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before the

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Addressing Climate Change with Energy Efficient and Resilient Housing

Chairman Brown, Ranking Member Toomey, and distinguished Members of the Committee, thank you for the opportunity to appear before you today.

My name is Ruth Ann Norton, and I am the President and CEO of the Green & Healthy Homes Initiative, a national non-profit dedicated to advancing health, economic, and racial equity through the creation of healthy, safe, and energy efficient homes. I also serve on the EPA's Children Health Protection Advisory Council and am a liaison to the CDC's Lead Exposure and Prevention Advisory Council.

Founded in 1986 to address the toxic legacy of lead on Baltimore's children, GHHI has worked to transform how we address the twin tragedies of a deteriorating housing stock and unhealthy families in historically disinvested rural and urban communities. Through its direct services and policy work, we have demonstrated the enormous health, economic and social benefits of a housing upgrade model that aligns health and safety measures with energy efficiency, resilience, and climate related investments. GHHI has led the efforts to reduce lead poisoning in Baltimore by 99% and across the nation, while also achieving reductions in hospitalizations for asthma by over 66%, reducing carbon emissions, energy costs and trip and fall injuries. Evaluation of these efforts has also shown significant increases in housing stability, school attendance (62%), work attendance (88%) and improved economic outcomes, community-based jobs, and intergeneration wealth building. The results achieved by our work supported by HUD, The JPB Foundation, and the Robert Wood Johnson Foundation prove that investments in coordinated home repair and upgrade services significantly increase housing stability, school attendance, work attendance and health outcomes.

These results have compelled investments from state and local governments, healthcare, foundations, and utilities to support a solution that addresses the underlying health and safety issues that and deferrals and disrupt effective delivery of categorical funding like the DOE Weatherization Assistance Program or HUD's Lead Hazard Reduction Program. To maximize the impact of our climate investments and optimally deliver services, we must address these barriers and prepare homes in historically disinvested low-income urban, rural, and Black and Brown communities for electrification, energy efficiency and greater resiliency.

I am here today to ask this Committee and Congress to take two actions:

- 1) Support appropriation for \$5 billion for a Lead and Healthy Home Repair Fund to address at scale the eradication of lead-based paint and other home-based health and safety issues hazards as proposed by the previous Build Back Better proposal but also supported independently by evidence of critical need, and

- 2) Restore support for the \$25 billion of HOME funds and \$3 billion of CDBG funding to also support critical home repairs.

These programs will serve as a long overdue catalyst for improving the health and economic outcomes for millions of families across the country, while simultaneously increasing private sector investment, reducing millions in Medicaid expenditures, decreasing energy consumption and assuring more fit and stable communities. By adopting these two funds, we will ensure that homes in under-resourced communities are not only resilient and energy efficient but healthy and safe to ensure better health, economic and social outcomes. Furthermore, implementation of this Fund will create new, reliable demand for home repair and modification services, creating more jobs in communities with high rates of unemployment and underemployment, particularly among young adults.

Key Findings

What we know from decades of this work is that historic disinvestment in low-income urban and rural communities has disproportionately affected housing conditions across the country, endangering the health, safety, and financial security of families and seniors. Over 30 million families wake up every day in the United States in unhealthy and poorly weatherized homes that are increasingly susceptible to climate-related events that negatively affect their physical, emotional, and economic well-being. Their homes are making them sick, and directly contributing to their inability to rise out of poverty.

In our work in places like Rhode Island, Tennessee, Pennsylvania, and Maryland where we demonstrated a comprehensive whole house approach with flexible home repair dollars, we have shown government cost savings and improved health outcomes such as a 70% reduction in asthma related hospitalizations and emergency room visits. This whole-house model is attracting innovative funding and spurring public and private sector partnerships like the ProMedica Social Determinants of Health Institute supporting \$100 million in flexible healthy and climate friendly home repairs for in 7,000 low-income families across seven cities. In Detroit, we recently saw the alignment of \$20 million from the Gilbert Family Foundation, ProMedica, DTE (Detroit Energy) Energy and the City of Detroit to support this solution because they saw that the barrier to fully addressing energy efficiency and resiliency in Detroit's low-income communities was the urgent need to flexibly address health and safety issues. In New Jersey, GHHI is working with the New Jersey Board of Public Utilities to implement a Whole House Pilot Program that will utilize flexible, coordinated funding to address home-based health hazards, energy efficiency and efforts to decarbonize and electrify its housing stock. Through the Climate Imperative and Energy Foundation funding, GHHI is demonstrating how electrification and decarbonization can improve occupant health by removing dangerous gas appliances that exacerbate asthma and place occupants at risk for carbon monoxide poisoning.

New investments in climate mitigation measures and the weatherization of homes will reduce energy consumption and carbon emissions while also producing many co-benefits including:

- Improved health outcomes for asthma and COPD (improved ventilation, gas stove replacement)
- Increased school and work attendance
- Reduced energy and medical costs

- Improved financial and housing stability (lower foreclosure, tenant eviction rates and homelessness)
- Increased intergenerational wealth transfer

We have an urgent need and a compelling opportunity to leverage climate, energy efficiency, resiliency, and health investments to create skilled community-based jobs and deliver healthier and better futures for our lowest income communities by improving the nation’s occupied housing stock.

Lower income and Black and Brown families are significantly more likely to live in older, energy-inefficient homes with structural deficiencies, outdated and energy inefficient appliances, and faulty energy systems. In many communities, extreme heat from climate change is exacerbated as the difference in summer surface temperatures between redlined and non-redlined neighborhoods can reach as much as 20 degrees Fahrenheit – rendering far too often deadly consequences for our elderly. Increased flooding and other impacts of extreme heat and cold have not only undermined the ability to effectively deploy climate and energy dollars but are causing significant negative health impacts.

Where the housing infrastructure is weak, climate and resiliency measures that could improve health and reduce energy burdens for families fail because the necessary safety measures (mold remediation) or solar power readiness (structurally sound roofs) to provide the foundation to make these programs effective are not there. For example, due to underlying health and safety issues like the need for new roofs, mold remediation or structural defects, clients applying for weatherization and energy efficiency programs are deferred or declined at a rate of up to 60%.

Recommendation

1. Creation of a flexible \$5 billion Lead and Healthy Home Repair Fund (at the level recommended in Build Back Better) that will make homes safe from mold, lead, household injury and safety risks, and structural defects. To scale the availability of energy efficiency retrofit programs in low-income communities across this nation and to make homes more resilient, Congress should provide the critical gap funding that is needed to address roofing repair and the remediation of home-based environmental health and safety hazards that cause otherwise-eligible parents and seniors to be deferred from energy efficiency programs and left unable to access the services that improve their long term financial stability and improves their homes resiliency in the face of climate change.

The Lead and Healthy Home Repair Fund will address hazardous housing conditions and catalyze the further integration of health and housing with energy efficiency. The Repair Fund will simultaneously build skilled contractor jobs in underserved communities by providing new green jobs and career pathways for people to make a difference by improving housing conditions in their communities.

This flexible Repair Fund and a comprehensive housing services model will address the current fractured housing delivery system and generate sustainable impact by:

- Reducing barriers to weatherization enrollment and client deferral rates.

- Improving housing resiliency that allows for greater housing stability.
- Increasing electrification; and
- Supporting Justice 40 objectives by helping low-income residents equitably gain access to energy efficiency, decarbonization, and renewable energy measures that currently are not accessible to them in the nation’s most at risk communities.

The Repair Fund gap funding, coupled with these key policy reforms, will open pathways to extraordinary savings for the federal government in Medicaid allowing a greater focus for healthcare on upstream solutions such as those demonstrated by healthcare leaders such as Molina, ProMedica, LG Health Penn Medicine, Amerigroup, UnitedHealthcare, Integra, Care New England, and Blue Cross Blue Shield among many others.

2. Restore support for the \$25 billion of HOME funds and \$3 billion of CDBG funding that will also provide for critical home repairs in low-income communities. Increasing HOME and CDBG funding at scale is a critical funding source to address structural defects, roofing repair and other hazardous conditions that result in deferrals. Funding at this level is necessary to scale up housing repair resources to meet the level of climate mitigation funding and ensure that families and seniors in poverty are not denied equitable access to the energy efficiency, electrification and solar energy services in their homes and under-resourced communities.

Aligning income eligibility across agencies for federal housing programs to support the improved cross sector integration of resources and improve client access to federal programs would also be beneficial. Through GHHI’s asset and gap analysis in 35 cities nationwide, we have identified how integrated housing intervention services can solve complex problems in homes and a coordinated process that can deliver optimal results. Funding from multiple programs is often needed in low-income homes to address extreme heat and cold and to improve resiliency against flooding or harsh weather events. By incentivizing the integration of federal programs, we can better align, braid, and coordinate the resources (i.e.-HUD Lead Hazard Reduction, DOE WAP, HUD Choice Neighborhoods) going into homes. Through aligned funding and cross trained contractors, we have the opportunity to more efficiently and cost effectively deliver services and prevent tens of millions of dollars that are spent on energy audits and housing assessments for homes that are deferred or declined for services due to hazards and structural defects that one program funding source cannot solve.

In Michael McAfee’s forward to the book *Gray to Green Communities* by Dana Bourland, he adeptly describes the approach needed to advance “solutions that prioritize millions of people hurt first and worst by poor housing conditions and climate related disasters.” GHHI believes that the smartest path forward to address these legacy issues is the creation of a flexible healthy home repair fund that ensures healthier and more equitable opportunities for all.

Climate change mitigation investments are a new pathway for healthy and affordable housing in underserved communities. By adopting these new strategies and integrating resources, we can collectively turn the corner on safe and affordable housing that meets our climate goals while remediating the housing conditions that have long undermined the health, educational attainment, and economic advancement of low-income communities.

Organizational Background

The Green & Healthy Homes Initiative (GHHI) aims to eradicate the negative health impacts of unhealthy housing and unjust policies for children, seniors, and families to ensure better health, economic and social outcomes in low-income communities of color. GHHI has spearheaded legislation, policies, and programs that have led to a 99% decline in childhood lead poisoning in Maryland and reduced asthma episodes by 66% for clients served. GHHI is a national leader in advising governments, utilities, philanthropies, and healthcare entities making investments in healthy and energy efficient housing through an integrated service delivery model that is transforming how low-income families are served. The GHHI comprehensive model was developed in partnership with HUD and CDC and is built on a framework of cross-sector collaboration that integrates lead hazard reduction, healthy homes, energy efficiency and housing rehabilitation interventions.

GHHI provides critical direct services in Maryland, Rhode Island, Mississippi and Tennessee through home assessments, resident education, case management, family advocacy, environmental health remediation (lead hazard control, asthma trigger reduction, and injury prevention), energy efficiency and decarbonization in addition to its policy and advocacy work in these direct service states. GHHI's services are directed to predominantly African-American and Hispanic, low-income families with children and to older adults who reside in at risk housing in the United States. Over the last 5 years, GHHI has provided direct housing intervention services in 1,095 homes of families and seniors and has provided direct services to 30,000 Maryland residents since 1994. Our organization was started by parents and families, and serving low-income families remains at the core of our mission. GHHI's program designs and expertise in healthy homes and lead poisoning prevention policy development have been nationally recognized including GHHI's receipt of the 2018 HUD Secretary's Award for Healthy Homes and the 2015 EPA National Environmental Leadership Award in Asthma Management.

Known for its innovative solutions, the GHHI model was launched to more effectively and efficiently integrate housing interventions and build new avenues for funding what works -- at scale. GHHI provides technical assistance in policy and best practices to implement programs and policies that support healthy, safe, and energy efficient housing; advance racial and health equity; unlock innovative investment in healthy housing, including through health care; and address structural determinants of health. GHHI builds upon lessons learned from our comprehensive, robust healthy homes and energy efficiency service delivery programs serving Maryland, Rhode Island, Memphis/Shelby County and Jackson, Mississippi in order to build a national network of over 75 communities in 40 states implementing the GHHI model and innovative funding mechanisms. This strategy replaces siloed housing intervention programs with an integrated, single stream intake, assessment and intervention model to comprehensively combine healthy homes, lead hazard reduction and energy efficiency resources at sites nationally. GHHI provides technical assistance and best practices to local partners to align, braid and coordinate funding resources to deliver housing remediation services in low-income communities across the US. GHHI's model has been endorsed by the Federal Healthy Homes

Interagency Work Group on healthy housing and its principles have been incorporated into federal Notices of Funds Availability.

GHHI conducts feasibility research, including with Medicaid and health insurer data, and advises states on how to develop cross-sector intervention models where existing housing and energy services are supplemented with sustainable, Medicaid funded resident education and preventive intervention services. GHHI is at the forefront nationally in the development of actuarial analysis and building the business case for innovative Medicaid and private health care investments in healthy homes resident education and hazard reduction interventions. That evidence base has supported the Centers for Medicaid and Medicare Services (CMS) and a number of states GHHI has worked with such as Maryland in their groundbreaking approval of policy changes that allow public Medicaid/CHIP funds to be used for lead remediation and other healthy homes services that has resulted in millions of dollars in new health care investments. GHHI is the architect of current programs with three national health plans that are providing evidence-based healthy homes services in Maryland, New York, and North Carolina. The organization is partnering with ProMedica, a national health system, on a \$100 million healthy housing project in seven cities - that will produce 7,000 healthy and energy efficient low-income homes through integrated, flexible funding streams. GHHI is also currently partners with Pennsylvania's largest health system to design, implement, and plan the evaluation of a \$50 million investment in lead poisoning prevention.

Family Stories

Without the Healthy Home Repair Fund and an integrated process that leverages multiple funding sources, vulnerable families and seniors will not be able to access the energy efficiency programs they need.

Providence – For the Nunez Family in Providence, RI, gap funding from the Rhode Island Attorney General's Office paid for asbestos abatement that was deferring their home from being weatherized. Through that gap funding and the braiding of multiple funding sources, the home received lead and asbestos hazard remediation, the property was weatherized, and their energy inefficient furnace replaced, resulting in \$534 in annual energy cost savings for the family.

Baltimore – In Baltimore, MD, a senior, Ms. Edwards, lived in a poorly weatherized and energy inefficient home that was resulting in high energy bills and that lacked heat this past winter when her boiler malfunctioned. She was eligible for the weatherization program but was deferred due to plumbing leaks and asbestos hazards. Philanthropic and state gap funding fixed the plumbing leak and remediated the asbestos, and integrated funding addressed trip and fall hazards, replaced her boiler, weatherized her home, and replaced her energy inefficient appliances to reduce her energy cost burden so she could continue to reside in the home and community where she chooses to live.

The Need in Low Income Communities

Many of the 76 million low-income Americans who receive health coverage from Medicaid and Children's Health Insurance Program (CHIP) experience challenges related to the social

determinants of health — “including but not limited to access to nutritious food, affordable and accessible housing, convenient and efficient transportation, safe neighborhoods, strong social connections, quality education, and opportunities for meaningful employment.”ⁱ

Currently, an estimated 30 million families live in unhealthy housing in the United States.ⁱⁱ Research shows that African Americans are more likely to live in poor-quality housing – a direct result of the legacy of systemic racist housing practices such as redlining, where African Americans were denied loans to purchase in certain neighborhoods or improve their homes.ⁱⁱⁱ Poor housing quality can cause lead poisoning, exacerbate chronic conditions such as asthma, and raise the risk of home-based falls among other hazards, drastically increasing costs for the healthcare system and creating undue financial strains on families. Unhealthy and unsafe housing directly cause health disparities as well as generate inequities in school attendance and educational performance, economic opportunity, and lifetime earnings.

Poor housing quality can also lead to energy inefficiencies that can dramatically drive-up energy costs and expose the occupants to extreme temperatures and poor indoor air quality. Given these facts, it is no surprise that Black and Brown families fare worse on almost all housing-related health outcomes because of enduring generations of poorer housing quality. Poor housing conditions have also been linked to higher incidence and mortality of COVID-19, which ravaged communities of color who bore the brunt of the pandemic.^{iv} Given that Americans spend approximately 90% of their time indoors,^v improving the nation’s housing stock as a healthcare measure is critical. During the pandemic, families across the nation have used their homes as a means for protection from COVID-19. But for many, this only trapped them in an environment filled with toxins, poor air quality, and injury risks.

I will use my home state of Maryland as an example of how housing and energy disparities relate to health disparities. The 2016 Maryland Climate and Health Profile report found that because of the increase in extreme heat events in Baltimore City between 2000 and 2021, “exposures to extreme heat events during summer months increased the risk of hospitalization for heart attack by 43% among residents... This risk of hospitalization was considerably higher compared to Maryland as a whole (which had a rate of just 11%).” Furthermore, “exposures to extreme heat events during summertime increased the risk of hospitalization for asthma by 37% in Baltimore City. Exposure to extreme precipitation events during summer months increased the risk of hospitalization for asthma in Baltimore City by 16%.”

Nationally, the annual cost of asthma is approximately \$82 billion^{vi} and African American individuals are hospitalized for asthma almost five times more often than white individuals are.^{vii}

The quality of housing has a particularly severe impact on our seniors. The annual cost of falls in the U.S. is \$50.8 billion, with \$29 billion paid by Medicare and \$9 billion paid by Medicaid.^{viii} One in four older adults falls every year (36 million) causing 32,000 deaths and 3 million emergency department visits.^{ix} Falls are common and costly, especially among Americans age 65 and older.^x National Institute of Aging reports six out of every 10 falls happen at home, where we spend much of our time and tend to move around without thinking about our safety – which makes the home an ideal setting for prevention efforts.^{xi}

Our most vulnerable, children, also disproportionately bear the impact of poor housing conditions. Over 500,000 children under the age of six are lead poisoned, according to CDC estimates.^{xii} Because lead poisoning leads to lifetime impacts related to IQ level, grade reading levels, attention deficit disorder, broad health conditions, employment, earnings potential, and crime, Pew Charitable Trusts estimates lead poisoning costs this country between \$181 to \$269 billion.^{xiii}

In addition to health-related outcomes, there are additional impacts of poor housing quality that families must bear. Disproportionately affecting low-income communities,^{xiv} unhealthy housing issues have been tied to negative economic outcomes, contributing to what some call the “health-poverty trap.”^{xv} Examples of additional negative effects that poor housing quality can produce are increased risk of utility shutoffs; vulnerability and discomfort from extreme heat and cold; lower mental health and well-being as well as other social issues that correlate with poor housing quality such as food insecurity. Tragically, housing quality and housing affordability are often at odds, with families finding themselves forced to live in unhealthy housing conditions because there is no affordable alternative.

As a proportion of total income, low-income residents in the state of Maryland pay 550% more for energy than non-low-income residents in the state. As reported in the 2014-2016 American Community Survey, Maryland residents with incomes less than 75% of the federal poverty level reported average energy burden of 42% of their income.^{xvi} Every dollar that low-income residents allocate to costly utility bills is a dollar that cannot be used on other household essentials such as medical bills, school supplies, and food.^{xvii}

Energy burden is defined as the percentage of household income spent on home energy bills. An energy burden above 6% is considered high and above 10% is considered severe. According to the Department of Energy, the average energy burden in the U.S. for low-income households is 8.6%, which is almost three times higher than the average for non-low-income households (3%).^{xviii} Of all U.S. households, 25% (30.6 million) face a high energy burden (i.e., pay more than 6% of income on energy bills) and 13% (15.9 million) of U.S. households face a severe energy burden (i.e., pay more than 10% of income on energy). Of low-income households (\leq 200% FPL), 67% (25.8 million) experience a high energy burden, and 60% (15.4 million) of those households with a high energy burden face a severe energy burden.^{xix}

In 2020, 34 million U.S. households (27% of all U.S. households) reported difficulty paying energy bills or reported that they had kept their home at an unsafe temperature because of energy cost concerns.^{xx} Over the previous 12 months, 12 million households had reported receiving a disconnect notice, 5 million reported not being able to use heating equipment, and 6 million reported not being able to use cooling equipment.

As demonstrated by research, in the United States African Americans have the greatest likelihood of residing in older homes with compromised energy systems, aging or ineffective appliances and other assorted structural deficiencies, all of which contribute to making the home energy inefficient.^{xxi}

Low-income communities across the country have been left behind because of disinvestment and fractured systems.

Barriers to Weatherization and Energy Efficiency Improvements

A common challenge when homes are audited for potential energy efficiency and weatherization improvements is the presence of other deficiencies and hazards that prevent those improvements from occurring. A 2015 study on deferrals found that approximately 30% of homes that met income eligibility and need were deferred from the Weatherization Assistance Program, and only an estimated 25% of deferred homes eventually received services.^{xxii}

A study by GHHI during the increase in weatherization under the American Recovery and Reinvestment Act (following the 2008 economic crisis) found that several cities' weatherization programs, including Atlanta and Baltimore, had to defer over 40% of the homes audited for weatherization due to health and safety hazards in the home. The program in Atlanta had to defer over 60% of the homes audited.^{xxiii} Flexible gap funding to address those hazards would have drastically reduced the referral rates. The average cost of the health and safety hazards preventing weatherization was \$2,172, but the allowed amount of funds that could be used as part of the weatherization assistance program 10-15% of the weatherization unit costs, was only between \$500-\$975 per home. A Healthy Home Repair Fund would allow weatherization and energy efficiency investments to reach the families most in need of these improvements.

Deferred Maintenance and Lack of Resiliency in Housing

While most older adults would rather age in place than live in a nursing home or similar type facility, significant challenges occur when it comes to deferred maintenance and home system upkeep.^{xxiv} In order to allow our nation's seniors to live how and where they want to, a priority needs to be placed on home repairs before that person has a major fall and breaks their hip or suffers a severe head injury. After they are injured, Medicare and Medicaid (in certain states where regulations allow), pay for the ramps, widening doorways, and grab bars to get out of the tub. Would it not be a smarter investment to make changes in homes to prevent the major falls in the first place?

Similarly, climate-related disasters such as Hurricanes Katrina, Sandy, Maria, and Ida underscored the devastation that these events can have on affordable housing, with hundreds of thousands displaced. Safe, affordable, and efficient housing supports household resilience to extreme climate events, which are increasing in frequency and cost. Over the past decade, federal spending on disaster recovery has increased by 23%, totaling \$255 billion in inflation-adjusted federal expenditures on disasters from fiscal years 2005-2014.^{xxv}

Climate change is straining housing infrastructure because of extreme heat and cold, storm-related power and telecommunications outages, and added moisture from flooding following heavy precipitation. The current network of transmission wires, substations, and transformers is decaying with age and underinvestment, a condition highlighted by catastrophic failures during increasingly frequent and severe weather events. These severe weather events are causing more frequent and longer power shutoffs across the country especially after hurricanes, tornados,

extreme heat, and wildfires.^{xxvi} Flooding and extreme heat from climate change are also severely impacting health and disproportionately affecting vulnerable seniors and children in underserved urban and rural communities where homes are not adequately resilient to climate impacts.

For instance, much of the New Orleans-area power grid was built in the 1970s, when superstorms were less common, and designed to withstand winds of up to 95 mph which doomed the grid to fail when Hurricane Ida roared in last year with winds up to 150 mph, causing outages lasting for weeks.^{xxvii} Improving the resilience of housing is a key component of climate justice and protecting vulnerable populations from severe weather events. Homes that are better equipped with clean and efficient energy technologies, weatherization, and flood-proofing measures will decrease operating costs, improve thermal control, reduce excess greenhouse gases (GHGs), and shield against property damage.^{xxviii}

The Opportunity to Address Social Determinants of Health and Improve Racial Equity

I came here to talk with this committee about solutions. And investing in occupied housing is a unique opportunity to not only mitigate the impact of climate change, but to also improve racial equity, address the social determinants of health, create jobs, and save billions from avoiding the societal costs of deficient housing stock.

GHHI and our numerous partners over the last decade and a half have focused our efforts on utilizing the high return on investment from making homes safer, healthier, and energy efficient to make the case for housing improvements at scale. The business case for healthy homes has caused cross-sector partnerships to form involving health plans, attorney general funds, utilities, education-focused foundations, and banks.

Launched in December 2021, the New York Healthy Homes Collaborative (NYHHC)^{xxix} is a comprehensive home-based asthma program financed through a first-of-its-kind model. Using an outcomes-based financing approach, Northern Trust and GHHI, with funding support from the JPB foundation, are providing \$4.75 million in working capital for services that will benefit at least 850 children and adults on Medicaid in New York City. Affinity by Molina Healthcare will repay investors solely from Medicaid cost savings produced by the program—the health plan assumes no financial risk. Program services include customized in-home asthma self-management education, case management, pest control, and remediation of asthma triggers in the home environment—evidence-based services that are largely uncovered by Medicaid. Estimates indicate that the project will lead to \$6.5 million in healthcare savings resulting from reductions in hospitalizations and emergency department visits.

The program's main goal is to prevent asthma exacerbations, thereby reducing healthcare utilization and costs, increasing school and work attendance, and—most importantly—improving families' quality of life. The end goal, and broader opportunity this project represents, is to establish sustainable Medicaid funding for services that address the social determinants of health through a model that is scalable and replicable. New York State has incorporated language around this type of investment model into its Value-Based Payment Roadmap.

In a separate effort, the New York State Energy Resource and Development Authority (NYSERDA) contracted GHHI to conduct a cost-benefit analysis of the impact of comprehensive energy and housing repairs for New York Medicaid members. Following the analysis, GHHI helped NYSEDA design the New York State Value-Based Payment Pilot Program.^{xxx} Under this innovative model, \$10 million of rate payer funds will be used to support energy and healthy housing home repairs in the homes of children on Medicaid who have severe asthma. Participating Medicaid health plans will evaluate the outcomes of their members enrolled in the program and if sufficient savings are seen, the health plans will fund the services through a value-based payment model after the rate payer funds are used for the first three years.

In 2021, understanding the broad impact that housing conditions have on the community in terms of public health, education, crime, and economic opportunity, Lancaster General Hospital, part of Penn Medicine, partnered with GHHI to launch the Lead Free Families Initiative, a \$50 million investment using hospital community benefit funds to conduct lead hazard control in Lancaster County, Pennsylvania, ensuring that children in 2,800 families will be safe from lead poisoning. GHHI designed the program and is overseeing the lead hazard control work. The health system is also leveraging a \$9 million HUD lead hazard control award to the City of Lancaster, and the hospital subsequently was awarded a \$2 million HUD healthy homes production grant in order to address additional health, safety, and energy hazards and deficiencies in the homes.

Also in 2021, GHHI and ProMedica, a national healthcare system, launched a groundbreaking partnership to advance racial equity, environmental justice, and health outcomes in low-income communities by enhancing the safety and energy efficiency of homes in several major U.S. cities. The partnership represents the inaugural investment of the ProMedica Impact Fund, announced in 2020 as a bold commitment to raise \$1 billion to transform how healthcare is defined, delivered, and funded while demonstrating the connection between social needs interventions, health outcomes, and healthcare costs.

With an initial investment target of \$100 million, the initiative will provide critical healthy homes and energy repairs to at least 1,000 households in each of seven high-priority cities in the first cohort—Baltimore, Chicago, Cleveland, Detroit, Philadelphia, Pittsburgh, and Toledo—for a total of at least 7,000 households impacted. These repairs will remediate lead-based paint hazards; asthma triggers; trip and fall hazards; and energy inefficiencies—allowing children to attend school rather than the emergency room and allowing older adults to age comfortably in their homes. Addressing existing housing conditions is both a remedial and preventive measure to help families be healthier and happier in their homes, thus playing a critical role in solving the affordable housing crisis. The health and socio-economic outcomes from this project, including impacts on racial equity and workforce development, will be cohesively evaluated on an unprecedented scale. ***This initial investment will improve the housing conditions of at least 28,000 people^{xxxii} and create over 700 new career opportunities^{xxxiii} for underrepresented groups. The overall impact will be an estimated economic value of over \$315 million from children avoiding lead exposure^{xxxiii}, over \$24 million in healthcare savings from reducing***

asthma-related^{xxxiv} and injury-related hospital use^{xxxv}, and over \$148 million in energy savings and thermal stress reduction.^{xxxvi}

The project serves as a national model for addressing social determinants of health through partnership between health and housing organizations at national and local levels to meaningfully impact health equity. This investment serves as a mechanism for increasing intergenerational wealth for Black and Brown families, building capacity of communities to address their own housing needs, and reinvesting savings back into underserved communities. Detroit was the first of the seven cities to kickoff, with a \$20 million Detroit Home Repair Fund coming from the Gilbert Family Foundation, the utility DTE Energy, and ProMedica.^{xxxvii} The GHHI and ProMedica project operates as a flexible gap fund to address issues that fall through the cracks from existing programs. Scaling this model nationally through a Lead and Healthy Home Repair Fund is critically needed to achieve climate objectives and provide low-income communities of color access to energy efficiency, electrification and renewable energy solutions.

Improving Health Outcomes and Quality of Life

Improvements to housing quality and efficiency directly benefit households, communities, and national outcomes in multiple ways by mitigating negative impacts of poor-quality housing and reducing housing cost burdens (including rent and utilities). GHHI has found that the short- and long-term outcomes of the most common weatherization and home efficiency improvement services, when performed in households occupied by low-income families, can contribute to the achievement of over 40 Healthy People 2030 Objectives. Many of these objectives are related to health conditions experienced most frequently by older adults, people with disabilities, and young children.^{xxxviii}

Non-energy benefits represent tremendous value for families whose homes receive weatherization and energy efficiency improvement services. The Department of Energy found that families engaged in the Weatherization Assistance Program have homes that are more livable, resulting in fewer missed days of work (i.e., sick days, doctor visits), and decreased out-of-pocket medical expenses by an average of \$514. The total health and household-related benefits for each unit is \$14,148.^{xxxix} Weatherization services, including repairs that reduce moisture intrusion points and remove moldy housing materials, reduce exposure to environmental toxins that exacerbate asthma and other respiratory conditions. By better controlling asthma, residents have more symptom-free days, which reduces school and job absenteeism and hospital utilization for care. Among children and adolescents, the estimated return on investment for every \$1 spent on minor-to-moderate environmental control of asthma is \$5-\$14.^{xl} One study of the asthma-related health impacts of weatherization found that Medicaid recipients with asthma who participated in the Weatherization Assistance Program experienced an average annual medical cost decrease of \$421.^{xli}

In GHHI partner sites, evidence-based healthy housing interventions that address home-based environmental health hazards produce demonstrated improvements in health outcomes and medical cost savings.

In Baltimore, GHHI and Morgan State University School of Community Health conducted an evaluation of a comprehensive, home-based asthma program and found a 66% reduction in pediatric asthma-related hospitalizations, 62% increase in asthma-related perfect school attendance, and 88% increase in parents never missing work due to their child's asthma.^{xlii} A HUD-funded healthy homes technical study with University of Maryland Baltimore County's Hilltop Institute and GHHI found a \$1,658 average Medicaid cost savings annually per child for Baltimore City children receiving preventive asthma trigger reduction housing interventions and resident education. When looking at the portion of homes that received energy efficiency and structural repair services, the annual Medicaid savings averaged \$2,959.

GHHI's partners in Philadelphia, St. Christopher's Hospital for Children and the Philadelphia Department of Public Health, showed a 70% reduction in asthma-related client hospitalizations and a 76% reduction in asthma-related client emergency department visits. GHHI's partners in Cleveland, Environmental Health Watch and Case Western Reserve University Medical School, found a 58% reduction in asthma-related hospitalizations and a 63% reduction in asthma-related client emergency department visits.

Cost Savings and Return on Investment

The return on investment of healthy homes programs is well-documented and serves as a strong argument for policymakers and healthcare payers to finance these services at scale. Existing reimbursement mechanisms such as those that exist under Medicaid fee for service often do not cover healthy housing services or other services that address the social determinants of health. As such, GHHI has been on the leading edge of forging new strategies for directing healthcare dollars into programs that improve housing quality.

In 2014, GHHI began exploring the feasibility of Pay for Success (PFS) financing, also known as social impact bonds, to fund asthma-focused healthy homes services. The PFS model presented a new way of funding social services. Third party investors provide upfront capital, often in the form of loans. A payer, often a government entity, pays back investors only if a program intervention results in cost savings realized by the payer. Under the PFS model, investors assume program risk; if the program does not result in cost savings to the payer, investors do not recover their initial investment or realize a return on investment.

GHHI first looked at the PFS model in Baltimore with Johns Hopkins Health System and a set of impact investors. Following this initial project, GHHI was awarded by the federal agency, Corporation for National and Community Services, to conduct asthma PFS feasibility studies in five jurisdictions across the country. GHHI would go on to secure additional funding from CNCS, the JPB Foundation, the Robert Wood Johnson Foundation, and the Episcopal Health Foundation to perform a total of twelve PFS feasibility studies between 2014 and 2018.

GHHI worked with Milliman, a national actuarial firm, to perform actuarial analyses of state Medicaid and health plan asthma data (over 2 million member-months' worth of claims data). All analyses of estimated healthcare cost impact showed a positive return on investment for comprehensive home-based asthma programs, with an estimated \$8,800 in average Medicaid savings per person over ten years. As a result of these feasibility studies, local partners in seven

of the twelve jurisdictions secured healthcare funding for home-based asthma programs, with one of the partnerships launching a \$4.75 million Pay for Success transaction in New York City.

GHHI broadened its work into other healthcare payment models through its EPA-supported National Initiative for Asthma Reimbursement from 2017-2021. In this work, GHHI supported 22 asthma programs that included addressing environmental conditions in the home. GHHI's asthma work has led to multiple Medicaid health plans funding healthy homes services due to the effectiveness of these comprehensive models and the return on investment that can be achieved in healthcare savings.

GHHI's cost-benefit analysis work also expanded to fall prevention home repairs for older adults. GHHI was contracted by Molina to design the evaluation of a fall prevention program in Ohio. GHHI also conducted analysis with Medicaid claims provided by Tennessee Medicaid (TennCare). GHHI analyzed 27,666 unique member claims over a 6-year period (2014-2020) that included \$3.0 billion in total paid claims for members who had a fall. The analysis found that providing preventive home repairs for falls could save \$20,808 in Medicaid savings across 24 months for individuals with the highest risk of hospitalization from a fall. GHHI recently was contracted by Blue Cross Blue Shield of North Carolina to manage a statewide pilot to analyze the cost effectiveness of fall prevention repairs for their high-risk members.

GHHI also looked at other policy levers to capitalize on the healthcare savings from housing interventions. Policy analysis published by GHHI, "Authority for Services in Lieu: 2016 Managed Care Regulations" identified in lieu of services (ILOS) as a pathway to reimbursement for asthma home visiting programs.^{xliii} The State of California implemented this policy starting in January 2022 which opens another innovative healthcare funding mechanism for healthy housing interventions and other services that address SDOH. Among the pre-approved ILOS, there are two types of healthy home interventions, Environmental Accessibility Adaptations (EAAs – Home Modifications) and Asthma Remediation, which can now be funded by Medicaid Managed Care Plans. Both EAAs and asthma remediation are payable up to a total lifetime maximum of \$7,500.

Another important, yet under-utilized, tool in the healthy housing financing toolbox is the Children's Health Insurance Program (CHIP) Health Services Initiative state plan amendment, also known as an HSI. GHHI worked with the Maryland Department of Health to develop the state's HSI that funds lead and asthma services, and recently worked with Wisconsin as the state expanded its HSI to not only include lead remediation but also asthma assessments, in-home education, and remediation of environmental triggers. HSIs are funded under a state's CHIP administrative budget, which is made up of a federal share and state share based on an enhanced matching rate that varies by state—the Enhanced Federal Medical Assistance Percentage (E-FMAP). This federal matching rate is considered "enhanced" as it is higher than that for a state's Medicaid program. As an example, Maryland initially invested \$860,000 in its lead and healthy housing CHIP HSI to leverage over \$6.3 million of federal funds. The administrative budget is limited to 10% of a state's total CHIP budget.

In response to the Flint water crisis, in 2016 Michigan was the first state to use the CHIP HSI to fund lead remediation and lead service line replacement. Since then, Maryland, Indiana, Ohio, and Wisconsin have followed suit with similar HSI programs. Annual state investment across the five housing-related HSI state plan amendments total \$2.1 million. This results in leveraging over \$51 million in federal funds for critical lead and healthy homes services every year. We are hopeful that many more states will take advantage of this policy tool to leverage federal funds for lead and healthy homes services in their communities, and the federal government should do more to encourage states to take this up.

These healthcare payment models are the kinds of programs and resources that the Lead and Healthy Home Repair Fund will leverage to ensure that investments are made only when there is not another source to provide the energy and healthy homes services.

Green Jobs and Workforce Development

Investments in energy efficient and healthy housing generate new jobs in multiple workforce sectors and in every part of the country. The energy efficiency sector accounts for 2.38 million jobs (twice as many as all fossil fuel industries combined), with construction making up the largest portion of those jobs (78%).^{xliv} Small businesses are key players in the energy efficiency job sector: businesses with 5 employees or fewer make up 46 percent of energy efficiency employers.^{xlv}

Remediating lead in the 3,187,500 housing units of low-income families that have significant lead paint hazards, which is included in the Environmental Justice Legacy Pollution Cleanup Act of 2021^{xlvi} sponsored by Senator Booker and co-sponsored by members of this committee, including Senators Warren, Van Hollen, and Smith, would generate 208,904 jobs.

This industry offers the unique opportunity to provide career pathways to young men and women who will get to make a positive impact on their communities while they gain skills and certifications that lead to a true career pathway for advancement and increased household income for unemployed and underemployed residents. The housing industry particularly has also been a good foundation for workforce development and training programs that serve reentry individuals. Because energy efficiency and weatherization programs are often administered by community action agencies in programs throughout states, these are jobs that will exist in the communities and stabilize workers and their families, particularly in rural areas.

Opportunities in Decarbonization

Decarbonization of residential housing including the replacement of gas appliances will be necessary to meet our national climate goals. Over the next decades, decarbonization will have economic benefits for households and benefits to the public good, while increasing energy equity. In the short term, there is growing evidence that the health benefits will be significant, especially in low-income households with older appliances, small spaces, and poor ventilation.

Residential energy use accounts for 20% of all greenhouse gas emissions in the U.S. If the electrical grid is decarbonized, then the residential housing sector can meet the 28% emission reduction target for 2025 under the Paris Agreement. However, grid decarbonization will be insufficient to meet the 80% emissions reduction target for 2050 with continued use of fossil

fuels (natural gas, propane, and fuel oil) in homes.^{xlvii} Most housing that will be occupied in 2050 has already been built, and most of this housing relies on fossil fuels for heating.^{xlviii} Meeting climate targets will require both changes in national energy generation and deep energy retrofits of existing housing. Given the scale of housing across the nation, beginning this retrofit process now and limiting new investments in fossil-fuel appliances will be the most cost-effective way to meet climate goals while achieving equity.

A key component of strategies to mitigate climate change recommended by the United Nations Intergovernmental Panel on Climate Change (2022) is for established cities to develop plans to achieve large greenhouse gas emissions savings by efficiently improving, repurposing, or retrofitting its existing building stock.^{xlix}

Prioritizing energy equity in coordination with decarbonization programs drives investments where they are most needed and they can generate the greatest benefits, including health, safety, and resilience for low-income areas. Creating opportunities at a national scale to pair electrification and energy efficiency investments in affordable housing will require coordination at local and state levels to address specific needs of residents and building stock. This multi-sectoral, intergovernmental approach to coordinated interventions will reduce barriers many affordable housing service providers currently experience when seeking financial support for retrofits.¹ Additionally, strategies to advance decarbonization of affordable housing in the U.S. will improve energy grid reliability and resilience for all by reducing strain in times of peak demand and extreme weather events.^{li}

At least 50 utilities in the U.S. have established goals to achieve large emission reductions, and many cities and local governments have also set carbon reduction goals that have already initiated this transition.^{lii} As more communities adopt electrification requirements for new buildings, concerns grow about the future cost burdens for low-income residents using natural gas and other fuels in existing buildings who cannot afford the initial costs of fuel switching. If low-income households are the last to electrify, they will shoulder significant financial burdens of maintaining stranded fossil fuel infrastructure.

Whole-home programs will play an essential role in these existing and future decarbonization efforts because many homes require health and safety interventions to be adequate for families to live in, and because energy efficiency work and financial assistance will be necessary to prevent decarbonization from creating cost burdens on low-income households. If we as a country meet our climate targets, we will need to dedicate resources to low-income households quickly because the homes that remain reliant on gas the latest will likely face dramatic increases in their utility bills. Recent studies and analyses have raised concerns that as the number of gas customers decreases, the gas infrastructure does not decrease proportionately, which will leave a smaller pool of customers sharing the costs of necessary maintenance and stranded assets of the gas system service. A recent paper from the National Bureau of Economic Research summarizes as follows: “Recent studies assume roughly a 15% reduction in natural gas residential customers by 2030; 40% by 2040; and 90% reduction by 2050. Our estimates imply that customer losses of this magnitude would mean annual bill increases of \$30, \$120, and \$1,600 per remaining residential customer, respectively. The cost shift starts out modest but then increases sharply as

legacy costs become concentrated on an increasingly small number of remaining customers.”^{lviii} Planning the transitioning away from fossil fuels will be essential to keeping energy affordable for families, and whole-home programs that reach low- to moderate-income households will be necessary to meet the full need present in much of the housing stock that these households occupy. We cannot leave low-income families behind during this energy transition.

The technology to decarbonize homes exists, even in cold climates. Since 2019, Maine has maintained a successful heat pump program, keeping homes warm in sub-freezing temperatures.^{liv} Other states have built off this success to develop programs to promote heat pump usage in residential buildings.^{lv} Heat pumps operate like air conditioners but with the ability to essentially reverse direction to provide heating as well as cooling. They can operate from either air or ground sources and maintain high coefficients of performance even at low temperatures. Especially when factoring in their capacity to provide both heating and cooling, the costs are comparable or preferable to alternatives in many cases. A recent analysis, using the conservative estimate that energy prices will remain unchanged in the future, found that 21% of U.S. households currently using other heating sources would benefit economically by choosing heat pumps for heating and cooling today.^{lvi} When considering the public net present value (NPV) of reducing carbon emission (using the social cost of \$40/ton) and reducing air pollution from fuel consumption, the number of households for which adopting heat pumps today would be publicly beneficial is 70% of the non-heat pump housing units.^{lvii} Given the expectation that technology will improve in efficiency and cost effectiveness, plus the studies suggesting the strong likelihood of gas costs increasing more than electricity costs in the future, and the potential for the electrical grid to decarbonize, it is reasonable to expect an even greater percent of homes to benefit from adopting the technology in the coming years.

Currently, the main barriers for more widespread use of heat pumps are lack of familiarity among consumers and the workforce that would install them.^{lviii} Incorporating and incentivizing heat pumps and other highly efficient electric heating options into federal programs will help drive adoption in the market and continue to push down costs for manufactures. Furthermore, because electricity use currently peaks during the summer when demand for cooling is highest, the added burden from the electrification of heating systems is unlikely to approach electricity grid capacity in the near term. This will happen when very high rates of electrification have occurred. Plenty of time exists for grid upgrades to meet potential future demands when winter electricity demands in cold climates will be greater than the current summer peaks.^{lix}

In addition to the latest models showing many cases of electrification to be cost effective, growing research has indicated that gas appliances such as stoves have higher greenhouse gas emissions than previously understood and that the co-pollutant levels measured indoors suggest danger to health.^{lx, lxi} For example, a recent study from researchers at Stanford University found high levels of greenhouse gas emissions from stoves even when they are not in active use, as well as levels of indoor air pollution above outdoor air quality hazard limits when cooking.^{lxii} Three quarters of methane emissions from gas stoves come from when the stove is off, which, when added with the emissions from operation, leads to an estimated 1% of the gas that stoves consume in a home being released as unburned methane.

Annual emissions from all gas stoves in the U.S. have a climate impact comparable to the annual carbon dioxide emissions of 500,000 cars. Furthermore, the data suggests that families who do not use range hoods or who have poor ventilation can surpass the 1-h national standard of the pollutant NO₂ (100 ppb) within a few minutes of stove usage, particularly in smaller kitchens. Combining this research with other studies that found range hoods are used for cooking 36% of the time and the knowledge that many low-income households lack proper ventilation for their stoves suggests this is a significant health hazard.^{lxiii} Other appliances such as furnaces and water heaters release emissions in a similar fashion, and in lower-income homes, especially small rental units that make up much of the affordable housing stock, the ventilation is often inadequate. As research expands into better quantifying the links between gas appliances, indoor air quality, and negative health impacts, we expect to see greater concern about the health impacts of using gas appliances indoors, especially in the smaller, older and poorly ventilated housing that low-income families often occupy.

The health benefits of decarbonization need to be monetized, and solutions on how to relieve the additional cost on families to decarbonize (both in terms of new appliances and higher energy bills) should be a key priority of the country's climate and environmental justice efforts. GHHI will be working with partners such as the Climate Imperative, BlocPower and Revalue.io on these types of analyses this year. In the aforementioned ProMedica 7,000-home project, some of the homes will have fossil fuel appliances replaced through the gap funding.

Healthy Homes and Energy Efficiency Fund Models

As we have continued to advance innovative solutions to scale lead and healthy homes programs nationally, one promising financing tool is a Lead or Healthy Home Loan Fund. A fund could provide grants and affordable loans so property owners can address environmental hazards and energy deficiencies. Such a fund can provide income-based sliding scale interest rates and/or forgivable loans to help families finance repair and remediation projects. Many families that have deficiencies in their homes do not qualify for standard loans, are unable to afford home repairs on their own, and/or may face additional barriers to borrowing. Providing loans with more flexible eligibility requirements ensures that families can access capital for home upgrades if they want to do so.

Funds are often set up as a public-private partnership, in which government funding serves as a loan loss reserve to attract third-party, private investors to provide loan capital. Public investment thus mitigates risk to lenders to encourage them to make more loans at lower interest rates.

While lead and healthy homes funds are relatively new, the concept of loan funds for home upgrades is well established in the energy efficiency sector. In Michigan, GHHI helped design a statewide Lead Fund that Michigan Saves is administering. Michigan Saves operates an existing loan fund that allows property owners to invest in energy efficiency upgrades. The state's initial investment of \$10 million in Michigan Saves for the energy efficiency loan program has leveraged over \$280 million in investment for energy upgrade loans, drawing nearly \$30 of private investment for every public dollar spent. Similarly, Washington's Clean Energy Fund

investment, through awards of \$118 million, has successfully leveraged over \$400 million to support innovative projects.

Green banks have been established throughout the country and could provide efficient vehicles for deploying capital for holistic, comprehensive energy, health, and safety upgrades. GHHI worked with the Connecticut Green Bank on the Connecticut Green and Healthy Homes Project. In this effort, GHHI modeled out the impact on asthma, lead poisoning, and home-based injuries as well as the potential savings to the state Medicaid program of holistic home repairs conducted by energy efficiency service providers to a high-risk population.

GHHI continues to work with policymakers across the country to advocate for and set up lead and healthy homes funds. We believe that this can be an effective financing tool to supplement the critical grant-based programs that currently exist and could ensure those grant-based programs are deployed efficiently, effectively, and equitably. As mentioned in the Nunez family story earlier, GHHI utilized a gap fund approach with Rhode Island Attorney General funds for several years. Our staff deployed the flexible gap funds in homes that were receiving investment from federal programs such as the HUD lead hazard control grant funds and DOE weatherization assistance program funds. The gap money addressed those elements in the home that were not covered by the federal programs, allowing work to be performed holistically and eliminating the barriers to utilizing the federal programs.

Recent related efforts include the Whole-Home Repairs Act (SB 1135) introduced in Pennsylvania,^{lxiv} the \$60 million Pre-weatherization bill introduced in Minnesota,^{lxv} the Vermont fuel tax that helps cover pre-weatherization work^{lxvi}, California's Low-Income Weatherization Program that provides households with solar photovoltaic systems and energy efficiency upgrades,^{lxvii} Oregon's Healthy Homes Bill (HB 2842) that provides \$10 million of healthy homes resources at the Oregon Health Authority,^{lxviii} and Philadelphia Energy Administration's Built to Last program (based off of GHHI's holistic model) which provides whole-home repairs to reduce deferrals from energy efficiency programs.^{lxix}

In New Jersey, as part of the Governor's Energy Master Plan, stakeholders determined that the best approach for energy efficiency improvements was to align them with health and safety upgrades and leverage all of the existing funding streams and programs that are utilized for home improvements. In 2021, GHHI was selected to design and implement the state's first health and energy Whole House Pilot Program.^{lxx}

All of these examples from states and localities show an appetite for a Lead and Healthy Home Repair Fund, and the experience and expertise in the market to utilize a Fund effectively in alignment with existing resources and programs. Our organization has been delighted to see the growth of programs that are able to align federal, state, utility, and philanthropic funding to holistically address deficiencies in the home. The field has come a long way since GHHI began to promote aligning, braiding, and coordinating energy and housing programs back in 2009. In 2020, HUD created a \$5 million grant program designed from the GHHI model called the Healthy Homes and Weatherization Cooperation Demonstration program. The program provides flexible funding that can be used to support health, safety, and energy upgrades when local grantees combine resources from the DOE's weatherization assistance program with HUD lead

hazard control funding. Another key consideration DOE is to expand the eligible uses of existing funds to address hazards and conduct repairs that support both healthy housing and weatherization. Example: Allowing DOE WAP funds to pay for lead free, Energy Star window replacement which expands the co-benefits through reductions in energy loss and the toxic lead paint that causes childhood lead poisoning.

Now is the time to build on these successful models, proven evidence base and return on investment and scale these holistic investments nationwide through a \$5 billion national Lead and Healthy Home Repair Fund and integrated funding models that more effectively leverage the substantial climate funding. By scaling the HOME funds to the Build Back Better levels of \$25 Billion and providing \$3 billion for CDBG, this would total \$33 billion in investment that not only would transform lives around the country and create hundreds of thousands of jobs, but also save the federal government billions from avoiding the high cost of substandard housing. Substandard housing is a \$170 billion problem but making these catalyzing investments will induce healthcare and other private sector dollars to align with federal resources.

Climate change mitigation investments are a new pathway for healthy and affordable housing in underserved communities. If we provide comprehensive resources that improve energy efficiency and reduce carbon emissions while also addressing home-based environmental hazards and structural repairs in homes, we have the ability to give equitable access to new energy technologies as well as more affordable and safer housing that gives all our citizens the opportunity to thrive.

Thank you. I look forward to your questions.

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^{xxxi} Assumes an average of four members per household based on GHHI experience as a healthy housing service provider.

^{xxxii} Assumes 0.0538 new jobs created for one home repair job. This is in addition to 48 new trained apprentices in home construction in each of the seven cities.

^{xxxiii} Assumes an average of two children per household and a lead prevalence of 30% to 75% across households in seven cities. Outcome calculations and methodology are explained in this GHHI publication:

<https://www.greenandhealthyhomes.org/publication/return-on-investment-calculator-for-lead-poisoning-prevention/>

^{xxxiv} Assumes prevalence of an asthmatic occupant in 25% to 50% of households across seven cities. Estimated per-person savings are based on a national reference class of actuarial analysis performed by Milliman over a ten-year period.

^{xxxv} Assumes an average of 1.6 older adults (age 65+) per household and a prevalence of AIP hazards in 25% to 75% across households in seven cities. Estimated savings are based on a report by Housing Upgrades to Benefit Seniors (HUBS): https://civicworks.com/wp-content/uploads/2019/01/HUBS-Final-Report_March2019.pdf Estimated savings are based on a report by Housing Upgrades to Benefit Seniors (HUBS): https://civicworks.com/wp-content/uploads/2019/01/HUBS-Final-Report_March2019.pdf Estimated savings are based on a report by Housing Upgrades to Benefit Seniors (HUBS): https://civicworks.com/wp-content/uploads/2019/01/HUBS-Final-Report_March2019.pdf

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