NATIONAL HOUSING CRISIS TASK FORCE

CONSTRUCTION >>>

BUILDING FOR INSURABILITY, RESILIENCE, ENERGY EFFICIENCY, AND HOUSING AFFORDABILITY: ADDRESSING THE TRUE COST OF HOUSING

Building for Insurability, Resilience, Energy Efficiency, & Housing Affordability: Addressing the True Cost of Housing

By Kate Wright, Laura Jay, Heather Clark, and Lotte Schlegel

Summary

Housing affordability and family economic security remain critically pressing issues nationwide. Too often, however, housing supply strategies overlook long-term costs including insurance, natural disaster exposure, maintenance, and utilities. These costs affect the long-term affordability of homes for families, and constrain new supply. As extreme weather increases in intensity and frequency across the U.S., and insurance and utility expenses demand a larger fraction of household costs, state and local governments have been implementing innovative solutions to holistically address affordability, resiliency, and insurability to both increase new housing supply and preserve existing housing. Cost-effective, common-sense construction methods that make buildings more energy efficient, stronger, and better able to withstand extreme weather often work in synergy, multiplying co-benefits. Such measures also improve insurability, prevent deaths in extreme heat, increase resiliency of the electric grid, extend housing durability, and lower emissions and energy costs.

This set of tools addresses the true cost of housing in a changing climate and how housing retrofits and resiliency upgrades, as well as codes and standards for new housing, can reduce long-term costs for residents and bolster insurance and mortgage markets to grow and preserve housing supply.

The Challenge This Tool Solves

Every year, the U.S. loses the equivalent of one month's worth of new homes to climate disasters and an additional 350,000 homes to disrepair. In 2024, property damage from climate disasters reached $182.7 billion, and in the past five years, home insurance premiums have increased by 61%. The insurance industry is increasingly unable to cover new risks, not just in disaster zones but across entire regions or states. In February 2025, Federal Reserve Chair Jerome Powell testified before the Senate that "if you fast-forward 10 or 15 years, there are going to be regions of the country where you can't get a mortgage, because of climate change." As Accelerator for America outlined in "Insuring the Future of Our Communities," Local and state leaders, in collaboration with the federal government and insurance industry, must take proactive steps to make sure places across the country do not become "insurance deserts," with no or limited affordable coverage options available to residents and businesses.

Types of Communities That Could Use This Tool

All communities could benefit from programs to improve the resilience and expected lifespan of their housing stock as extreme weather becomes more frequent across the country. In particular, coastal towns vulnerable to hurricanes and storm surges, wildfire-prone areas, and

regions facing frequent flooding or heatwaves that may be exacerbated by climate change will benefit. Low-income and historically underserved neighborhoods can especially benefit, as such communities tend to be located in areas of greatest physical risk and residents often lack the resources to invest in protective measures or recover quickly after disasters, or may be unable to afford insurance premiums unless upfront investments in resilience are made. Furthermore, rural communities with limited access to emergency services also stand to gain significantly. Making homes more resilient protects lives and property and promotes the long-term stability of families and homes in those communities.

Expected Impacts of This Tool

Tens of thousands of homes have already been built and retrofitted to common-sense standards, because the economics of lower energy costs and resilience work over the long run. Estimates suggest that every $1 invested in meeting modern building codes provides $11 in savings by reducing storm damage. The following policies and programs are designed to create a long-term, affordable housing supply nationwide, even amidst growing challenges from extreme weather events and high insurance and utility costs. When effectively implemented, these tools can help reduce housing costs, extend the longevity of the housing supply, and strengthen resilience, ultimately minimizing the risk to lives and property.

Background

Disasters are increasing property insurance rates and compelling carriers to exit markets. Without insurance, prospective buyers of single and multifamily housing eventually cannot secure mortgages, and existing owners cannot finance repairs. When insurance markets fail, they affect entire states and regions beyond disaster zones, leading to property devaluation and mortgage market instability. Skyrocketing insurance rates are already slowing single and multifamily-housing construction and impacting existing housing and family economic security.

Compounding these challenges are high utility costs, further burdening families. The lowest income families spend upwards of 30% of their income on energy bills. One in four American households — and 50% of low-income households — struggle to pay their homes' energy bills to keep them warm in winter and cool in summer. Moreover, 63% indicate that paying utility bills adds to their financial stress. More Americans are forced to choose between paying for food or paying for energy.

Aging housing, insufficient insulation, inefficient equipment, and lack of access to in-home cooling exacerbate these issues as extreme heat and weather intensifies, thereby increasing costs. 20% of U.S. homes lack adequate insulation, and the median age of a home in America is 43 years. Alongside high energy bills and increased disasters is extreme heat where cities from Phoenix, Arizona, to Salem, Oregon, are experiencing longer and more deadly extreme heat

events. Extreme heat is now the number one cause of weather-related deaths in the U.S., and the vast majority of deaths from extreme heat occur at home. Ensuring safe, livable and energy efficient housing as extreme heat intensifies is becoming more and more critical.

While this tool focuses on measures that can be implemented within individual buildings, land use strategies that can increase housing affordability are equally important. Where a home is built matters as much as how a home is built. Location, such as proximity to flood zones, directly affects vulnerability to extreme weather events, impacting insurance costs and availability. Zoning, land use planning, regulations, and density requirements have significant influence on everything from transportation costs to efficiencies in heating and cooling from housing density.

This tool shares key state and local levers to cost effectively support the growth of housing supply and housing security by increasing insurability, resiliency, disaster preparedness, and energy efficiency. Tens of thousands of homes have already been built and retrofitted to these common-sense standards, because the economics of lower energy costs and resiliency work over the long run. Energy efficient construction results in fewer mortgage delinquencies. Investing in disaster-prepared, energy-savings construction is not slowing new housing supply, but can instead bolster it.

Proposed Solutions: Key Policy Levers Available to States and Localities

No single solution can address these complex and critical challenges. State and local policymakers can deploy multiple tools and levers to support household affordability and resilience to boost long-term housing supply. By doing so, communities will have more housing and be less financially impacted by changing utility and insurance rates and extreme weather events. The proposed solutions require innovation and leadership at the local and state levels.

States and localities can increase housing supply that is insurable, resilient, energy efficient, and low emissions by:

- **Incentivizing Energy Efficient Resilient Housing Construction and Rehabilitation:** Incentivizing energy-efficient, resilient housing construction by promoting standards that exceed minimum building and energy codes, making buildings stronger, more disaster -resilient, and more energy-efficient. Incentives include density bonuses, tax abatements, expedited permitting, utility programs, low-cost surplus land access, streamlined approvals for proven high-performance designs, low-cost loans through revolving funds, and integration of resilience and energy cost saving measures into housing ballot initiatives.

- **Requiring Current Building and Energy Codes:** For new construction and major renovations, require current building and energy codes as a base and consider requiring stretch codes with higher performance requirements for stronger homes and deeper energy savings and emissions reductions.
- **Preventing New Construction in Risk-Prone Locations and Requiring Mitigation and Resiliency in Areas with Greatest Risk:** States and localities, for example, can adopt the former Federal Flood Risk Management Standard to reduce vulnerability to loss of life and property caused by flooding by avoiding construction in flood zones and building in a way to prevent future flood damage such as elevating the home above the flood zone. Local governments can co-invest in infrastructure to support broader neighborhood resilience, such as water management and flood mitigation strategies integrated between the development and surrounding infrastructure.
- **Incentivizing Building Hardening Programs:** This includes programs like the Insurance Institute for Business and Home Safety's FORTIFIED certification, which protects homes from hurricanes and hail, and the Wildfire Prepared Home to protect homes from wildfire.
- **Incentivizing Weatherization, Electrification, and Onsite and Community Solar:** Through expedited permitting and reviews, public land transfers, and programs funded locally through bonds, tax credits,tax abatements, rebates, or utility programs, this can cut existing home energy costs, act as a hedge against rising energy costs, improve grid reliability and resilience, and save lives during extreme heat.
- **Creating Housing Near Transit and Right-Sized Housing:** Upzoning, infill, mixed use as-of-right zoning, and lifting minimum building and lot size requirements can lower daily transportation costs for residents and make homes more affordable and easier to heat and cool. Cities like Cleveland have created transit oriented development standards and policy tools to enable this work.

Together, these levers lower families' annual housing costs nationwide, while protecting their home investment. Further, these solutions decrease the likelihood of catastrophic damage to new and existing homes, which changes the odds of insurance risk pools in ways that stabilize the market. State and local governments can be proactive by requiring and incentivizing building codes and standards that make new and existing homes stronger and better able to withstand climate disasters. For new construction and major retrofits, building codes are the number one recommendation of the insurance industry and FEMA to reduce loss from climate disasters and are seen by the current Treasury Department as critical for any future Federal insurance backstop. Yet most of the country doesn't require or incentivize them. Other standards, such as the Insurance Institute for Business and Home Safety's FORTIFIED certification can be applied on existing housing — a strategy that has worked in Alabama, which bolstered its insurance industry and made families safer by requiring building codes in high-risk counties and incentivizing FORTIFIED roofs to protect homes from hurricanes.

Energy-saving and emissions-cutting improvements including heat pumps, insulation, air sealing, rooftop solar, virtual power plants, and low embodied carbon construction materials quickly pay for themselves while making families more economically secure and healthier and improving grid reliability. Current energy codes make homes 40% more efficient than homes built 15 years ago, and other standards, like PHIUS Passive House, can double these savings. High-efficiency construction quickly pays for itself over time and can even be cost neutral. For example, when the Pennsylvania Housing Finance Agency Low-Income Housing Tax Credit program provided additional points for Passive House projects, there was a surge of Passive House affordable housing developments with no perceivable cost increases. Many states now consider energy efficiency as part of their Qualified Allocation Plans for Low Income Housing Tax Credits. Existing homes also benefit from energy efficiency retrofits that reduce costs and improve safety.

Energy improvements can also enhance insurability, disaster resilience, and safety. For example, Los Angeles homes built to the highly efficient Passive House standard survived the 2025 fires better than comparable homes. In Kansas City, Passive House multifamily homes enjoy lower insurance premiums and higher ROIs. Building to the newest energy codes are also proven to save lives in extreme heat. Analysis from the National Labs shows fewer heat-related deaths in homes with better insulation and air sealing that maintain cooler temperatures.

Addressing resilience, insurability, and energy-saving construction in housing supply strategies can avoid costly losses. In the Southeast, homes were destroyed by Hurricane Helene because common-sense building codes were not updated and limits were not placed on flood zone and steep slope construction. As a result, homes were built in vulnerable locations and were not strong enough to withstand the storm. Across the country, communities continue zoning high-risk land for new housing construction and only one third of the country has adopted modern building codes. Analysis from the National Zoning Atlas and Urban Institute shows that 20% of land zoned for new housing in Montgomery County, Alabama is located in areas of high flood risk, which if built out, could expose new homes and families to catastrophic risk. While climate change is already impacting the amount of land in the U.S. that is suitable for new housing construction, building codes and zoning and land use reform can make buildings stronger and encourage the growth of resilient and insurable housing supply growth.

Case Studies

These case studies illuminate how cities, states, and localities are implementing solutions using the key levers identified above. These approaches reduce costs, stabilize insurance markets, lower annual utility and maintenance expenses for families, and increase needed housing stock while improving existing housing quality.

Reducing Physical Risk and Bolstering the Insurance Market Through Codes and Standards: Hurricanes (Louisiana and Alabama) and Wildfires (California and Hawaii)

Building Codes and Energy Codes

Following Hurricane Katrina's destruction, Louisiana established a statewide uniform building code to address the fundamental question of: How do we build to be able to continue to live here? Local homebuilders on the Louisiana Code Council advocated for stronger building codes protecting against disaster damage, and energy codes that lower costs, save lives in extreme heat, and prevent mold in Louisiana's hot, humid climate. Louisiana homebuilders supported these codes because they saw them as key to preventing insurance market failure and keeping the home construction industry afloat in the face of extreme weather. A 2022 study from IBHS and CoreLogic (now Cotality) concluded that homes built to modern building codes are also less likely to go into delinquency following hurricanes, helping to ensure families stay in their homes. Louisiana now requires the most recent International Code Council (ICC) building code, the International Energy Conservation Code (IECC) 2021 energy code, and requires elevating buildings above base flood elevation to protect against disaster damage.

FORTIFIED and Building Codes

Alabama bolstered its insurance industry and improved family safety by reducing extreme wind and hurricane risks through better coastal building codes and FORTIFIED roof incentives. FORTIFIED is an Insurance for Business and Home Safety (IBHS) program for new and existing homes that is proven to prevent damage from hurricanes, high winds, hail, and severe thunderstorms by making homes stronger and stopping water intrusion at the roof. Data from the Alabama Department of Insurance is showing this approach works – of the 40,000 claims from coastal communities hit by Hurricane Sally (2020), FORTIFIED and building codes dramatically reduced losses and claims severity. In Alabama, homeowners of new and existing homes with FORTIFIED roofs may be eligible for insurance discounts of 20-55% off the wind portion of their property insurance. Strengthen Alabama Homes provides $10,000 in grants for Mobile or Baldwin Counties for FORTIFIED roofs or for performing other updates. Alabama also provides households a tax deduction of up to $3,000 or 50% of the cost of the work (whichever is less) when retrofitting their homes or businesses to reduce wind or flood damage. Households can also deduct deposits into catastrophe savings accounts. Public investment has catalyzed the private sector—almost 85% of FORTIFIED roofs today receive no public support in Alabama. Incentives for FORTIFIED and building codes are available in other states, too. For example, the Federal Reserve Bank of Dallas provides grants through CDFIs for FORTIFIED for up to $15,000 per existing home and up to $7,500 per newly constructed home. Because they serve states with severe weather (LA, MS, NM, TX), the Federal Reserve Bank of Dallas has seen homes in

its portfolio get hit by disasters again and again. They now prioritize housing survivability and insurability as core mission elements.

Wildfire

In wildfire-prone areas, strategies that reduce home combustibility include metal roofing, air sealing, and removing combustible material within five feet of a home. After the 2023 Lahaina fire in Hawaii one home was left standing while neighboring ones burned. This century-old home survived because it had a metal roof less susceptible to combustion when sparks flew, cleared debris and vegetation, and 3-4 feet of gravel around the home. After the LA fires, several homes also remained standing. These homes had metal roofs, and one home had a noncombustible perimeter wall and cleared vegetation. Equally important, the homes were built to the highly energy-efficient Passive House standard. Air sealing intended to cut heating and cooling costs also prevents sparks from entering the home. Several wildfire standards exist to support better new construction and retrofits. KB Homes's 64-unit Dixon Trail neighborhood in southern CA is built to IBHS Wildfire Preparedness Plus.

How Developers Build for Both Climate and Affordability: Project Specific Examples and the Government Actions That Enable Them

Come Dream Come Build

Come Dream Come Build (CDCB) is a 50-year-old community development corporation and CDFI serving low-income communities in the Rio Grande Valley of Texas through rental assistance, housing counseling, new single family and multifamily development, rehabilitation of existing housing, disaster clean up and financing. After 40 years of stick-built single-family construction, rising costs prompted CDCB's transition to modular construction to cut 20-25% from the cost of a house in order for someone making $35K a year to buy. In 2021, CDCB launched its first volumetric modular housing factory in a rural community outside of Brownsville, TX with support from Wells Fargo and Chase. Now employing 40 people, CDCB provides quality rural jobs and is currently building 15 homes for workers with a vision to expand.

CDCB homes distinguish themselves through affordability, construction speed, energy efficiency, and resilience. Built to the Enterprise Green Communities and FORTIFIED standards, these homes are low maintenance, highly energy efficient, and built to withstand winds of 145 miles per hour and flooding. The additional cost of more insulation and higher efficiency appliances and equipment is minimal — $3,000 to $4,000 per home — and quickly pays for itself from energy savings and incentives and grants through partners like Chase. CDCB works with partners such as the Federal Home Loan Bank of Dallas to provide funding for FORTIFED roofs. CDCB believes efficiency and resiliency is key to low-income families affording their house payments and utility

payments in a region where air conditioning is a necessity seven months of the year and strong storms are increasingly common.

Actions state and local governments can take to accelerate similar housing projects include:

1. Requiring building and energy codes;
2. Requiring minimum flood elevation;
3. Incentivizing developers and operators to achieve FORTIFIED or Enterprise Green Communities certifications; and
4. Incentivizing new modular home factories.

Greater Cleveland Habitat for Humanity

Greater Cleveland Habitat for Humanity adopted high-speed modular construction to build 400 homes to meet an American Rescue Plan Act (ARPA) funding deadline. These homes are energy efficient, built to ENERGY STAR certification, and achieve Enterprise Green Communities certification, making them eligible for Cleveland's 15-year tax abatement program that requires the certification. New homeowners are well positioned for success with low utility bills, zero-percent loans from Habitat for Humanity, and no taxes for 15 years. Such programs could be launched or expanded nationwide through modular pre-purchasing agreements.

Actions state and local governments can take to accelerate similar housing projects include:

1. Providing zero percent loans for low income households; and
2. Introducing tax abatements for homes achieving Enterprise Green Communities Certification.

Wheeler District

Wheeler District in Oklahoma City is a mixed-use infill neighborhood at a former airport that is walkable and bikeable, and includes a range of diverse price points and housing types from small studio apartments to large single-family homes. With 250 single-family and multifamily units completed and 199 apartments under construction, Wheeler District will eventually grow to 800 single-family and 2,000 multifamily homes on 130 acres. Homes are highly energy efficient with a HERS rating in the mid-30s, meaning the homes are 70% more energy efficient than standard new homes. The 250 homes built to date meet ENERGY STAR certification, and all future homes will achieve Zero Energy Ready Homes certification. All-electric geothermal heat pumps manufactured in Oklahoma provide heating, cooling, and hot water. Over 20% of the homes are powered by solar today, and all homes have the capacity to install solar. Energy efficiency

improvements are cost-neutral. Geothermal receives a 30% federal tax credit, local utility rebates, and bulk purchasing savings. Further, geothermal increases appraisal values because of lower energy costs and enhanced comfort. All homes are built one foot above the Oklahoma City flood requirements and hail-resistant metal roofs reduce insurance premiums 20%. To achieve Wheeler District's density, the developers went through an extensive Planned Unit Development (PUD) zoning process, which allowed for mixed uses, right-sized housing units, and narrower, more walkable and bikeable tree-covered roads. TIF and the city's fast commercial permitting review process reduced development costs. The locational efficiency of the development means that residents drive significantly less than the average resident in Oklahoma.

Actions state and local governments can take to accelerate similar housing projects include:

1. Establishing a state or local heat pump challenge with clear targets and contractor training;
2. Requiring high energy efficiency standards and electrification targets that exceed energy codes in state housing programs;
3. Providing rebates and TIF for developments which utilize high energy efficiency construction; and
4. Implementing zoning reform to allow for multifamily housing to be built with minimal parking requirements by right.

Preservation of Affordable Housing

Preservation of Affordable Housing (POAH) is a nonprofit organization that develops, owns, and manages affordable housing in across 13 states and D.C., building highly efficient large, affordable multifamily housing at costs equal to or slightly above buildings that meet code and back up power during power outages for critical devices and refrigeration. For example, the Kenzi at Bartlett station, affordable housing for older adults, is Passive House Institute of the U.S. (PHIUS) certified and all electric which provides backup emergency power through battery storage and solar power. Total project costs only exceeded costs of standard code buildings by 1%. Often, the first time a team builds to the PHIUS standard, the costs can be higher, as it takes more time for the project team to learn the techniques needed for performance, but costs go down with more experience. Internal data is consistent with reports that costs are regularly brought down to 0-2% of the total project cost, as materials like efficient windows that help make the outside of the building more efficient are more widely available. Better insulation can also reduce the size and cost of the mechanical systems needed for heating, cooling, and ventilation. Benefits include lower bills and enhanced safety— better insulation ensures homes remain livable and comfortable even during extended power outages in extreme weather. Some markets provide incentives for achieving Passive House and allow owners to capture utility or grid

operator payments for demand response services using on-site batteries.

Actions state and local governments can take to accelerate similar housing projects include:

1. Provide a utility program incentive for multifamily Passive House developments;
2. Provide utility or grid operator payments for battery storage and demand response services; and
3. Prioritize the allocation of low income housing tax credits (LIHTC) to projects which incorporate energy and building efficiency.

Lewiston, ME

In Lewiston, ME, a 220-unit Lewiston Choice Neighborhood Development is under construction to serve the much needed missing middle housing. Because Lewiston already underwent zoning reform, several of the project's mixed-used multifamily buildings were permitted as-of-right with minimal parking requirements. The homes adhere to building codes and exceed the energy code by achieving Enterprise Green Communities certification and near Passive House levels with high insulation levels, air sealing, and heat pumps. Because Maine Housing requires highly energy efficient construction, the local workforce is experienced with efficiency targets. In 2019, Maine also established a Heat Pump Challenge to install 100,000 heat pumps by 2025 and has invested in efforts to increase demand alongside contractor training. This project reaped the benefits of trained HVAC contractors with lower heat pump installation costs. Kaplan Thompson Architects and Avesta Housing, the lead on the project, notes that the energy efficient construction does not drive construction costs. Avesta Housing tracks utility bills and says high efficiency construction pays for itself over time. High performance materials and equipment such as heat pumps, energy recovery ventilation, and double and triple pane windows are affordable and getting cheaper with no upcharge or a wash in the budget. State heat pump rebates and TIF further reduced project costs.

Actions state and local governments can take to accelerate similar housing projects include:

1. Establish state or local heat pump challenge with clear targets and contractor training;
2. Require high energy efficiency standards and electrification targets that exceed the energy code in state and local housing programs;
3. Provide rebates and TIF for energy efficient construction projects; and
4. Implement zoning reform to allow as-of-right multifamily housing with minimal parking requirements.

Upgrading Existing Homes for Long-Term Affordability and Resilience

Philadelphia Built to Last

Built to Last provides comprehensive home repair services for Philadelphia homeowners who are low income. Created in 2021 by the Philadelphia Energy Authority (PEA), the program simplifies access to a wide range of existing home improvement programs that are complicated to navigate for homeowners, and difficult to stack. Built to Last has helped facilitate major home improvements for participants, including roof and furnace replacements, pest control, mold remediation, solar installation, HVAC improvements (including heat pump installations), weatherization, insulation, and more. The need for this program arose from the unique characteristics of Philadelphia's home ownership landscape. The city's high home ownership rate (49%) coupled with its high poverty rate (25%) means many low-income homeowners in Philadelphia cannot afford to maintain their properties, which are often passed down between family members for generations. Older houses that have foregone necessary maintenance and repairs are less energy-efficient, causing homeowners to spend more money on energy. Nearly a quarter of low-income households in the Philadelphia metro area spend more than 19% of their income on energy costs alone.

Dozens of low-income family repair programs exist in Philadelphia, but each requires an individual application and typically only addresses one component of home repair, creating significant administrative burdens for families. Built to Last serves as a central platform for home repair service providers to offer their services collaboratively and leverage funding and financing from multiple sources. This allows homeowners to fill out a single application rather than applying for each program individually. PEA then screens the application for eligibility for all benefits and services offered through the Built to Last platform. PEA then conducts a holistic property assessment, identifying home needs to match homeowners with appropriate service providers and applicable funding sources. Finally, PEA coordinates and manages all home improvement work with program partners. Built to Last also helps homeowners find external funding to fill in the gaps of costs not covered by existing home improvement programs, resulting in low- to no-cost implementation.

During the initial 50-home pilot, 50% of the participants reported lower utility costs. One home observed an 86% reduction in their annual energy costs, saving $1,000 a year for the homeowner. Three years after the program's launch, an impact assessment found that homeowners who participated in Built to Last were able to conduct 50% more work on their homes in a six-month span than homeowners who did not participate. Respondents to the impact survey also reported a 19% increase in overall home comfort, which includes people having better thermal comfort in their homes and not being too hot or too cold based on outdoor temperature. As Built to Last continues its operations, it seeks to help residents avoid displacement, build community wealth, and improve the long-term quality of Philadelphia's housing.

Phoenix Housing Repairs and Rehabilitation Program

Housing affordability remains a top concern for Phoenix residents. To help support the high percentage of homeowners, the City of Phoenix's Housing Repairs and Rehabilitation Programs help low-income homeowners repair vital home systems and structures. City residents complete a household assessment form to determine whether they qualify for one of the programs, which includes the Housing Repairs Program, the Weatherization Assistance Program, Lead Safe Phoenix, and the Rental Rehabilitation program.

The Weatherization Assistance Program focuses on energy-efficient upgrades, improving affordability and energy resilience, helping homeowners reduce utility costs and increase efficiency through health and safety repairs and improvements. The program conducts inspections and assessments to judge the condition of a home, identifies needed upgrades, and supports the stacking of programs to help homeowners pay for the improvements. Eligible homeowners receive repair, replacement, or installation of air sealing, efficient lighting, high-efficiency appliances, carbon monoxide detectors, attic insulation and ventilation, energy efficiency assessments, and heating and cooling equipment. These improvements effectively reduce the cost of heating and cooling homes, helping homeowners spend less on their energy bills and save money. This program helped one resident on a fixed income in an aging home reduce her monthly energy bills from $175 to $75.

Critical to this program and Philadelphia's Built to Last, is the ability for a local government to act as a conduit between the homeowners and the programs offered at the local, state, utility and federal level, while supporting the stacking of programs to ensure holistic upgrades extend the life of the home while lowering monthly costs.

Utility Programs Provide a Source of Funding for Energy Improvements in Housing

In many regions of the country, utility programs provide financial support for the incremental cost of energy improvements. For example, Oklahoma's local utility, OG&E, offered a rebate for geothermal systems at the Wheeler District. In Massachusetts, Mass Save, the utilities' energy efficiency program, provides incentives for housing that achieves Passive House certification and electrification standards. In New York State, a small Systems Benefit Charge on utility bills funds the New York State Energy Research Development Authority (NYSERDA)'s rebates, grants, low interest loans, and other incentives for energy efficiency, electrification, and clean energy. In recent years, NYSERDA has partnered with the State's housing finance agency, New York State Homes and Community Renewal (HCR), to ensure NYSERDA funding flows seamlessly to affordable housing without a separate NYSERDA application. Through this partnership, HCR's Clean Energy Initiative Program now funds highly efficient all-electric retrofits via a one stop shop

application alongside HCR's low income housing tax credit and financing applications. Similarly, the Maryland Department of Housing and Community Development's (DHCD) Multifamily Energy Efficiency and Housing Affordability (MEEHA) program provides energy efficiency incentives alongside affordable housing programs.

Diffusion and Scaling Resilient Housing Retrofit Programs

Communities developing resilient housing programs should consider the following actions:

Understand Funding Landscape: Federal, state, and utility funding can be key to these programs. Understanding the available federal and state funds for your program as well as any philanthropic opportunities is an important first step.

Take Stock of Housing Age and Retrofit Needs: Understanding the landscape of local housing will help shape the type of program needed. Determining the age, common retrofit needs, mix of multi-family and single-family housing, as well as rental stock will help identify relevant case studies and develop program focus.

Build Coalitions Between Housing and Sustainability Professionals: Local leaders play critical roles in breaking down silos across climate, housing and economic development sectors to help implement solutions outlined in this policy guide. This can also help identify where there are gaps in skills needed to implement solutions and build the demand and programs to meet those needs.

Catalog Region-Specific Solutions: Leaning on the specific weather and risks in your region will be important to creating an effective program. Reaching out to community organizations to understand challenges and looking at past city programs can help identify the suite of solutions needed.

Identify Partners: Many of the case studies highlighted work with community organizations as well as developers, contractors, and others to improve effectiveness. Leveraging community expertise will help build a successful program that can seamlessly integrate with ongoing work.

Serve as a Hub for Your Residents: Programs supporting existing housing are only as useful as people's ability to use them effectively. It's critical that local governments create, or support the creation of, programs that provide support for stacking existing home upgrade programs available within your city through state, federal, utility, and city incentives and programs.

Invest in Workforce Development: Finding contractors capable of installing upgrades like EV chargers and heat pumps can be challenging. Growing the workforce through certifications, community college programs, and other workforce development programs can create jobs and increase overall economic benefits of a retrofit program.

Pursue Opportunities for Scalability to Reduce Cost: As cities work to meet their new housing and retrofit goals, implementing resilience and energy efficiency requirements and upgrades at scale will reduce per-unit costs.

Kate Wright *and* ***Laura Jay*** *serve as the Executive Director and Deputy Director of Climate Mayors, a bipartisan network of 350 mayors across the U.S. who are demonstrating climate leadership through meaningful actions in their communities.* ***Heather Clark*** *oversaw building sector climate policy for the Biden-Harris White House. Heather comes from a background in affordable housing where as a developer she pioneered some of the most ambitious decarbonization and clean energy projects in the country to benefit underserved communities* ***Lotte Schlegel*** *is an independent consultant working at the intersection of climate, housing, finance, and community. She has worked on building and energy policy in the nonprofit, government, and business sectors for 20 years.*