

To Weatherize or Not to Weatherize: Should Residential Energy Efficiency Programs Prioritize Weatherization with Whole-Home Heat Pump Rebates?

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Abstract

Many states in colder climates – including in the Northeast – are working to meet climate goals in part by transitioning residential homes to efficient, electric heating with high performing air source heat pumps (ASHPs). However, homes in these states tend to have poor building envelopes, which can reduce ASHP efficiency and cause excess energy use. This can result in higher bills for ASHP adopters and increased demand for the electricity grid. As a result, program administrators are considering mandating weatherization prior to providing whole-home heat pump rebates. While both weatherization (Wx) and ASHPs provide benefits, requiring Wx prior to a whole home ASHP install provides additional program steps, requires workforce coordination, and can increase program and/or consumer costs. As such, program administrators must balance costs, workforce readiness, long-term affordability, grid impacts, and decarbonization goals to determine if mandating Wx best suits their program needs.

This paper describes approaches that three statewide energy efficiency programs have taken to deploy Wx with whole home ASHPs installs in Maine, Massachusetts, and New York. Through research and interviews with program administrators and a contractor, we explore the benefits and risks of requiring Wx prior to whole-home ASHP installation. We conclude with three recommendations: require Wx for ASHPs installed through low-income programs, encourage but not require Wx for ASHPs installed through market-rate programs, and further explore strategies to mitigate the grid impacts of heating electrification.

Introduction

As states work to accelerate heat pump deployment in pursuit of energy efficiency and climate goals, they are increasingly encountering the question: “To weatherize or not to weatherize?” More specifically, should energy efficiency programs require weatherization (Wx) or not require Wx prior to installation of a whole home air source heat pump system? For the purposes of this paper, Wx refers to the process of improving the building envelope through air sealing, insulation upgrades, and other measures that reduce heat transfer between the interior and exterior of the building. Installation of a whole home ASHP system refers to the process of installing a whole home high performing ASHP system, capable of meeting 80-120 percent of a home’s heating load.¹

¹ Note: While many state policies target ground source heat pumps (GSHPs), networked geothermal, and other residential decarbonization strategies, this paper exclusively focuses on ASHPs. While GSHPs are a strong

Wx is particularly salient to Northeast² states, which have some of the oldest housing stock and coldest winters in the country. Over 84 percent of homes in the Northeast were built prior to 2000, compared to the national average of 70 percent (EIA 2023). Additionally, about 22 percent of Northeast homes have poor or no insulation, and 14 percent are reported to be “too drafty”. Wx measures such as air sealing and attic insulation can reduce home energy consumption by 12-18 percent, with deeper retrofits able to reduce energy use by over 40 percent (ICF 2022). Wx provides numerous benefits to both participants and society, including comfort, reduced energy bills, improved air quality, lower medical expenses, and a reduction peak demand on the grid (Blasnik et al. 2014).

ASHPs are growing in usage as they improve home heating and cooling efficiency, provide comfort, and lower greenhouse gas emissions. Compared to existing heating systems, heat pumps can reduce home heating energy usage by 31-47 percent (Billmoria et al. 2018; Wilson et al 2024). Technological advances have improved cold climate performance and enabled ASHP operation at temperatures as low as -13°F (Billmoria et al. 2018; Cox 2024). Although ASHPs efficiency depends on the model and installation, ASHPs are usually two to three times more efficient than baseline systems such as gas furnaces or electric resistance. Further, when compared to delivered fuels, ASHPs can save customers hundreds annually on operational costs (Booth et al. 2024).

Given the efficiency and emissions benefits of both measures, states with colder climates have considered requiring customers to weatherize prior to accessing whole home ASHP rebates. In Massachusetts, Mass Save program administrators³ have instituted a requirement that homes demonstrate a sufficient level of Wx. In New York, the Public Service Commission (NY PSC) will require program administrators to make Wx a requirement before customers can access heat pump rebates by 2028. Finally in Maine, Efficiency Maine Trust (EMT), has opted to not require Wx prior to accessing whole home rebates for ASHP, but EMT only provides rebates to whole-home ASHP systems.

These three states have addressed the issue of how to deploy Wx with whole home ASHPs in different ways due to various factors, such as costs, existing heat fuels, climate goals, demand reduction strategies, and workforce considerations. Informed by interviews,⁴ this paper provides these three case studies which reflect a range of approaches on how states can tackle Wx and ASHPs in cold climates and examines the benefits and tradeoffs of each approach. The paper concludes with insights and recommendations for other states considering how to require or encourage Wx with whole home ASHP rebates.

decarbonization technology given their high efficiency and low impacts on the grid, ASHPs have significantly lower upfront costs and are currently the most versatile and commonly installed residential decarbonization technology.

² Northeast states refer to Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and West Virginia.

³ The phrase “program administrators” refers to businesses and/or organizations that implement state-wide energy efficiency programs, such as Mass Save, NYSEERDA, and Efficiency Maine Trust.

⁴ The omission of any one priority from a state’s discussion does not mean that state does not consider that priority during program design – simply that the priority was not discussed at length or highlighted in the interview.

Why Prioritize Weatherization with ASHPs?

Wx can provide numerous benefits for homes that heat and cool with ASHP, especially in cold climates. Below are three key benefits of prioritizing Wx prior to whole home ASHP installation:

- **Lower ASHP Installation Costs:** Wx prior to ASHP installation can reduce installation costs by lowering the heating load of the home and size of the unit needed. But the benefits to installation costs provided by Wx prior to whole home installation can vary from install to install. Interviewees indicated that reduced heating load saves around 0.5-1 ton in system size (C. Moriarta, director, NYSERDA, pers. comm. February 4, 2026). This could translate to \$500 in equipment costs, as the price difference between ASHP models is modest (I. Burnes, director, EMT, pers. comm., February 10, 2026; B. Cooksey, Sr., owner, Air Doctors, pers. comm., February 19, 2026).
- **Lower ASHP Operational Costs:** Deeper cost savings from Wx occur through the increased operational efficiency of ASHP systems post-weatherization. Research indicates that moderate Wx measures can reduce ASHP lifetime operating costs by \$3,000-\$11,000 (Specian 2023).⁵ For states with colder climates, this is especially important for homes that heat with gas, which are more likely to see an increase in energy costs, and low-income households, who tend to live in leakier homes (McKenna et al. 2024). While Wx benefits can be substantial, associated energy savings and bill impacts depend on a variety of factors including housing characteristics, system design and installation quality, climate, fuel displaced, and occupant behavior.
- **Mitigate Grid Demand and Infrastructure Costs:** While ASHPs typically reduce overall energy consumption, switching customers from fossil fuel systems to ASHPs can increase electricity demand in the winter and drive peak in times of extreme cold. While a longer-term (mid-2030s) concern, ASHP deployment could transition the Northeast electricity system from summer to winter peaking, potentially requiring new grid infrastructure investments (NY ISO 2025; ISO NE 2026). Wx helps protect against this risk by lowering energy usage and reducing peak demand. Research has found Wx can reduce peak demand by 7-10 percent (Specian 2023).

Why Prioritize ASHPs Only?

While Wx can provide many benefits, requiring it in tandem with ASHP installation can also introduce complexity for program administrators, contractors, and customers. Below are three key barriers that can arise when customers must weatherize prior to installation of ASHPs.

- **Barriers to Customer Participation:** Mandating Wx prior to a whole home ASHP installation can create additional barriers for customers by adding time to projects, increasing costs, and creating additional administrative and logistical hurdles (I. Burnes, director, EMT, pers. comm., February 10, 2026; Slipstream 2022). While customer

⁵ This analysis assumes a 25 percent savings from weatherization projects.

motivations vary across housing types and income levels, many customers only consider HVAC upgrades when their existing equipment fails (I. Burnes, director, EMT, pers. comm., February 10, 2026; B. Cooksey, Sr., owner, Air Doctors, pers. comm., February 19, 2026). The additional time, increased costs, and logistical hurdles of Wx may stop customers from considering an ASHP for that emergency replacement. Further, residential customers often consider Wx only during broader home renovation projects and not when completing heating upgrades. Finally, few contractors provide both Wx and ASHP services, requiring the customer to coordinate between and manage multiple contractors, site visits, and separate installations.

- **Additional Work for Contractors:** For contractors, Wx requirements create logistical barriers by requiring additional coordination, training, and administrative burdens. Contractors can offer both Wx and ASHPs but must set aside time and budget for training and additional funding to invest in new equipment. These expenses, combined with lost revenue from not completing paid projects, can deter cross-training (B. Cooksey, Sr., owner, Air Doctors, pers. comm., February 19, 2026; C. Moriarta, director, NYSERDA, pers. comm. February 4, 2026). It is also challenging to encourage coordination between Wx and ASHP-only contractors, because neither is incentivized to streamline processes or generate business for the other (C. Moriarta, director, NYSERDA, pers. comm. February 4, 2026). Finally, the administrative burden of submitting incentive paperwork for separate Wx and ASHP projects adds to these logistical barriers for contractors.
- **Cost and Remediation Challenges:** Both ASHPs and Wx are expensive efficiency measures, with Wx projects typically range from \$6,000-\$12,000 dollars per home (Luoma 2025; Slipstream 2022). While customers do not always have to cover all the costs, programs and ratepayers must still fund these measures. For programs looking to leverage dollars and impact as many customers as possible, providing both Wx and ASHP can greatly limit the number of customers that can participate and receive these benefits. Furthermore, Wx can require health and safety repairs (and their associated expenses) that an ASHP upgrade alone might not. For example, while vermiculite removal is required prior to Wx, an ASHP could be installed without vermiculite remediation if it does not disturb the contaminated insulation (EPA 2025).

Landscape of Northeast Programs

This section summarizes how programs require or promote Wx with ASHP installation in the Northeast and provides three case studies of Maine, Massachusetts, and New York. These states experience cold winters, have similar climate and decarbonization goals, and similar housing stock as 80 – 90 percent of homes were built prior to 2000 (EIA 2023).

Summary of Northeast States Policies on Wx with ASHPs

Table 1 provides a summary of Northeast states' current policies on combining Wx with whole-home ASHP installation for market-rate customers. The table breaks states into categories based on whether programs require a minimum level of Wx to access whole-home ASHP rebates, encourage Wx by offering higher “bonus” ASHP incentives when pursuing both

measures, co-promote Wx and ASHPs by providing information on Wx for homes that have an ASHP installed, or have no known coordination.

Table 1. Overview of Northeast Wx and ASHP Program Coordination Approaches

State	Program	Market Rate Customers Co-promotion Model
CT	Energize Connecticut	Bonus incentive
DE	Energize Delaware	Bonus incentive
ME	Efficiency Maine	Information sharing
MD	EmPOWER Maryland	Information sharing
MA	Mass Save	Certain level of Wx required for whole-home ASHP rebate
NH	NH Saves	Information sharing
NJ	New Jersey Triennium 2	Information sharing
NY	NY Clean Heat	Certain level of Wx required for ASHP rebates starting in 2028
PA	Act 129	Bonus incentive
RI	Clean Heat RI and RI Energy	Certain level of Wx required for whole-home ASHP rebate
VT	Efficiency Vermont	Information sharing
WV	Individual Utility Programs	Limited formal coordination

Source: Wall, P. and J. Luoma. 2025. Co-promotion of Weatherization and High Performance HVAC in Programs Best Practice Guide. NEEP. www.neep.org/sites/default/files/media-files/neep_co-promotionofwxandhigh_eff_hvac_bestpracticeguide_final.pdf.

Maine Case Study: Whole Home ASHPs, Wx Not Required

Efficiency Maine Trust (EMT) is a quasi-state agency overseen by the Maine Public Utilities Commission. Maine’s state-level energy efficiency goals include the target of installing 320,000 ASHPs by 2027 and weatherizing 35,000 homes and businesses by 2030 (EMT 2024). EMT has made ASHPs an “attractive business opportunity for businesses and installers” (Slipstream 2022) and consistently produces some of the highest numbers in the nation for ASHP installations per capita (EMT 2024). While EMT does not require homes to meet a certain level of Wx prior to accessing ASHP rebates, EMT does require that all ASHP installations are whole home installations.

Program Model

EMT offers incentives for Wx and whole-home ASHP installations through two separate programs (EMT 2024). The ASHP program provides rebates for low, moderate, and any income

with rebates on a per unit and per household basis. These rebates only apply to single-zone systems that are used as primary heating systems throughout the heating season (EMT 2026a).⁶

- **Low Income:** \$3,000 rebate per outdoor unit up to \$9,000 per housing unit.
- **Moderate Income:** \$2,000 per ASHP outdoor unit up to \$6,000 per housing unit.
- **Any Income:** \$1,000 per ASHP outdoor unit up to \$3,000 per housing unit

All rebated installations must be performed by an EMT certified contractor or Residential Registered Vendor (EMT 2026b). EMT's contractor certification program requires contractors to take three initial training courses: an EMT Heat Pump Basics Training; a Heat Pump Installer Training; and a Heat Pump Sizing, Selection, and Design Training. EMT also provides contractors with an installation checklist for each project and asks that contractors maintain customer service standards such as responding to customers within two days and removing shoes when entering a home. At the time of this report, EMT had enrolled over 800 Residential Registered Vendors with 691 heat pump vendors and 70 Wx vendors (EMT 2025).

Program Priorities

- **Market Transformation:** EMT does not require Wx with whole-home ASHPs, as they aim to prioritize market transformation and contractor participation (I. Burnes, director, EMT, pers. comm., February 10, 2026). EMT aims to make their programs simple and effective sales tools for contractors, as every unsuccessful kitchen table conversation means a fossil fuel system is installed and operated for the next decade.
- **Focus on Delivered Fuels to Minimize Energy Bills:** Maine, unlike New York and Massachusetts, has a high prevalence of delivered fuels (65 percent of homes heat with some type of delivered fuel) (EIA 2023). ASHPs can provide immediate bill relief to homes that use delivered fuels (Booth 2024). This puts the state in a very different position from New York and Massachusetts where natural gas is more prevalent and can have lower operational costs compared to ASHPs.
- **Offer Programs that Maximize Impact Per Dollar Spent:** EMT's Wx and ASHP programs are kept separate to ensure both programs result in the highest impact and maximize efficiency and emissions benefits to consumers (I. Burnes, director, EMT, pers. comm., February 10, 2026). The Wx program targets older, leakier homes that provide higher savings; while the ASHP program prioritizes smaller homes with delivered fuels to optimize the ASHP cost proposition. Combining the two programs would sacrifice the ability to maximize benefits from each measure.

⁶ To be considered a primary heating system the ASHP must be able to meet 80 percent of the home's peak heating load. ASHPs combined with supplemental heat must be sized for at least 100 percent of the peak heating load. Primary fossil fuel heating systems can be used for back-up but cannot be counted as a supplemental heating source.

Lessons Learned

- **Focus on Simplicity for Contractors and Consumers:** EMT's program is designed to make ASHPs easy for contractors to choose by making the administrative process for participating in ASHP programs as simple as possible. For customers, offering separate ASHP and Wx programs removes the need to coordinate between two different contractors, lowers installation complexity, and costs (I. Burnes, director, EMT, pers. comm., February 10, 2026). Focusing on simplicity makes the process of installation smoother for both contractors and consumers.
- **Prioritize Cost-Effective Energy and Emissions Savings:** EMT also looks to optimize every ratepayer dollar invested into their programs by ensuring programs result in the highest level of energy savings. A 2019 evaluation of EMT's home energy savings program found that out of multiple Wx measures, only attic and wall insulation yielded positive cost-benefit ratios. In contrast, all ASHP intervention cost-benefit ratios were positive, comparable to or exceeding Wx (West Hill 2019). Keeping Wx and ASHPs separate measures allows each program to focus on the most cost-effective scenarios.

Massachusetts Case Study: "All of the Above" Model

Mass Save is a collaborative of energy utilities and energy efficiency service providers that offers "a wide range of services, rebates, incentives, trainings, and information" to encourage energy efficiency (MA DPU 2025). The program has a goal of 500,000 new households using heat pumps for primary heating between 2020-2030 (MA DPU 2025). Mass Save program administrators have decided to promote Wx before ASHP installation across all customer segments to minimize energy bills, avoid adding electricity demand, and reduce strain on the grid (MA DPU 2025). This has led to a differentiated approach for different customer classes, with Wx required for LMI customers and encouraged for market-rate customers.

Program Model

For residential market-rate customers, program administrators offer four rebate tiers for ASHPs: whole-home, partial home, basic, and moderate income (Mass Save 2026a).

- **Whole-Home:** Provides \$2,650 per ton up to \$8,500 per project. It also requires a minimum level of Wx, installation by a registered installer, and disablement of existing heating equipment. To achieve a minimum level of Wx, a home must have been built after 2000, require less than \$1,000 of Wx work, or completed a Wx project since 2013.
- **Partial-Home:** Provides \$1,125 per ton up to \$8,500 per project. This rebate requires the existing heating system be disabled from areas of the home newly served by the ASHP or that integrated controls are installed in those areas. A \$500 bonus incentive is available for customers who complete a Home Energy Assessment and install recommended Wx within one year prior or up to six months after a partial-home ASHP installation.
- **Basic:** Provides \$250 per ton and requires installation by a certified contractor. There is no fuel displacement requirement for this rebate tier.

- **Income-Eligible:** Low-and-moderate-income customers can qualify for either a fully managed turnkey service that provides pre-Wx barrier mitigation, Wx, and ASHP installation at no cost, or a customer-managed ASHP installation that provides Wx at no cost and up to \$16,000 in incentives. Both income-eligible paths require no-cost Wx before ASHP installation.

All Mass Save rebate-eligible ASHP and Wx installations are performed by members of the Mass Save Heat Pump Installer Network (HPIN) or the Home Energy Services Contractor program (for Wx). To join the HPIN, contractors must complete trainings on ASHP installation and cold climate sizing and design (Mass Save 2026b). In addition to the HPIN, Mass Save launched a second, higher tier of the Heat Pump Leaders Network (HPLN). The HPLN is an opt-in network that provides additional services and better experiences for customers who are looking to electrify their homes. To participate in HPLN contractors must meet certain criteria, such as a strategic partnership with a Wx contractor or providing Wx services as part of their business model (Mass Save 2026c). At the time of this report, over 1,500 heat pump installation companies participate in HPIN, and over 70 have joined the HPLN. Of the 70 that have joined the HPLN, 65 have a strategic relationship with a Wx company (M. Coen, principal, National Grid, pers. comm. February 9, 2026).

Program Priorities

- **Flexibility to Maximize Customer Experience & Ease of Participation:** Additional requirements on programs can lead to more complexity. Mass Save administrators have taken steps to mitigate this through creating multiple levels of incentives. The Mass Save program administrators designed programs for whole- and partial-home ASHPs to incentivize best practices (such as Wx before whole-home ASHP installation) while creating enough flexibility to encourage participation and alleviate customer burdens (M. Coen, principal, National Grid, pers. comm. February 9, 2026). Additionally, rather than always requiring Wx, Mass Save has set minimum Wx criteria that enables homes to be exempt from the Wx mandate prior to ASHP installation.
- **Equity and Affordability:** Affordability and equity are among the key priorities for Mass Save. To ensure programs are accessible, low-income customers can receive barrier mitigation, Wx, and a whole home ASHP free of charge. To ensure affordability, no-cost Wx is required prior to ASHP installation for all LMI customers. Additionally, gas-to-ASHP conversions are not allowed, unless customers request an exception.

Lessons Learned

- **ASHP Programs that Require Wx Can Work:** Mass Save administrators consistently see high participation in their ASHP programs, even with the Wx requirement (M. Coen, principal, National Grid, pers. comm. February 9, 2026). Contrary to expectations, they have also experienced a high volume of ASHP demand from gas customers, even after adding the existing fuel disconnection requirement for whole-home ASHP installations.

- **Quality Installations and Workforce Training are Key:** Our interview highlighted how, regardless of program incentive level, installation quality is the most important factor in ensuring a program’s success. (M. Coen, principal, National Grid, pers. comm. February 9, 2026). Recognizing that quality installations improve customer experience, ASHP reputation, and subsequent customer uptake, the Mass Save Sponsors have invested in additional workforce training efforts and the HPLN.

New York Case Study: Requiring Wx with ASHPs Installations

New York’s Clean Heat⁷ program is implemented jointly by the utilities and the New York State Energy and Research Development Authority⁸ (NYSERDA) (NYS Clean Heat 2025). In 2025, the NY PSC required an efficiency-first approach for all statewide energy efficiency programs citing concerns of affordability and peak demand on the grid as the state continues to electrify (NY PSC 2025a; NY PSC 2025b). This policy takes effect in 2028 and requires that all homes be weatherized before market-rate customers can access any ASHP rebates. In the interim, the Clean Heat program will require Wx prior to market-rate customers accessing “higher tier” ASHP rebates (NYS Clean Heat 2025).

Program Model

New York has two residential ASHP programs: an income-eligible EmPower+ program run by NYSEERDA, and a market-rate NYS Clean Heat program administered by the state’s electric utilities:

- **EmPower+:** Provides “cradle to grave” services from an initial home energy assessment to Wx upgrades to ASHP installations. Participants in the program receive Wx services at no cost before becoming eligible for funding up to \$8,000 for ASHPs (NY PSC 2025a). Because it serves lower income residents, NYSEERDA’s EmPower+ program prioritizes energy bill affordability. Affordability drives the program’s Wx and whole-home ASHP sizing requirements, and its focus on oil and propane for ASHP upgrades
- **NYS Clean Heat:** Provides \$2,000-\$3,000 per unit for whole-home ASHP installations performed by registered contractors. Smaller rebates of \$100-\$400 per unit are provided for ASHPs that provide partial heating. Starting in March 2026, a minimum level of Wx is required to access “significantly higher incentives” (NY PSC 2025b). This minimum Wx level can be achieved if homes meet one of the following standards: built after 2010, participated in a Wx program, received a designation of “Heat Pump Ready Envelope”, or received a home energy assessment that certifies the home meets minimum requirements for air sealing, attic insulation, and air changes per hour (NYS Clean Heat 2025).

To access incentives, NYS Clean Heat Program customers need to work with a contractor from the NYS Clean Heat Contractor network. To be a part of the network contractors must have training certificates for ASHP installation and ASHP sizing and design (NYS Clean Heat 2026).

⁷ The Clean Heat program is the name for the New Yorks statewide residential building electrification program.

⁸ NYSEERDA is a public benefit corporation that functions as the state’s energy office.

Participating contractors are also invited to join a Clean Heat Working Group Series to ask questions about and suggest improvements for the program.

Program Priorities

- **Affordability:** New York prioritizes customer affordability in both the Clean Heat and EmPower+ programs by focusing on delivered fuels to ensure that customers see bill savings and advancing requirements for Wx prior to ASHP installation (NYSERDA 2026). Since 2016, New York has aimed to keep energy bills at 6 percent of income for low-income customers (NY DPS 2025a). The Wx-first policy in EmPower+ advances this goal by optimizing ASHP operating efficiency and lowering operational costs.
- **Increasing Comfort for LMI Households:** Another priority for NYSERDA is the comfort and health benefits that flow from weatherization upgrades, especially for LMI customers. Not all low-income residents will see lower energy use, as programs can have “beneficial snapbacks” where customers increase their appliance use after energy efficiency upgrades to live more comfortably. For these homes, achieving better living conditions outweighs the program priority to reduce energy consumption (C. Moriarta, director, NYSERDA, pers. comm. February 4, 2026).
- **Grid Considerations:** When setting the 2028 minimum Wx prerequisite requirement for the market-rate NYS Clean Heat program (NYS PSC 2025b), the NY PSC noted growing concern over grid impacts from building electrification. Even while acknowledging that Wx may be more expensive than other energy efficiency measures, the NY PSC determined investment in these measures is crucial “to manage eventual winter peaks” (NYS PSC 2025b).

Lessons Learned

- **Wx and ASHP Contractor Coordination is Difficult:** While New York has a contractor network, the state has encountered some barriers with coordinating Wx and ASHP contractors as there is a small number of vertically integrated businesses in the state (C. Moriarta, director, NYSERDA, pers. comm. February 4, 2026). NYSERDA previously implemented a “kicker” incentive that provided up to \$1,000 to Wx contractors if a weatherized household installed ASHPs within two years of the Wx project, with the goal of encouraging these contractors to coordinate more with each other. Yet this program had low uptake and was mainly used by businesses that were already vertically integrated.
- **Contractor Education is Needed to Improve ASHP Installations:** Our interviewee noted several pitfalls that can arise in ASHP installation, including incorrect determinations of a home’s heating/cooling load (i.e., Manual J calculations), refrigerant leaks due to improper flare fittings, and cheap contractor tools that can cause installation issues (C. Moriarta, director, NYSERDA, pers. comm. February 4, 2026). NYSERDA developed training tools and equipment vouchers to combat these pitfalls and continues to find ways to improve installation practices for its ASHP contractors.

Policy Recommendations

This section provides an overview of three key recommendations that emerged from our examination of Wx requirements in ASHP programs: require Wx for ASHPs installed through low-income programs, encourage but do not require Wx for ASHPs installed through market-rate programs, and further explore strategies to mitigate the grid impacts of heating electrification.

Require Wx for ASHPs Installed Through LMI Programs

Minimizing energy bills is particularly important for low-income and energy-burdened households, who often live in poorer-quality, leakier homes and stand to benefit the most from Wx when done prior to a heat pump installation. Additionally, in most states, programs provide Wx free of cost. While studies have shown that ASHP upgrades in homes heated with oil or propane can reduce energy bills without Wx, adding Wx can provide deeper savings and improve health and comfort (Booth et al. 2024). Additionally, requiring Wx with ASHP installation has been shown to minimize energy bill increases after electrification (McKenna et al. 2024). Therefore, the best practice for LMI programs is to combine pre-screening, health and safety upgrades, Wx, ASHPs, and, in some cases, solar, into a comprehensive, whole-home retrofit package. This will help to ensure a home is comfortable, lower operational costs, and contribute non-energy benefits to residents of the home and neighboring community.

New York's EmPower+ and Mass Save's turnkey and low-income programs are examples of this type of solution. Programs that manage installation on behalf of customers reduce administrative burden and help ensure equitable access to electrification. While direct-install programs are a best practice, they are easier to implement in states with large program infrastructure, strong utility involvement, and extensive funding support as they are more expensive to implement. Programs with less capacity should focus on streamlining eligibility requirements, funding, and paperwork across Wx and ASHP programs to minimize administrative complexity for their customers. Additionally, encouraging coordination between Wx and heat pump contractors, providing training, and monitoring projects can help streamline the process for residents.

Encourage but Do Not Require Wx for ASHPs Installed Through Market-Rate Programs

Generally, market-rate ASHP programs should encourage but not require Wx to maximize energy and GHG savings. For market-rate customers, it is important to think about programs that have the biggest impact, streamline customer experience, and prioritize program cost-effectiveness and affordability. As highlighted in Maine's approach, separating Wx and ASHP programs can allow them to target homes that stand to benefit more from each program. Wx can prioritize older, leakier homes that provide higher savings. ASHP rebates can prioritize smaller homes with delivered fuels and electric heat to optimize the ASHP cost proposition. It is also important to consider that most HVAC upgrades are emergency replacements where installation speed is a high priority. Wx requirements can create bottlenecks in workforce and customer interactions that deter customers from even considering an ASHP (Eyre et al. 2023).

For states that are looking to compromise between requiring and not requiring Wx, programs can look to coordinate between ASHP and Wx programs, consider a staged approach, and/or create a standard for sufficient weatherization. Coordination between ASHP and Wx programs includes cross-promotion and advertising, providing additional rebates when combining measures, and streamlining administrative processes. Programs can also plan for staged installations of ASHPs and Wx. In this scenario, a customer could install a whole home ASHPs system and maintain a fossil fuel backup system until they can Wx. Wx would reduce the heating and cooling load and eliminate the need for the fossil fuel backup system once it has reached end of life. Additionally, states could consider creating exemptions for homes that have sufficient Wx. Massachusetts defines sufficient Wx as a home built during or after 2000, a home where less than \$1,000 worth of Wx is recommended, or a home has been weatherized during or after 2013. Similarly, New York requires that homes be built after 2010, participated in a Wx program, received a designation of “Heat Pump Ready Envelope”, or received a home energy assessment that certifies the home meets minimum requirements (NYS Clean Heat 2025).

It is important to flag that many states are particularly concerned about the potential for gas customers to experience higher energy bills when they electrify without Wx. States seeking to maintain affordability for gas customers converting to ASHPs may consider requiring Wx as one strategy for gas to electric customers only. There are other ways to tackle the operational cost gap as well, such as through rate reform.

Study the Impact of ASHPs on the Grid and the Potential for Technology Advancements to Mitigate These Impacts

Currently, most homes in the Northeast do not use electricity for heat. As such, upgrading fossil fuel-combusting appliances to ASHPs will increase electricity use and demand on the grid. One study estimates that winter peak will triple with 100 percent adoption of ASHPs (Specian et al. 2021).⁹ This creates contrasting priorities for states as they look to increase efficient electrification without driving up winter peak demand. In New York, the NY PSC specifically cited concerns around reducing winter peak for why homes need to be Wx prior to installing ASHPs. Requiring Wx with ASHPs is one strategy to lower demand on the grid. Studies have shown that advancement in ASHP technology, such as high-efficiency cold-climate ASHPs (ccASHPs) can provide energy and peak demand savings compared to standard heat pumps (Specian et al. 2021). An ACEEE model indicated that ccASHPs paired with Wx, and other efficiency measures could reduce peak system demand by 11-39 percent in a 100 percent electrification scenario – with improvements in ASHP performance yielding the greatest energy savings (Specian et al. 2021).

While, converting to ASHPs could drive up winter peak, other technologies such as ground-source heat pumps, thermal energy networks, and air-to-water heat pumps (which can provide thermal storage and load flexibility) may also help mitigate winter peak. Further research is needed to determine the role weatherization, advancements in heat pump technologies, and other alternatives will play in lowering future winter peaks.

Conclusion

As states continue to consider the question of “To weatherize or not to weatherize,” it is important to remember that Wx can deliver energy benefits when paired with ASHPs, but regulators and program administrators should consider how blending the two programs can work best for their states’ goals and needs. During this process it is important to consider key priorities such as costs, workforce readiness, long-term affordability, grid impacts, and decarbonization goals. In all cases, program administrators should consider ways to streamline participation in Wx and ASHP programs and develop a well-trained, engaged ASHP contractor network. Future research should examine ASHP impacts on winter peak demand and how emerging technologies can mitigate it. Additional research should also explore the extent to which Wx can lower ASHP installation costs.

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