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# Expanding the Energy Savings Pie:

Attribution Frameworks to Align IRA Home Energy Rebates and State Programs

Exh. 303-

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### About NEEP

NEEP was founded in 1996 as a nonprofit whose mission is to serve the Northeast and Mid-Atlantic to accelerate regional collaboration to promote advanced energy efficiency and related solutions in homes, buildings, industry, and communities. Our vision is that the region's homes, buildings, and communities are transformed into efficient, affordable, low-carbon, and resilient places to live, work, and play.

Disclaimer: NEEP verified the data used for this white paper to the best of our ability. This paper reflects the opinion and judgments of the NEEP staff and does not necessarily reflect those of NEEP Board members, NEEP Sponsors, or project participants and funders.

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## Glossary

**Attribution:** The process of determining what proportion of savings is a result of the program administrator's intervention.

**Braiding:** Combining funding from federal, state, local, and other programs with IRA Home Energy Rebates in a package of measures that ensures each federal grant only funds distinct, separable upgrades (DOE 2024a).

**Co-Funding:** Combining funding from federal state, local, and other programs with IRA Home Energy Rebates so that the nonfederal funding covers the remaining costs of an upgrade (DOE 2024a).

**Evaluation, Measurement, and Verification (EM&V):** Practices used to assess the performance and savings impacts of energy efficiency programs.

**Gross Savings:** All savings attributed to an energy efficiency program for actions taken by customers, before any adjustments that account for normal market adoption or other market impact adjustments (see net savings definition).

**Home Electrification and Appliance Rebates (HEAR):** Implemented under the Inflation Reduction Act (IRA) by the Department of Energy (DOE), Home Electrification and Appliance Rebates award grants to state energy offices and tribal entities to develop and implement a high-efficiency electric home rebate program (DOE 2024c). State energy offices must use at least 80 percent of awarded funds to provide single- and multifamily homes with discounts for high efficiency home appliances and equipment.

**Home Efficiency Rebates (HER):** Implemented under the Inflation Reduction Act (IRA), Home Efficiency Rebates award grants to state energy offices for rebates to discount the price of energy saving retrofits in single- and multifamily buildings (DOE 2024d). State energy offices must use at least 80 percent of awarded funds to provide single- and multifamily households with discounts for efficiency upgrades that save at least 20 percent of the home's energy usage.

**IRA Home Energy Rebates:** These rebates include the Home Efficiency Rebates (HER) and the Home Electrification and Appliance Rebates (HEAR) implemented under the Inflation Reduction Act (DOE 2024b).

**Limited Income:** This paper uses limited income to refer to customers who face a higher energy burden or at the low- or moderate- income level. Limited income is meant to encompass various customers facing financial and/or other barriers to accessing programs.

**Net Savings:** Savings directly resulting from a program's actions and adjusted for market impacts, including free riders, spillover, and other impact evaluation results. Net savings can be applied on a program- or portfolio-level.

**Net-to-Gross Ratio (NTGR):** The ratio that describes the adjustment in savings for market impacts, including free riders, spillover, and other impact evaluation results. NTGR is calculated by dividing net savings by gross savings.

**Program Administrator (PA):** Utility or third party that administers current energy efficiency and beneficial electrification programs in the state.

**Program Implementer:** An entity that provides services related to energy efficiency programs, typically as a vendor or subcontractor to the program administrator, but is not the overarching coordinating entity that oversees the whole program (see program administrator definition).



## Executive Summary

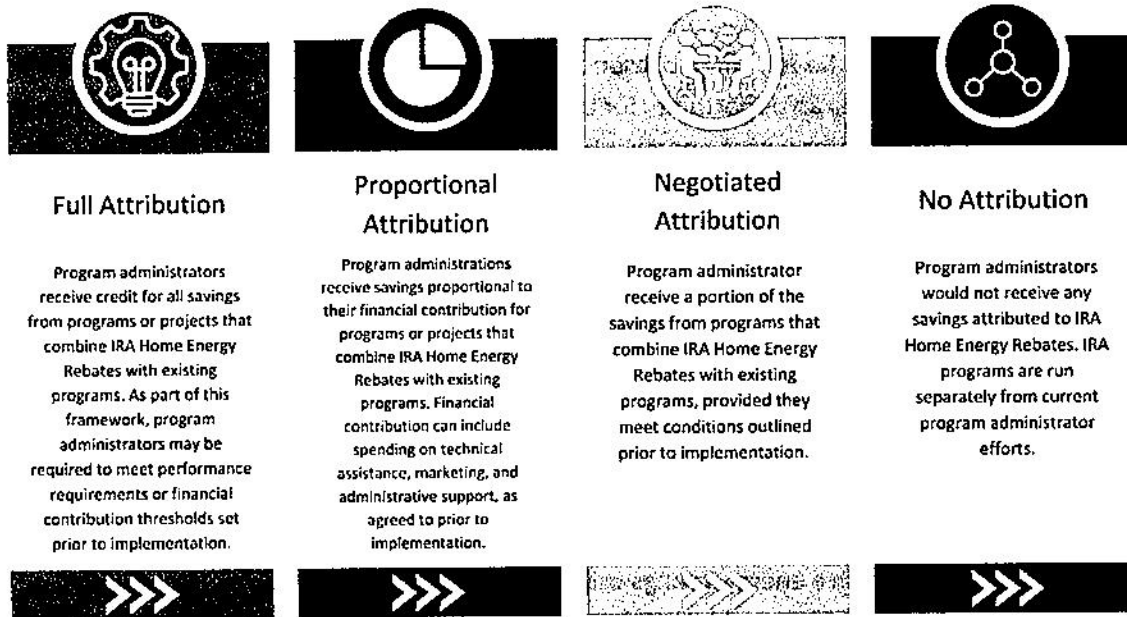
The Inflation Reduction Act (IRA) Home Energy Rebates offer state energy offices (SEOs) opportunities for unprecedented investments in electrification and decarbonization across the residential sector. Implementing IRA Home Energy Rebates with existing energy efficiency programs can expand the impact of the rebates and increase efficiency in program delivery. This leads to smoother experiences for customers and provides opportunities to coordinate with programs that will last beyond IRA Home Energy Rebates on program design and goals to unlock longer-term market transformation.

Implementation by current program administrators (PAs) will combine taxpayer and ratepayer funds to expand current energy efficiency programs, which could lead to changes in the potential savings that programs can achieve. This issue is important for current program administrators that have energy efficiency resource standards (EERS) or performance incentive mechanisms (PIMs), as program administrators are required to meet savings goals or receive financial incentives for achieving certain levels of savings. This dynamic can lead program administrators to be risk averse to new funding streams if they are unsure whether and how savings will be distributed or attributed to their efforts, and what requirements they must meet. It is important that state energy offices, regulators, and other stakeholders outline program expectations and identify whether and how program administrators can credit savings from IRA funds toward their own portfolios. This process of determining what proportion of savings is a result of the program administrator's intervention is known as attribution of savings.

The challenge of attribution of savings when combining new program funding or implementing new market transformation efforts predates the IRA Home Energy Rebates. For example, attribution arose as one of the major challenges in implementing American Recovery and Reinvestment Act (ARRA) rebates alongside existing programs. Attribution has also been key to integrating new initiatives such as building energy codes into program portfolios and is central to discussions of combining funding at the state level for limited income and building decarbonization programs. This is because attribution determines whether and how savings that stem from new programs, funding, or policies are allocated to current energy efficiency programs. If there are multiple funding streams, often the method to attribute savings is based on the role program administrators play in achieving results.

To help state energy offices, utility regulators, and other stakeholders navigate discussions of attribution with IRA Home Energy Rebates, NEEP convened a group of experts in the field of evaluation, measurement, and verification (EM&V) to establish frameworks for how states can attribute savings from programs that combine IRA Home Energy Rebates with existing energy efficiency efforts, whether administered by a utility or third party. The working group helped create four frameworks that states can apply as they consider their approach: Full Attribution, Proportional Attribution, Negotiated Attribution, and No Attribution. Each framework is described briefly in Figure ES-1:

**Figure ES-1. Frameworks for Attributing Savings from New IRA Home Energy Rebate Programs to Existing Programs**



Deciding which framework to apply will be state specific and depend on how programs are administered and coordinated with other state initiatives. Frameworks may also differ by use case. For example, states may choose one framework for attributing savings toward EERS requirements and another framework for determining PIMs. These frameworks are intended to guide state energy offices as they decide the best path forward for implementation of the IRA Home Energy Rebates. The final section of this paper outlines additional considerations for states in applying the frameworks, including:

- Role of Current Energy Efficiency Program Administrator
- Creation of a Statewide One-Stop-Shop or Home Upgrade Hub
- Marketing and Customer Engagement Opportunities
- Establishing Data Access Procedures
- Driving More Equitable Program Design
- Workforce Training and Trade Ally Engagement





## Introduction

States have been implementing energy efficiency programs since the 1980s. Over time, these investments have resulted in a 60-percent reduction in energy consumption and emissions, as well as savings of \$800 billion a year in consumer energy costs (Glover, Nadel, and Jacobson 2022). The Inflation Reduction Act (IRA) Home Energy Rebates<sup>1</sup> offers state energy offices an opportunity for unprecedented investment in efficiency and electrification across the residential sector. In states where energy efficiency programs already exist, state energy offices (SEOs) can leverage this infrastructure to accelerate distribution and adoption of the rebates. Implementing programs with existing energy efficiency infrastructure, through braiding or co-funding programs, can expand the impact of funding and increase efficiency in program delivery (DOE 2024a). Coordination with existing programs leads to smoother experiences for customers, provides opportunities to align program design and goals, and unlocks longer-term market transformation. Coordination between state energy offices, regulators, and utilities also provides opportunities for discussion and decisions around better policies for data access, innovations in equitable program design and delivery, and creation of contractor networks and training resources.

Combining IRA rebates with existing energy efficiency programs may also require states to adjust the regulatory requirements for energy efficiency program administrators (PAs). States regulate energy efficiency programs to ensure they achieve cost-effective energy savings using ratepayer dollars. Regulators review, monitor, and often reward program administrators for achieving these savings and spending targets. This can make program administrators risk averse to new funding streams if they are unsure how savings will be distributed and what requirements they must meet. Implementing IRA Home Energy Rebates alongside existing programs will require state energy offices and state utility regulators to identify whether and how to adjust these expectations. These discussions will largely focus on the questions of whether program administrators can credit savings from IRA funds toward their own portfolio, known as attribution of savings.

Attribution of savings is not a new concept. For example, it arose as one of the major challenges in implementing American Recovery and Reinvestment Act (ARRA) rebates alongside existing programs. Attribution has also been key to integrating new initiatives such as building energy codes into program portfolios, and it is central to discussions of combining funding at the state level for limited income<sup>2</sup> and building decarbonization programs. This is because attribution determines whether and how savings that stem from programs are allocated to current energy efficiency program administrators. Generally, the method to attribute savings is based on the role that program administrators play in achieving results.

To help state energy offices, utility regulators, and other stakeholders navigate discussions of attribution with IRA Home Energy Rebates, NEEP convened a group of experts in the field of evaluation, measurement, and verification (EM&V). This group helped NEEP to establish frameworks for how states can attribute savings from

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<sup>1</sup> This paper will use IRA Home Energy Rebates to refer to both the Home Efficiency Rebates (HER) and Home Electrification Appliance Rebates (HEAR).

<sup>2</sup> This paper uses limited income to refer to customers who face a higher energy burden or at the low- or moderate- income level. Limited income is meant to encompass various customers facing financial and/or other barriers to accessing programs.



programs that combine IRA Home Energy Rebates with existing energy efficiency efforts, whether administered by a utility or third party. The working group helped create four frameworks that states can apply: Full Attribution, Proportional Attribution, Negotiated Attribution, and No Attribution.

This paper is meant to help states as they identify the appropriate framework for their programs. To do this, the paper first describes the benefits of implementing IRA Home Energy Rebates with current energy efficiency programs and outlines the regulatory implications of combining funding. It then provides an overview of how past programs have allocated attribution and presents four frameworks that states can use to determine attribution with IRA Home Energy Rebates. Finally, the paper concludes with considerations for state energy offices as they design and implement IRA Home Energy Rebates to create lasting market transformation.

## Implementing IRA Rebates With Current Programs Can Expand Impact

Implementing IRA Home Energy Rebates with existing energy efficiency programs provides benefits for states, utilities, administrators, and customers through combining funding streams, delivering consistent marketing messaging, and investing in long term market transformation in state programs. Without proper coordination and outlining of requirements for current program administrators, market confusion could cause customers to miss these opportunities (Ciulla, Wilson, and Gold 2022). State energy offices and utility regulators play an important role in ensuring that rules and processes are clear and funds supplement and not supplant current program efforts (DOE 2024a). This section outlines how implementing new IRA programs alongside existing programs can align various stakeholder interests and what regulatory implications can arise.

### *Benefits of Braiding and Co-Funding With Existing Programs*

Designing IRA rebates to complement existing efforts in energy efficiency can ensure there is a pathway for programs to continue after IRA Home Energy Rebates are spent. Implementing programs together can align interests at the federal, state, and local level as well as integrate existing resources to lower costs and provide a better experience for program participants. Below are some key ways that combining funds provides benefits to states:

- **DOE Encourages Braiding and Co-Funding With Current Administrators:** DOE has “strongly encouraged” states to design programs that combine funding, including state, local, utility, and nonprofit programs (DOE 2024a). Using these funding streams together can “support deeper and broader energy, cost, and carbon savings among participating households” (DOE 2024a). While there are restrictions on how funding can be combined, both IRA Home Energy Rebates can co-fund an upgrade with any state, utility, local, or nonprofit funding source (DOE 2024e). Additionally, while HOMES and HEAR funding cannot be used on the same single upgrade or measure, the law allows for braiding these rebates when compiling a package of upgrades for customers, including with Weatherization Assistance Program (WAP) funding, provided that each federal source funds “distinct, separable upgrades” (Saul Rinaldi and Wiltshire-Gordon 2023). Leveraging all available non-federal pools of funding can lower the initial upfront costs of projects and enable programs to tackle other barriers, such as health and safety issues, wiring, or panel upgrades.



- **Invest in Market Transformation Aligned With State Priorities:** Implementing programs together can also help fund new programs that align with new state policy goals, through changes in program design and implementation, as well as the regulatory structure. For many state energy offices and utility regulators, energy efficiency programs are shifting from a sole focus on energy efficiency to a broader set of objectives including mitigating greenhouse gas (GHG) emissions. Further, many states are considering new building decarbonization policies such as clean heat standards and building performance standards. These broader objectives require programs to shift to deliver deeper energy savings and to include electrification measures. Implementation of IRA rebates provides the opportunity to discuss any regulatory modifications and changes to current programs needed to address the shifting demands on energy efficiency program administrators (Ciulla, Wilson, and Gold 2022).
- **Alleviate Fears of Competition in the Market:** For current program administrators, coordinating with states' IRA rebate programs can alleviate fears of competition in the market. For utility and third party program administrators, there is uncertainty around the impact IRA Home Energy rebates will have on existing energy efficiency program portfolios and expected program outcomes—namely on whether they will reduce or increase market uptake of energy efficiency programs. Implementing programs together can alleviate concerns of competition or customer confusion (Kresowik 2024). For example, research has found that program administrators who deliver energy codes programs shift focus from concerns about new codes reducing their savings potential to a productive engagement with code officials, buildings, and other actors in the market (Lee, Groshans, Schaffer, and Rekka 2013).
- **Streamline and Coordinate Statewide Program Offerings:** IRA Home Energy Rebates provide an opportunity for state energy offices to work with current energy efficiency program administrators to streamline program offerings and coordinate all available resources. In many states, current program administrators may already run programs similar to what the state is considering and have knowledgeable staff and resources that can be used (Lee, Groshans, Schaffer, and Rekka 2013). Pulling all available funds under one program can save consumers money through lowering upfront costs (Saul Rinaldi and Wiltshire-Gordon 2023). Coordination also provides opportunities to streamline involvement for administrators, contractors, distributors, and other market actors, as all programs operate under the same structure. This can create partnerships and resources that would still be available after the state has spent down IRA funding, ensuring stability and long-term market transformation (Amann and Saul-Rinaldi 2024).



## ***Braiding and Co-Funding Impacts to Current Energy Efficiency Programs***

Implementing IRA programs alongside current energy efficiency programs can expand program impact and provide benefits to numerous stakeholders, but braiding or co-funding regulated energy efficiency programs with the IRA Home Energy Rebates will require complex decisions about how to allocate and evaluate the additional funding.

States regulate energy efficiency programs to achieve cost-effective energy savings using ratepayer dollars. Regulators review, monitor, and then reward program administrators' achievement of certain savings and spending targets. Implementing IRA Home Energy Rebates alongside existing programs will mean states will need to identify if and how to adjust these expectations. This will turn on whether program administrators can attribute or credit savings from IRA funds toward their own portfolios. Changes to attribution will also implicate other parts of the evaluation process, such as net-to-gross ratios, cost-effectiveness testing, savings goals, and performance incentives. This section outlines why attribution is important when braiding or co-funding with existing programs and what other implications in the energy efficiency evaluation process might arise.

### **Attribution of Savings**

Attribution of savings is the practice of determining which entities or which programs receive credit for reductions in energy usage from energy efficiency interventions. It is especially important in states where there is a performance incentive mechanism (PIM) or an energy efficiency resource standard (EERS) as program administrators must show regulators that their programs resulted in increased energy savings (ACEEE 2016).

Attribution can be complicated when combining funds because it is difficult to distinguish which funding stream resulted in the program achieving savings and how to value financial contributions versus intangible benefits, such as administrative support and use of existing infrastructure. Because of these complications, there is no consistent approach to attribution for programs with multiple sources of funding. The approaches used range from proportionally to fully allocating savings, as well as negotiating allocations based on programs meeting certain thresholds. Some states also tie requirements of performance to attribution, such as mandating that a program administrator include a certain level of financial contribution or provide administrative support.

Implementing IRA Home Energy Rebates with existing program administrators will require that state energy offices and utility regulators tackle the issue of how to attribute savings that stem from IRA Home Energy Rebates to existing program administrators. In considering how to attribute savings, states must balance providing the opportunity for additional savings with ensuring programs align with state and federal goals. As the frameworks and examples outline below, this is both a qualitative and quantitative question.

### **Other Impacts to the Evaluation Process**

Adjusting attribution to encourage braiding and co-funding programs will change the funding and savings available to program administrators. This change can impact various aspects of the energy efficiency evaluation, measurement, and verification (EM&V) process, such as net-to-gross ratio (NTGR), benefit cost analysis (BCA), energy efficiency resource standards (EERS), and performance incentive mechanisms (PIMs). This section



provides an overview of additional factors that stakeholders should consider in the energy efficiency EM&V process when determining methods for attribution of savings.

- **Net-to-Gross Ratios (NTGRs):** Program administrators can have goals or performance incentives expressed as gross or net savings. If a state uses gross savings, all savings achieved from program interventions are allocated to the administrator, without any adjustments for market factors. If a state uses net savings, only savings that are a direct result of program intervention are allocated to the administrator. In states with net savings, regulators establish a net-to-gross ratio (NTGR) to adjust (typically to lower) savings to account for market impacts, free riders, and spillover (DOE 2015).<sup>3</sup> Previously developed NTGRs may no longer be appropriate depending on the impact IRA Home Energy Rebates will have on moving the market and attracting customers who might not have otherwise participated in energy efficiency programs. It will be important to consider potential modifications to the NTGR when deciding the appropriate attribution framework.
- **Benefit-Cost Analysis:** Regulators use benefit-cost analyses (BCAs) to assess the cost-effectiveness of energy efficiency programs to ensure ratepayer investments result in benefits for customers, utility systems, and society at large (NEEP 2021). DOE does not require states to report a BCA or other form of cost-effectiveness testing in implementing IRA Home Energy Rebates (DOE 2024a). States may still choose to determine the BCA for programs combined with IRA Home Energy Rebate funds, either at the program or portfolio level. If a state does, there could be impacts to the analysis. For example, if the total savings available to a program administrator for a measure or project is lower because regulators are now attributing a portion of savings to IRA rebates funding; the program administrator has less savings available to them, which could result in a less cost-effective portfolio. This is because the program administrator will still be deploying the same amount of funds but receiving less savings than originally anticipated.
- **Program Goals or Energy Efficiency Resource Standards:** Energy efficiency program goals or energy efficiency resource standards (EERS) establish long term targets for program administrators (ACEEE 2016). EERS can be established through legislation or regulatory order. Attributing savings that result from braiding or co-funding with IRA Home Energy Rebates can impact a program administrator's ability to achieve their goals. Depending on how the state attributes savings, program coordination with IRA rebates could increase or lower the potential savings available. As a state considers the proper attribution framework, regulators can review program goals to ensure that the targets align with the pool of savings that is available to program administrators and that IRA Home Energy Rebate funding is additive to the current portfolio.

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<sup>3</sup> For programs that target limited income or low-income customers, the net-to-gross ratio is not as significant or assumed to be 1.0 because low-income customers are unlikely to adopt the measures without the program. See ACEEE, [Guidelines for Low-Income Programs](#), for more information on guidelines for low-income energy efficiency programs.



- **Performance Incentive Mechanisms (PIMs):** Performance incentives mechanisms (PIMs) are regulatory tools that tie financial incentives to outcomes for the program administrator. For energy efficiency programs, the level of financial incentives available to the program administrator can be based on a percentage of energy efficiency program spending or a predetermined pool of funds set in a regulatory proceeding (ACEEE 2018). The outcomes tied to these incentives can be based on net benefits to consumers, energy savings, program spending, state equity policy, and/or greenhouse gas (GHG) impacts (Gold and Berg 2022). States often use a variety of metrics to encourage programs to align with different policy goals. If a state attributes savings from IRA Home Energy Rebates to current program administrators, it will be important to consider adjustments to PIMs because there is a risk of unnecessary financial gain if program administrators over-perform on their targets. This might not be necessary in all states that have PIMs as states that cap total incentives can limit the risk of over-earning.

## Past Frameworks for Attribution of Savings

Determining how to attribute savings when implementing programs that bring together two or more sources of funding is complex but not a new concept. Past programs have tackled the issue of attribution when implementing ARRA, integrating new initiatives like support for compliance with building energy codes, and combining state-level programs. These past applications can be bucketed into four attribution frameworks:

- **Full Attribution:** Program administrators receive all savings from programs that combine funding sources, provided program administrators meet any requirements or financial contribution thresholds set prior to implementation.
- **Proportional Attribution:** Program administrators receive proportional credit for savings associated with their financial contribution, which can include technical assistance, marketing, and administrative support, as agreed to prior to implementation.
- **Negotiated Attribution:** Program administrators receive a predetermined allocation of the savings from programs that blend outside funding with existing programs, provided program administrators meet certain requirements outlined prior to implementation.
- **No Attribution:** Program administrators do not receive any savings attributed to external funding sources and do not play any role in implementing the programs funded.



This section provides an overview of how state energy offices (SEOs), utility regulators, and program administrators (PAs) have applied these frameworks to determine attribution when implementing ARRA, introducing codes programs, and combining funding for building decarbonization and limited income programs.

### Attribution of ARRA Rebates

Implementation of the American Recovery and Reinvestment Act (ARRA) State Energy Program (SEP) is the most directly comparable process to implementation of the IRA for home energy rebates. ARRA presented funding to state energy offices (SEOs) for shovel-ready energy efficiency projects that offered the opportunity for short-term investments in new statewide programs (Goldman, Stuart, Hoffman, Fuller, and Billingsley 2011). As a result, states with existing programs used ARRA to fill gaps in current programs and attempt to tackle new markets. This enabled state energy offices to fund a broader suite of programs that operated without the constraints faced by existing program administrators. While IRA Home Energy Rebates will be a significantly higher amount, ARRA can be looked to as an example for how to coordinate and attribute savings.<sup>4</sup> Table 1 presents how some states coordinated with existing program administrators and how attribution was allocated.

**Table 1. Overview of Program Design and Attribution with ARRA<sup>5</sup>**

Program	Current Program Administrator (PA)	ARRA Program Description	Attribution
Florida	Utility	SEO implemented residential HVAC program.	Full Attribution
Wisconsin	Third Party	Third-party PA ran additional rebates through existing platform.	Negotiated Attribution
Colorado	Utility	SEO implemented appliance rebate program that combined with current utility rebates.	Full Attribution
California	Utility	Utility PA implemented statewide whole home retrofits.	Full Attribution
Michigan	Utility	SEO implemented “fuel neutral” program to target delivered fuel customers, that were not served by existing programs.	Full Attribution
North Carolina	Utility	SEO implemented programs that reached market segments not covered by existing programs.	Full Attribution

<sup>4</sup> The ARRA State Energy Program resulted in a national investment of \$1.5 billion in energy efficiency programs (Goldman, Stuart, Hoffman, Fuller, and Billingsley 2011). IRA Home Energy Rebates will provide \$8.8 billion to state energy offices to invest in energy efficiency programs (DOE 2024a).

<sup>5</sup> Based on NEEP’s review of Lawrence Berkeley National Lab’s *Interactions Between Energy Efficiency Programs Funded Under the Recovery Act and Utility Customer-Funded Energy Efficiency Programs* (Goldman, Stuart, Hoffman, Fuller, and Billingsley 2011).



<b>Minnesota</b>	Utility	SEO implemented rebates to be combined with existing programs to lower upfront costs for customers.	<b>Case-by-case use of both Proportional and Full Attribution</b>
<b>Hawaii</b>	Utility and Third Party	Third-party PA implemented program expanding appliances available, increasing some rebates, and buying down interest rates.	<b>Proportional Attribution</b>
<b>Massachusetts</b>	Utility	Utility PA used funds to buy down interest rates and lower upfront costs of existing measures.	<b>Full Attribution</b>
<b>New York</b>	Utility and State Agency	SEO implemented program separate from current PA offerings.	<b>No Attribution</b>
<b>Maine</b>	Third Party	Third-party PA provided rebates to customers with delivered fuels who were not served by current programs.	<b>Proportional Attribution</b>
<b>Oregon</b>	Third Party	SEO implemented appliance rebate program that combined with current utility rebates and offered rebates for previously unserved market.	<b>Negotiated Attribution</b>

As shown, state energy offices (SEOs) took a variety of approaches for coordinating program implementation and attributing savings. Most states chose to fully attribute savings to program administrators, but employed a variety of forms of coordination, demonstrating how the process can vary by state (Goldman, Stuart, Hoffman, Fuller, and Billingsley 2011). Below are some highlights of how states approached combining and attributing savings from both ARRA and current energy efficiency programs based on NEEP’s review of Lawrence Berkeley National Lab’s Interactions Between Energy Efficiency Programs Funded Under the Recovery Act and Utility Customer-Funded Energy Efficiency Programs (Goldman, Stuart, Hoffman, Fuller, and Billingsley 2011).

- **Full Attribution, California:** In California, the state energy office chose to implement a whole home retrofit program in coordination with the current utility program administrators. Initially, the state was hesitant to coordinate with current program administrators because the administrators had limited experience implementing whole home programs. But the SEO and program administrators changed course, recognizing the value of running programs under a single, statewide brand so as not to create confusion for customers. In deciding how to attribute savings, the California Public Utilities Commission (CPUC) allocated full attribution of savings from programs that combined funding. The CPUC chose full attribution because of the co-benefits provided to the state by running programs together. The state also concluded that it was not necessary to distinguish the impact of the separate funding streams as program administrators have gross energy savings targets.
- **Negotiated Attribution, Wisconsin:** In Wisconsin, Focus on Energy (Focus), the third-party program administrator, implemented ARRA alongside its current portfolio, increasing and adjusting its appliance rebates (providing up to 125 percent of existing rebates). Prior to implementation, parties in the proceedings agreed that Focus would be attributed the savings only for measures that already existed





in its portfolio and had already proven to be cost-effective. The enhanced rebates offered through the program resulted in a year's worth of appliance sales occurring in four months.

- **Negotiated Attribution, Oregon:** Oregon developed a methodology that based attribution of energy savings on whether the Energy Trust of Oregon's (ETO) incentive when offered with the SEO ARRA Rebate was a "critical contributing factor" to customer participation. During implementation of ARRA, the state energy office created their own program that customers could use in addition to rebates provided by ETO. The SEO program also offered incentives for previously unserved markets, including heat pumps and furnaces for limited income residents. The parties agreed prior to implementation that attribution would not be based on the proportion of spending but rather if ETO's incentive was a "critical contributing factor". How to define a critical contributing factor was determined in regulatory proceedings after implementation. For Oregon, it is important to highlight that ETO does not receive performance incentives, so the precise determination of how to attribute savings was less of an issue.
- **No Attribution, New York:** New York is unique in that both the state energy office, New York Energy Research and Development Authority (NYSERDA), and the utilities administer energy efficiency programs. For ARRA, NYSEDA did not coordinate funds with utility program administrators because the state did not want to interfere with existing program design, and regulators were unsure how to handle the process of attributing program savings when funding streams were combined. For the program, NYSEDA offered similar rebates to what was already on the market and customers choose between the utility rebates or NYSEDA ARRA rebates. This meant coordination behind the scenes to make sure customers did not double dip; NYSEDA and the utility program administrators ran lists to ensure no overlap in customers.

### *Attribution With Code Compliance and Adoption*

Building code programs are another area where states have had to tackle the issue of attribution. Building energy codes determine the minimum efficiency level for the design and construction of new buildings. Unlike ARRA, codes programs do not blend funding to implement more measures but use ratepayer funds to increase adoption and compliance with state building codes. Studies have shown that codes programs lead to increased code compliance and unlock opportunities for code advancement that otherwise would not have happened (NEEP 2022). Codes programs have also provided the added benefit of alleviating fears that increasing stringency in codes will mean lower savings available to current program administrators (Lee, Groshans, Schaffer, and Rekka 2013). To determine attribution, program administrators are allocated a portion of savings that result from code adoption. Below is an overview of how some states have implemented codes programs and addressed attribution.



Table 2. Codes Program Attribution Practices<sup>6</sup>

State	Program Administrator	Description	Attribution Methodology
California	Utilities	Promoting codes and standards through development and feasibility of establishing new codes (or enhancements), development of compliance methods, and creation of technical and cost information.	2006 to 2008: Negotiated Attribution, 50% of estimated savings  2010 to 2012: Full Attribution for all new code adoption estimated savings
Rhode Island	National Grid	Training, circuit riders, support for inspections, and documentation tools to increase code adoption and compliance.	Negotiated Attribution 40% of estimated savings
Arizona	Salt River Project	Advocacy for adoption of new building codes and materials and training to support the code.	Negotiated Attribution 50% of estimated savings

Negotiated attribution is featured prominently in these examples, where there is a set of conditions for program administrators to meet and an assigned value of savings that would be given to PAs when the conditions are met (Lee, Groshans, Schaffer, and Rekka 2013). Therefore, while code support programs might be a new area for program administrators, there is a lower risk of poor performance because they know in advance what they need to do to earn their allocation of savings. Examples from Rhode Island and California are highlighted below:

- Rhode Island, Negotiated Attribution:** In Rhode Island, National Grid worked with stakeholders to create a code compliance plan that included four elements to facilitate energy code compliance (Lee, Groshans, Schaffer, and Rekka 2013). These elements were: trainings, technical assistance through circuit riders, support for inspections, and creation of compliance tools and documents for builders. Under this negotiated attribution framework, if National Grid completed 100 percent of the activities, they could receive up to 40 percent of estimated savings coming from code adoption. If National Grid did not achieve 100 percent, the attribution percentage was reduced according to performance. To estimate the total savings resulting from code adoption, National Grid projected savings in advance based on forecasted compliance rates and construction volume (NEEP and National Grid 2019).
- California, Negotiated Attribution:** In California, the codes program focused on implementing new codes throughout the state (Lee, Groshans, Schaffer, and Rekka 2013). Program administrators were allocated savings estimated to result from the adoption of new or enhanced codes. Program attribution was determined based on whether the program administrators satisfied three factors: development of compliance determination methods, development of technical and cost formation, and establishment of the feasibility of meeting the standard. Because of program success, the savings attributed to program administrators was increased from 50 percent of estimated savings to 100 percent.

<sup>6</sup> Based on NEEP’s review of *Attributing Building Energy Code Savings to Energy Efficiency Programs* (Lee, Groshans, Schaffer, and Rekka 2013); *Energy Code Compliance Attribution* (NEEP and National Grid 2019); and *Salt River Project’s 2023 Customer Programs Report* (Salt River Project 2023).



### Attribution When Combining State-Level Funding Streams

Attribution has also appeared as a key issue when states combine program efforts and funding streams to grow resources to implement limited income programs and advance building decarbonization efforts. These programs are similar to ARRA and IRA Home Energy Rebates in that they combine funding to build on and enhance current programs. Therefore, states must determine how to coordinate program implementation and how to allocate new savings that might be available to program implementers. Below is an overview of these different programs:

Table 3. Combining Funding Streams for Limited Income and Building Decarbonization<sup>7</sup>

Programs	Description and Funding	Attribution Methodology
California, Decision on Incentive Layering	Statewide mid-stream heat pump program: Combining funding sources from energy efficiency programs, state funding, local and municipal utility efforts, and federal sources.	Full Attribution
Illinois Home Weatherization Assistance Program (WAP)	Statewide WAP program: Combining resources and funding from utility energy efficiency programs. Utility administrator was required to provide administrative overhead costs and 50% of rebate incentives.	Full Attribution
Oregon Limited Income Energy Efficiency Programs	Statewide limited income programs: Combining resources and measures with Energy Trust of Oregon and other sources of funding throughout the state.	Full Attribution
Efficiency Vermont	Statewide mid-stream heat pump program: Combining funding from state efficiency programs and utility renewable energy portfolio programs.	Negotiated Attribution

As Table 3 highlights, each state pursued its own policy approach with the goal of prioritizing coordination among different administrators and streamlining the customer experience. California sought to lower upfront costs of building decarbonization, Illinois and Oregon sought to blend funding for limited income programs, and Vermont sought to achieve both efficiency and climate emissions goals. Below are summaries of the different programs and how each state applied their own attribution framework:

- **Full Attribution, Oregon and Illinois:** In Oregon and Illinois, agreements were reached where the program administrator would be allocated 100 percent of savings for any measures that combine funding for limited income energy efficiency programs (Public Utility Commission of Oregon 2019; Illinois Energy Efficiency Stakeholder Advisory Group 2018). In Illinois, combining utility energy efficiency programs

<sup>7</sup> Based on NEEP’s review of: *Order No. 19-232, Recommendations to Establish a Methodology for Reviewing Collaborations Between Energy Trust of Oregon and Other Organizations Who Are Funding Low Income Energy Efficiency Program* (Public Utility Commission of Oregon 2019); *Claiming Savings From Income Qualified Weatherization Programs Where Multiple Entities Provide Funding Settlement Stipulation* (Illinois Energy Efficiency Stakeholder Advisory Group 2018); *Order Instituting Rulemaking Regarding Building Decarbonization* (Public Utilities Commission of California 2021); and *RES Tier III 2022 Verification Report* (Vermont Department of Public Service 2023).



with the state WAP program helped reduce the need for duplicative administrative costs for the Illinois Home Weatherization Assistance Program (IHWAP) (Illinois Energy Efficiency Stakeholder Advisory Group 2018). As a result of a stakeholder process, utility program administrators receive 100 percent of savings that stem from IHWAP projects that they help to implement, provided they meet certain conditions in implementation. To receive the full allocation of savings, the utility PAs must provide administrative costs (including administrative support, health and safety, and training costs) and 50 percent of funding for the project. Stakeholders agreed to this allocation because of the intangible benefits provided through being able to use the existing utility administrative support structure and funding.

- **Full Attribution, California:** California has many programs that serve the building decarbonization market and pull from various sources such as the state energy efficiency programs, cap-and-invest program, and other state-led initiatives like the TECH Clean California program<sup>8</sup>, which provides statewide heat pump rebates (Public Utilities Commission of California 2021). To streamline reporting and requirements, the CPUC issued an order adopting layering principles for when programs have overlapping goals, incentives, or metrics, including how to attribute savings to program administrators. In deciding on full attribution over a proportional approach, the CPUC highlighted the need to alleviate concerns around attribution and allow parties to focus on coordination of funds to achieve large-scale market transformation.
- **Negotiated Attribution, Vermont:** In Vermont, both the energy efficiency program administrator, Efficiency Vermont, and the investor-owned utility, Green Mountain Power (GMP), offer heat pump programs but for different purposes. GMP is mandated to deliver heat pump rebates through a renewable energy standard, which installs heat pumps to lower GHG emissions on the grid (Efficiency Vermont 2023). Efficiency Vermont is mandated to deliver heat pump rebates as part of their energy efficiency programs. To offer these programs together and provide a more streamlined approach to customers, GMP and Efficiency Vermont sign an MOU allocating attribution of savings between the two for every program cycle (Vermont Department of Public Service 2023). The coordination between the two programs has facilitated and amplified the impacts of the rebates in the state, creating a new streamlined mid-stream heat pump rebate for customers (Efficiency Vermont 2021).

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<sup>8</sup> See [Tech Clean CA](#) to learn more about this program.

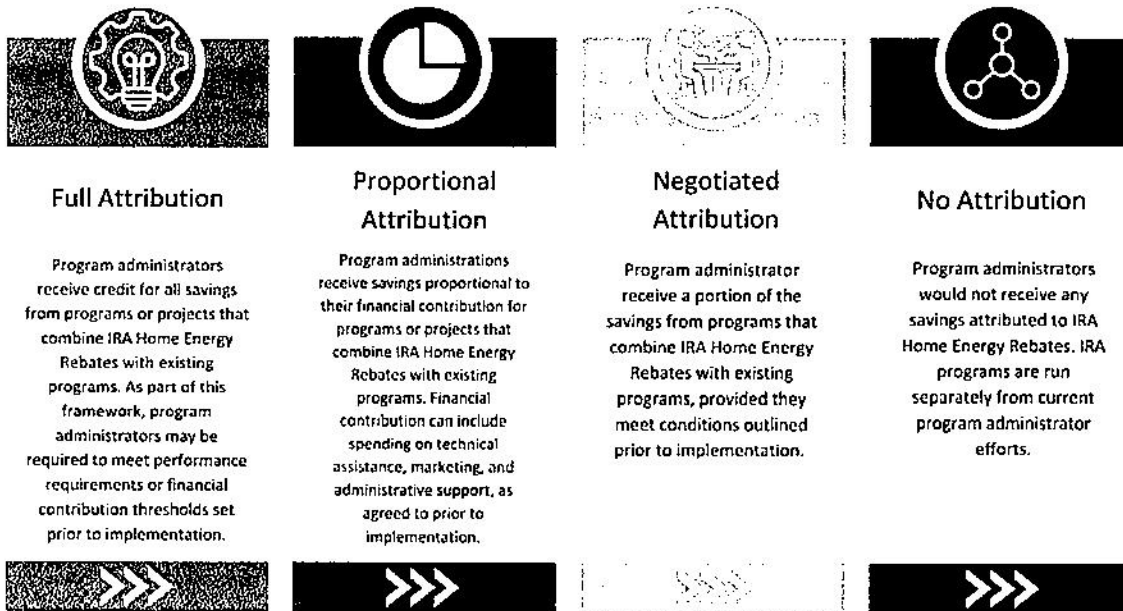


## IRA Attribution Frameworks

While each of the past examples of attribution is slightly different and unique for the state and program goals, there are lessons that can be applied as states combine IRA Home Energy Rebate funds with current programs. In many of these examples, regulators have used full attribution with requirements for program design or spending contributions to encourage coordination and deliver a more streamlined, single program to customers. Further, state energy offices, regulators, and other stakeholders have found that full attribution can account for unenumerated benefits, such as market transformation impacts. No matter the framework chosen by states, creating clear frameworks upfront can help streamline implementation and ensure alignment on expectations.

Applying these lessons, as well as takeaways from convening a working group and interviewing stakeholders on the topic of attribution, NEEP has established four frameworks that states can use to determine whether and how to attribute savings from IRA Home Energy Rebates to current program administrators. NEEP hopes that state energy offices and utility regulators can use these frameworks to determine the appropriate savings that should be allocated to current program administrators and align all stakeholders on expectations for how programs can coordinate and leverage existing resources. These attribution frameworks are presented in Figure 1.

Figure 1. NEEP Attribution Frameworks





### ***Full Attribution Framework***

For the Full Attribution framework, program administrators receive credit for all savings from programs if they meet any requirements or financial contribution thresholds set prior to implementation. Various states have allocated full attribution to program administrators when programs combine funding sources to lower costs and/or present a seamless experience for customers.

Providing program administrators full savings for projects that braid or co-fund ratepayer dollars can provide an incentive for coordination and lower the risk of piloting new program designs, as program administrators will retain the full value for projects. As highlighted in the examples, in the California layering order, the CPUC concluded that partial attribution presented a barrier to allowing parties to coordinate because program administrators would be concerned with lower savings for projects funded by multiple sources (Public Utilities Commission of California 2021). Allocation with full attribution alleviated this concern and fostered coordination. Other states have leveraged full attribution to ensure certain levels of coordination between program administrators and other implementers. In Illinois, program administrators were allocated full attribution of project savings provided they contributed 50 percent of funding and administrative support. These conditions were agreed to through a stakeholder process (Illinois Energy Efficiency Stakeholder Advisory Group 2018).

If a state determines that program administrators can claim full savings for projects that braid or co-fund ratepayer and IRA Home Energy Rebates, it should also include a stakeholder process that outlines other requirements or recommendations to ensure program administrators are providing enough financial and administrative support to receive the full allocation. Providing full attribution to the current administrator may also require changes to net-to-gross ratios, program goals, and performance incentives to account for the additional funding and savings that could accumulate from IRA funding. For NTGR, if changes do need to be made, these changes would mainly affect market-rate programs because limited income programs typically assume no NTGR adjustments. For savings goals and performance incentives, the increase in funding will likely result in increased savings. States can consider adjusting goals and PIMs to ensure overachievement does not result in a windfall to current program administrators' shareholders. It could be challenging for states to identify the potential increase in savings associated with the increase in funding from IRA Home Energy Rebates, but states can use past savings-to-spending ratios to inform these decisions and determine any potential increase in performance.



### ***Proportional Attribution Framework***

Under the Proportional Attribution framework, program administrators receive proportional credit for savings associated with their financial contribution and other efforts, including technical assistance, marketing, and administrative support for programs or projects that combine IRA Home Energy Rebates with existing programs (Kresowik 2024). For programs that braid or co-fund with IRA Home Energy Rebates, this will most likely take the form of program administrators receiving savings equal to the proportion of rebate their incentive covers.



Hawaii applied the proportional framework when implementing ARRA funds. The state coordinated with their current program administrator to increase program rebates for an ENERGY STAR-certified refrigerator program. ARRA funding added \$200 to the existing \$50 rebates provided by the program administrator. With proportional attribution, the program administrator was able to take credit for 20 percent net savings for each refrigerator (Goldman, Stuart, Hoffman, Fuller, and Billingsley 2011). As highlighted in this example, if states apply the proportional attribution framework, it could reduce the savings current program administrators expect from projects, as they will only be allocated the portion of savings equal to their financial contribution. On the other hand, the increased rebate can increase program participation. In Wisconsin, the program administrator increased their rebates (providing up to 125% of the existing rebates) and saw a year's worth of sales occur within four months (Goldman, Stuart, Hoffman, Fuller, and Billingsley 2011).

For states considering different frameworks, proportional attribution can ensure that projects attributed to current program administrators do not result in an overaccumulation of savings (Kresowik 2024). In applying this framework, states will also need to consider some impacts to other parts of the evaluation process. For NTGR, using proportional savings and adjusting NTGR to accommodate for the impact of IRA Home Energy Rebates can lead to a double reduction in available savings for program administrators (Goldman, Stuart, Hoffman, Fuller, and Billingsley 2011). The lower allocation of savings per project can also impact cost-effectiveness testing and the current program administrator's ability to achieve goals and performance incentives. It is important to discuss how the state will address these impacts to ensure programs maintain spending levels and are encouraged to combine funding.



### *Negotiated Attribution Framework*

For the Negotiated Attribution framework, the program administrator would receive a portion of the savings from programs that combine IRA Home Energy Rebates with existing programs, provided they meet conditions outlined prior to implementation. This framework would likely result in program administrators receiving an allocation of savings between proportional and full attribution. Because of the negotiation process, the framework allows for interested stakeholders to outline clear roles and requirements for program administrators when implementing IRA Home Energy Rebates alongside current energy efficiency efforts (Lee, Groshans, Schaffer, and Rekka 2013).

States have used negotiated attribution in the deployment of ARRA, implementation of codes programs, and braiding of resources, as outlined in the examples in the prior section. Negotiated attribution has helped to outline roles and responsibilities when programs have different goals but overlap in program implementation. In Vermont, both the energy efficiency utility, Efficiency Vermont, and the investor-owned utility, Green Mountain Power (GMP), are mandated to deliver air source heat pump (ASHP) and heat pump water heater (HPWH) programs, but for different goals (Efficiency Vermont 2023). To streamline implementation into one program, the two program administrators sign an MOU every program cycle that outlines roles, funding amounts, and attribution allocations. The creation of one streamlined program has resulted in numerous benefits for



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## Conclusion

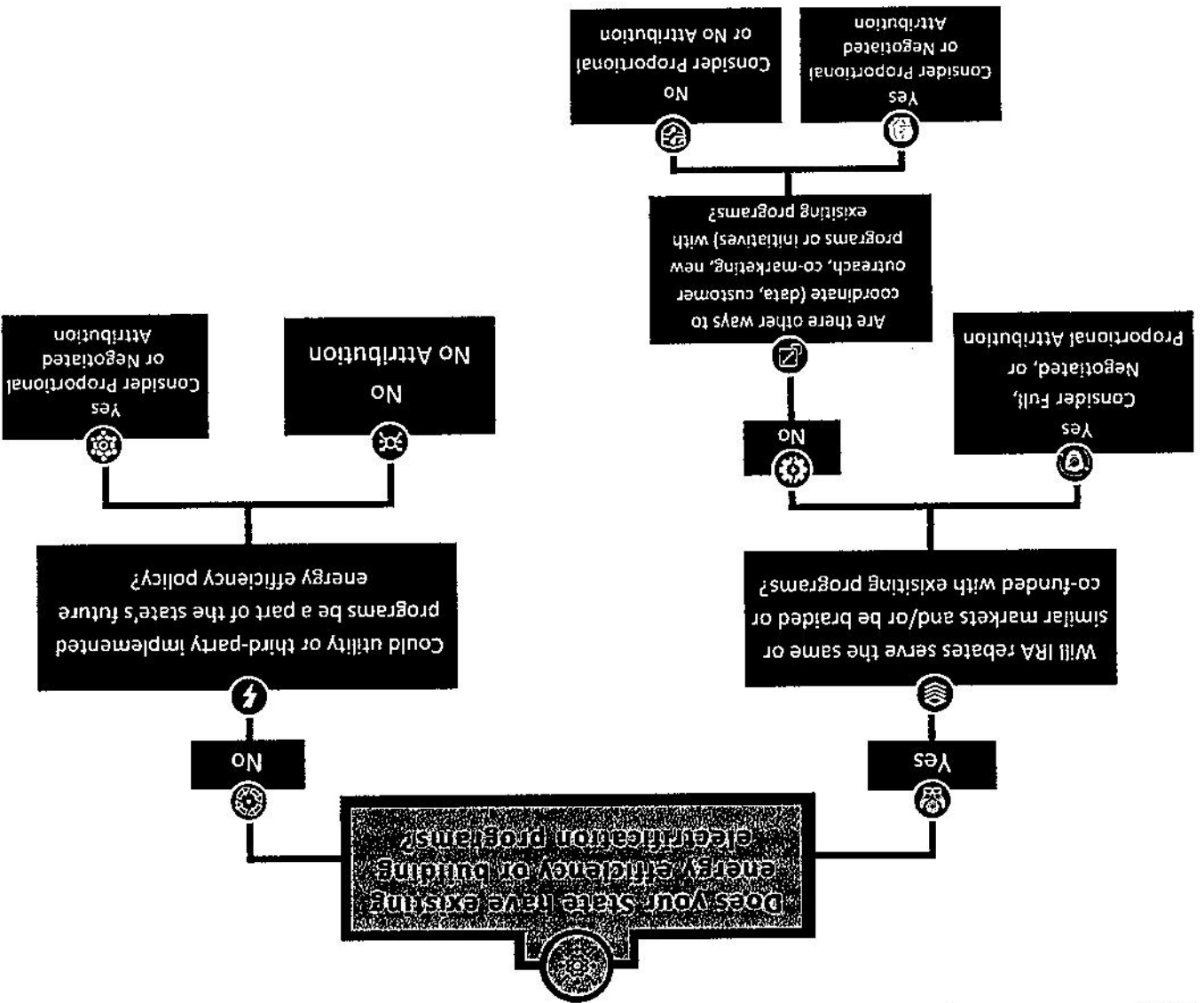
Deploying new IRA incentives alongside current energy efficiency programs can result in numerous short- and long-term benefits, including helping state energy offices successfully spend all the funding available to them, ensuring the energy efficiency market can handle the influx of funding, and combining funding to tackle high upfront costs and deliver programs to limited income customers. States that have existing energy efficiency programs are in a unique position to use these resources. To do this though, state energy offices, utility regulators, and program administrators must have discussions about how to attribute savings that stem from IRA Home Energy Rebates and how combining programs can impact other parts of the EM&V process. This paper presents an analysis of past examples and four frameworks to help with this process. Deciding which framework to apply will be state specific and depend on how programs are administered and coordinated with other state initiatives.



- **Establishing Data Access:** Access to consumer energy data is critical to the design and implementation of energy efficiency programs and IRA Home Energy Rebates (Amann and Saul-Rinaldi 2024). In fact, part of the application process for IRA Home Energy Rebates is submission of a Utility Data Access Plan that establishes standards for transferring data safely and securely, as well as the capability for utilities to collect and aggregate single- and multifamily building energy data (DOE 2024a). Many states lack formalized ways to access utility energy data, for both customers and third-party implementers (Miller 2023). Combining funds and implementing programs together enables partnerships between the state and utilities, which could allow for establishment of procedures to enable long-term access to consumer data. This data can help program administrators improve program design and delivery. Additionally, secure access to data and the ability to share it provides customer benefits, including the ability to learn more about their energy usage and enroll in third-party programs (Amann and Saul-Rinaldi 2024).
- **Driving More Equitable Program Design:** Combining IRA Home Energy Rebates with current programs allows states to bring together resources, existing infrastructure, and partnerships to implement more equitable programs and serve limited-income communities (Ciulla, Wilson, and Gold 2022). Prioritizing equity through engagement efforts can ensure new programs are tailored to the needs of limited income communities. Regulators and state energy offices can use IRA Home Energy Rebates as a starting point to discuss changes in program design and require coordination with community organizations. Implementing programs together can also ensure the use of all available funds to cover the project's total cost and tackle hard-to-reach sectors, such as multifamily. Multifamily properties have long been underserved by efficiency programs and 85 percent of residents are limited income. Coordinating a new program that can tackle this market with IRA funding can lay the groundwork for long-term programs that outlast IRA funding (ICAST 2024). Further, states can use tools to identify priority communities or individuals for investment and design programs to fit their needs.
- **Workforce Training and Trade Ally Engagement:** Building an energy efficiency and beneficial electrification workforce will be an important component to ensuring successful deployment and adoption of IRA Home Energy Rebates. The energy efficiency workforce is already experiencing a shortage of contractors and states are at risk of not being able to deploy IRA Home Energy Rebates (Amann and Saul-Rinaldi 2024). For successful implementation, it is important that states consider ways to establish certifications and requirements using existing networks and training resources to the extent possible. Working with the current program administrator can ensure new requirements align with existing workforce training and certifications, which will guarantee an existing pool of contractors ready to deliver IRA funded programs. Using an existing network can also provide state energy offices the opportunity to leverage Training Residential Energy Contractors (TREC) funds to grow current programs, investing in workforce training that will outlast IRA deployment. This opportunity can also be used to direct efforts toward underserved communities, training and upskilling a local workforce.



Figure 2. Decision Tree for Attribution Frameworks



*Role of Current Program Administrator*

While IRA Home Energy Rebate funds will be allocated to state energy offices, they will be implemented through a program administrator, either the current one or one that is hired for the sole purpose of dispensing the IRA funds. Who the state selects to implement programs will likely depend on different factors, including type of programs that will be deployed, success of current program administrators, capacity of the state energy office, and relationships among the different parties. Below are three ways states can implement IRA programs and considerations for which attribution framework might be appropriate depending on the role of the current energy efficiency program administrator.



customers and contractors across the state (Efficiency Vermont 2021). For the program, attribution of savings is allocated to align with the regulatory mandates for each program administrator to ensure they achieve program goals. For one cycle, GMP was attributed 100 percent of emissions savings when an electric HPWH replaced a fuel powered one, and any savings that resulted from installation of ASHPs was split evenly between the two (Vermont Department of Public Service 2023).

For the Negotiated Attribution framework, the savings attributed need not be related to spending; attribution can be allocated for the support that an existing program provides. In Wisconsin, under ARRA, parties agreed that the program administrator would be attributed the savings only for measures that already existed in its portfolio and were proven to be cost-effective (Goldman, Stuart, Hoffman, Fuller, and Billingsley 2011). In Oregon, the state developed a methodology that based attribution of energy savings on whether the Energy Trust of Oregon's incentive was a "critical contributing factor" to the project. Finally, for attribution of codes programs, certain tasks or performance requirements were outlined prior to program implementation so that program administrators clearly understood how actions they took would result in savings.

Negotiated attribution can alleviate the concern that full attribution might result in disproportionate additional savings and profits for program administrators outside of current programs. It also can provide a greater allocation than the Proportional Attribution framework, accounting for intangible benefits such as administrative support and networks of existing relationships with customers. States applying negotiated attribution will need to consider the additional impacts attribution of IRA Home Energy Rebates will have on other parts of the energy efficiency program EM&V process, including NTGR, benefit cost analysis, program goals, and performance incentives, just as they would if applying the Full or Proportional Attribution frameworks. How each of these factors needs to be adjusted will depend on the allocation of savings that is agreed to.



### ***No Attribution Framework***

For the No Attribution framework, program administrators would not receive any savings attributed to IRA Home Energy Rebates. This framework provides an opportunity for states to pursue programs that may not be offered by current program administrators or that are outside of the scope of current program offerings. Such programs can serve hard-to-reach or niche program sectors or offer the opportunity for state energy offices to create market transformation programs focused on achieving short term goals. States can also look to the No Attribution framework if coordination with current program administrators interferes too much with existing programs.

For ARRA, states did not attribute savings to existing program administrators if their goal was to serve new or niche markets that did not overlap with current energy efficiency programs. For example, the Florida state energy office completed its own \$15 million residential HVAC program with consultation and input from current program administrators but no additional coordination (Goldman, Stuart, Hoffman, Fuller, and Billingsley 2011). Additionally, in North Carolina the state energy office formally coordinated with utility program administrators



and developed programs that reached into market segments not covered by existing programs. New York also chose to not attribute savings to their existing utility program administrators but implemented similar programs. The state kept programs separate because it did not want to interfere with the current program landscape (Goldman, Stuart, Hoffman, Fuller, and Billingsley 2011).

If states choose to apply the No Attribution framework and there are existing programs, it is important to coordinate with program administrators. While no attribution can help sidestep the complications that arise with regulatory changes and other impacts to existing programs, it means that these programs might be short-lived unless program administrators are brought in. This could limit the ability for programs to exist after the IRA Home Energy Rebates are spent (Goldman, Stuart, Hoffman, Fuller, and Billingsley 2011). On the other hand, this approach allows the state to create new programs and might be beneficial in states where existing energy efficiency programs are less robust, such as states with spending caps or where energy efficiency programs are not as well established, and where the market is still evolving, such as reaching delivered fuel customers and implementing electrification-focused measures. If there are regulated energy efficiency programs in the state, it will be important to consider changes to the NTGR as IRA dollars will be driving more market demand. Additionally, states might want to consider whether IRA Home Energy Rebate programs might impact current program administrators' ability to achieve their goals and implement successful programs. This might occur if there is any overlap in programs and measures delivered.

## Applying the Frameworks

Implementing IRA funding with existing programs can ensure IRA Home Energy Rebates complement existing efforts and provide an opportunity for cooperation and coordination, which can lower upfront costs for customers and unlock long-term market transformation. As highlighted in the above examples, if there are multiple funding streams, then the method to attribute savings is largely determined by the role program administrators play in achieving results. Defining the appropriate level of attribution will depend on how the state wants to recognize the efforts put forth by program administrators in helping to successfully implement the IRA Home Energy Rebates. The four frameworks in this paper are meant to help states determine how to properly attribute savings and identify appropriate points of coordination. Throughout the process, regulatory agencies, state energy offices, and other stakeholders can balance quantifiable savings and harder-to-measure benefits, such as market transformation features, with the role administrators play. The level of attribution may also differ by program or measure.

Figure 2 presents a flow chart of high-level decision points in the process of determining savings attribution methods. The following sections address these decision points to guide states in choosing an attribution framework to apply.