigm striving for broader market transformation and sustained momentum beyond program lifetime while engaging, designing, and planning rebate program efforts