

# Voices from the Field:

## *Greening America's Distressed Housing*

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**Emerald Cities**  
COLLABORATIVE

*America empowered.*

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## Emerald Cities Collaborative

The Emerald Cities Collaborative is a consortium of diverse organizations – businesses, unions, community organizations, development intermediaries, social justice advocates, research and technical assistance providers – united around the goal of "greening" our metropolitan areas in high-road ways that advance equal opportunity, shared wealth, and democracy within them. ECC's first project is the comprehensive retrofit of America's urban building stock.

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# Executive Summary

*Energy Conservation is certainly the primary focus of WAP; however, this program allows us to identify other obstacles to individuals remaining in their home. Remaining [in their home] is the most cost effective, humane approach to providing safe affordable housing for our citizens... Rather than 'piecemealing' services to customers, the federal government and local stakeholders from the State down should be looking to 'WRAP' any and all services that make sense to achieve the goal of providing basic needs to our citizens.<sup>1</sup>*

During the summer of 2010, Emerald Cities Collaborative (ECC) investigated the challenges and opportunities related to weatherizing America's older, distressed and substandard housing. We conducted primary and secondary research to fully understand the scale and type of problems, as well as the response to and recommendations of our member organizations for upgrading building deficiencies encountered doing weatherization work.

Specifically, ECC administered a survey (n=157) and conducted both a face-to-face and a telephone focus group with Community Action Agencies, YouthBuild affiliates and Enterprise Foundation partners. The result is a set of administrative and

legislative proposals for strengthening the Department of Energy's Weatherization Assistance Program (WAP) and other energy efficiency and home upgrade programs.

The recommendations advance ECC's goals of promoting energy conservation, economic opportunity and social equity. A comprehensive weatherization program for older, distressed housing offers multiple advantages, including: greater impact on carbon reduction of residential properties; promoting sustainable land uses and affordable housing through a urban housing preservation; lowering the health and safety problems and utility expenses of our most vulnerable populations; creating unique opportunities for collaboration among contractors, trade unions, and non-profit weatherization providers; and increasing the efficiency and productivity of federal investments.

The following sections summarize the key findings of our research and recommends low-cost strategies for weatherizing and upgrading distressed properties. The full report comprises the following five sections: 1) background and purpose; 2) methodology; 3) analysis of the legacy of distressed housing and its interaction with the

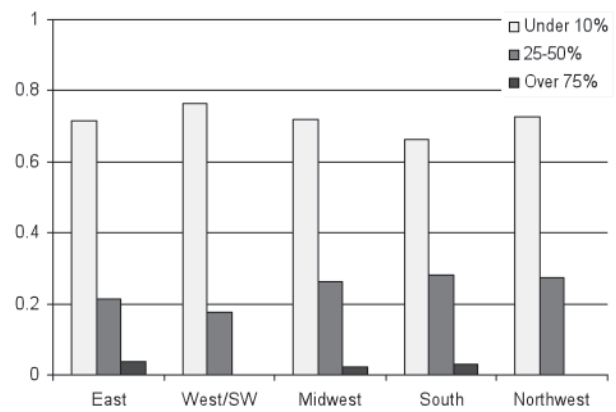
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<sup>1</sup> Community Action Agency in New York state, Emerald Cities Collaborative survey response (August 2010).

weatherization of low-income housing; 4) proposed solutions; and 5) conclusion. The solutions span the alignment of energy efficiency retrofit and home upgrade programs, including the creation of a standardized protocol and referral system; flexible and new resources for home upgrades; additional training for weatherization providers; and improved data collection and reporting.

## KEY FINDINGS: The Situation

- Older housing (pre-1940) make up 15 percent of America’s housing stock, representing 17.4 million units of U.S. housing.<sup>2</sup>
- Distressed, substandard housing accounts for two percent of the housing stock and disproportionately comprises older housing (n=2.2 million units).<sup>3</sup>
- The type and extent of building deficiencies vary by geographic regions:<sup>4</sup>
  - Older homes are concentrated in the Northeast and Midwest
  - Over half of the nation’s mobile homes are located in South and Southwest
  - Overcrowded housing is found mostly in the West, especially California
  - Vulnerable populations (African-Americans, Latinos, and elderly) are most likely to live in distressed housing.<sup>5</sup>
- One quarter of weatherization providers we surveyed estimate that over 25 percent of the homes they encounter have distressed housing conditions beyond the scope of WAP (*see chart*).
- In addition to significant general health and safety problems, the bulk of the distressed properties are expensive to repair and require skilled construction workers. The major challenges include:



- **Roofing.** Three quarters of weatherization providers that confront distressed properties encounter roofs that need significant repairs or replacement.
- **Electrical systems.** Seven in ten distressed homes encountered by providers face significant problems related to electrical repairs or upgrades, most often needing to replace knob and tube wiring.
- **Water and moisture.** Water issues such as mold and mildew, groundwater infiltration, and structural water damage significantly impair weatherization providers. Beyond work on remediation, which is often restricted by written policies, even greater resources must sometimes be dedicated to finding and fixing the sources of mold and moisture.
- Weatherization service providers do not have a standardized or reliable method for documenting the size or scope of distressed conditions and energy usage, or effective ways to track what happens to distressed properties that they encounter. Furthermore, an assessment of the problem is not effectively captured in census or other existing housing data bases

<sup>2</sup> U.S. Census Bureau, “Structural and Occupancy Characteristics of Housing: 2000,” Census 2000 Brief (November 2003).

<sup>3</sup> U.S. Census Bureau, “National Tables,” *American Housing Survey, 2005* (2005). Table 2-7.

<sup>4</sup> U.S. Census Bureau, “Structural and Occupancy Characteristics of Housing”

<sup>5</sup> U.S. Census Bureau, “Population Profile of the United States” (Internet Release, 2000). Chapter 7: The Places People Live: Housing, 1999

- Public resources and allocation formulas to upgrade and weatherize distressed properties are uncoordinated and vary by region (*see Table 1*). This necessitates more time, as well as creative, entrepreneurial skills of service providers to piece together “fixes” for the full range of housing problems.
- Standardized referral protocols and management systems for hard-to-weatherize properties do not exist.

## KEY RECOMMENDATIONS: The Solution

### Alignment of programs

- Establish a designated inter-agency coordinating body to coordinate distressed property upgrades, including energy efficiency retrofits, to include such sources as: Low Income Home Energy Assistance Program (LIHEAP), Community Development Block Grant (CDBG), HOME Investment Partnerships Program, and US Department of Agriculture Rural Development (RD) funds.
- Prioritize and incentivize unified regulatory standards and co-funding federal strategies.
- Develop project protocols and referral standards, data collection, project management, tracking and reporting system for on-site property evaluations.

### Resources for home upgrades

- Increase WAP flexibility by removing or raising the state WAP limits for non-energy related upgrades so that service providers already working in homes can easily resolve many building problems; expand allowable WAP expenditures to include maintenance, mobile home replacement, and relocation costs to fixed homes; and allow multifamily owners to access WAP as a loan.
- Create a voluntary compliance system for WAP based on energy savings per dollar spent rather than the number of units served to encourage deep retrofits and upgrades.

- Dedicate new resources to the building conditions leading to the highest rate of deferrals including roofing, electrical systems, mold and moisture, and older mobile homes.
- Target investment to rural and urban areas that document the highest unmet needs for both energy efficiency retrofits and general renovation.
- Structure new resources as low-interest loans for qualified homeowners.

### Training for weatherization providers

- Train energy efficiency auditors to identify other distressed housing conditions that can be addressed by WAP providers or referred to other contractors.
- Expand training for weatherization contractors to include additional home rehabilitation skills including roofing; electrical systems; and mold, asbestos, and lead abatement.
- Provide focused training for multifamily housing owners about the unique technical and program challenges of the sector.
- Develop referral and support infrastructure with skilled and licensed tradespeople in the local labor unions.

### Improved data collection

- More accurately define and track distressed housing within federal government programs.
- Establish a standardized database available to service providers to collect data on energy usage, building conditions, and deferrals. DOE should require use of this database, accompanied by resources and training available to facilitate data collection and analysis.
- Work with utility companies to make energy usage data publicly available at the individual property level. To address privacy concerns, building owners should be allowed to opt out of public data sharing.
- Make the energy usage of all federal properties, including affordable housing, available in a public database at a property level.

**Table 1: Existing programs to leverage WAP to address distressed housing**

<b>Program</b>	<b>Agency</b>	<b>Budget \$ Billions</b>	<b>Related Activities</b>	<b>Constraints</b>
Low Income Home Energy Assistance Program (LIHEAP)	HHS	5	<ul style="list-style-type: none"> <li>■ Reduce low-income energy bills</li> <li>■ 15% of funds: weatherization and related home repair</li> </ul>	Stricter income limits than WAP
Community Development Block Grant	HUD	3.8	<ul style="list-style-type: none"> <li>■ Development activities including revitalization that benefit low to moderate income residents</li> <li>■ Very small share of funds for weatherization</li> <li>■ 18 percent of program funds for single-family rehab</li> </ul>	Not available to rural service providers
HOME Investment Partnerships Program	HUD	2	<ul style="list-style-type: none"> <li>■ Affordable housing preservation</li> <li>■ Large, flexible rehabilitation component</li> </ul>	<ul style="list-style-type: none"> <li>■ Only available to urban properties</li> <li>■ Requires a 25% match from local governments</li> <li>■ Strict income limits</li> <li>■ Extensive rehabilitation is constrained by: 1) a per unit subsidy limit and 2) the final value of rehabilitated property must be below area median home purchase price</li> </ul>
USDA Rural Development (RD)	USDA	1.1 ARRA: 1.5	<ul style="list-style-type: none"> <li>■ Section 502: Loans to low-income households for a variety of housing services including repair, renovation, and home relocation</li> <li>■ Section 504: Low-interest loans of up to \$20,000 for home rehab. Rehab grants up to \$7,500 for elderly homeowners</li> <li>■ Housing Preservation Grants: Rehab for lowest-income housing</li> </ul>	<ul style="list-style-type: none"> <li>■ Only available to rural properties</li> <li>■ Section 504 and Housing Preservation Grants are very small</li> <li>■ Slow processing time can make it difficult to leverage with WAP for particular homes</li> </ul>
Bonneville Power Administration (BPA)	DOE	3	<ul style="list-style-type: none"> <li>■ Regional power and energy transmission</li> <li>■ Weatherization for customers</li> </ul>	Funds and programs can only be leveraged for customers
National Affordable Housing Trust Fund	HUD	Request: 1	<ul style="list-style-type: none"> <li>■ Preservation and creation of affordable housing for extremely low-income households</li> <li>■ Flexible rehabilitation activities</li> </ul>	Stricter income limits than WAP
Low Income Housing Tax Credits (LIHTC)	Treasury	5.5	Creation of multifamily affordable housing, just over one-third of projects are rehabilitation	<ul style="list-style-type: none"> <li>■ Specific to multifamily</li> <li>■ Broader purpose. than weatherization</li> </ul>
Energy Efficiency and Conservation Block Grants (EECBG)	DOE	ARRA: formula 3.2 Competitive 0.45	<ul style="list-style-type: none"> <li>■ Municipal energy efficiency efforts</li> <li>■ Financial incentives and the development of local and state government energy efficiency programs</li> </ul>	<ul style="list-style-type: none"> <li>■ Directed to larger municipalities</li> <li>■ Not intended for rehab</li> <li>■ Through municipalities, service provider may not be able to tap into directly</li> </ul>
State public benefit funds, utility programs, and state-run programs		4.3	<ul style="list-style-type: none"> <li>■ Rebates, loans, grants, and tax incentives for energy efficiency improvements</li> <li>■ State rehabilitation programs</li> </ul>	Lots of variation

# PART I: Background

*One of the homes we refuse to defer is for a disabled Vietnam veteran. He's had a stroke, and they're raising their grandson. It is frigid in winter, with no insulation. We are working with... a vocational school and got some volunteers to do some of the work. But we still need to get the wiring done first.<sup>6</sup>*

Tens of thousands of building contractors, unionists, community service providers, as well as previously un/underemployed young adults, are actively engaged in the civilian army to weatherize and improve the energy efficiency of America's residential building stock. They represent the federal government's mammoth investment in restoring American hope, jobs, as well as family and community life through the design, development and deployment of new green technologies to rebuild America's built and natural environments. This ambitious triple bottom line agenda – reduce energy consumption and environmental degradation, rebuild a greener, more sustainable economy, and promote a more equitable society – through residential building retrofits has been under way at its current scale for less than two years. The early assessment of this effort, however, reveals not only the unique challenges of retrofitting America's older housing stock, but also

the unique opportunities to preserve it.

Weatherization builds upon a national housing policy that has evolved over the past century to address many critical aspects of residential needs including affordability, racial and economic integration, ownership, and transportation access. The federal government's current efforts to foster environmental sustainability through weatherization have also brought building conditions into focus and provide a critical chance to rehabilitate and upgrade the country's most distressed housing stock. The American Reinvestment and Recovery Act (ARRA) has designated \$11.3 billion for building energy retrofits, including \$5 billion for the Department of Energy's Weatherization Assistance Program (WAP). This 33-year-old program represents the most significant federal energy efficiency retrofit effort, with approximately \$250 million allocated annually for the weatherization of low-income units. To date, the accomplishments of the WAP program have been significant: the program weatherized 6 million homes by 2008; since ARRA began, WAP has funded the weatherization of over 300,000 homes, spurring \$120 million in energy bill savings and the creation of over 13,000 jobs.<sup>7</sup>

<sup>6</sup> Community Action Agency in West Virginia, interview with the author, (September 2010).

<sup>7</sup> US Department of Energy, "Vice President Biden Announces 200,000 Homes Weatherized Under the Recovery Act," *Press Release*, (August 26, 2010). Available at <http://www.energy.gov/news/9409.htm>



WAP provides a gateway for service providers to evaluate not only energy but also health and safety conditions within homes of families living below 200 percent of the poverty limit. Because they are often the only service provider sought by low-income residents for capital improvements to their homes, these weatherization providers serve as a natural hub for a deliberate federal effort to upgrade distressed housing within a broader context of the total sustainable and healthy housing needs of low-income residents. A successful system to improve the nation's building stock will reduce both substandard conditions and energy usage by enabling retrofits of the least efficient building stock that is currently beyond WAP's scope. Moreover, such a plan would empower low-income families — those in the oldest, least energy-efficient housing stock — to be key beneficiaries of the green economy.

This report begins by examining federal efforts to address distressed housing within the context of a broader housing policy. We then define the intersection of weatherization programs and building health and safety hazards, including the extent and nature of these existing challenges. We use this analysis as the basis for policy recommendations to building a cohesive national strategy that leverages energy efficiency programs to upgrade distressed housing. Such an effort will require coordination across the Departments of Energy, Housing and Urban Development, Labor, and Health and Human Services. As the office charged with overseeing interagency collaboration around energy efficiency and building a retrofit industry, the White House Council on Environmental Quality (CEQ) should lead the charge to address the barriers to programmatically linking weatherization and the rehabilitation of health and safety hazards.

Policy changes to existing federal programs must also occur. Key recommendations include:

- Alignment of energy efficiency retrofit and home upgrade programs through the creation of inter-agency coordinating body, incentives for unified regulatory standards and co-funding of federal programs, and the development of a project protocol and referral system.
- Additional resources for home upgrades including funds targeted by type of distressed housing condition, building type, and geographic need as well as changes in WAP that allow flexibility and encourage deep retrofits and renovations.
- Additional training for service providers in both auditing and construction, as well as focused training about the unique technical and program challenges of multifamily housing.
- Improved data collection about distressed housing, energy usage, WAP deferrals and completed work. This data should be supplemented by publicly accessible utility data.

## PART II: Methodology

Our findings are driven by informal survey responses from and interviews with 157 Community Actions Agencies (CAAs) and YouthBuild agencies that perform weatherization. Our survey was sent in August 2010 to the full universe of the approximately 1,000 Community Action Agencies (CAAs) and 57 YouthBuild agencies that previously self-identified as performing weatherization to varying degrees. Most of the YouthBuild respondents work with CAAs on weatherization. While 43 percent of respondents are located in the Midwest, each region of the country is represented: 21.4 percent of respondents are located in the South, 17.6 percent in the East, 10.7 percent in the West/Southwest, and 6.9 percent in the Northwest. The survey does not distinguish between urban and rural agencies, nor do we have information about the relative size of the agencies.

During September 2010, we conducted six in-depth phone interviews with CAA staff, several conducted with representatives of the National Center on Healthy Housing; jointly interviewed several CAA Executive Directors in person; and hosted a telephone town hall attended by approximately a dozen CAAs or YouthBuild agencies. Each of these qualitative interviews was used to probe about survey responses and further explore the weatherization challenges resulting from distressed housing as well as recommended solutions.

# PART III: Defining the Challenge

*“Too many families in our cities today are living in substandard housing in deteriorating and slum neighborhoods.” President Eisenhower, 1954<sup>8</sup>*

## A Legacy of Distressed Housing

Just over a decade after President Dwight Eisenhower called upon Congress to ramp up slum clearance efforts centered on replacing distressed housing, President Lyndon Johnson sought more focus on this work: “Our housing programs have built a platform, from which we may see how far away is the re-born city we desire. For there still remains... some 4 million urban families living in homes of such disrepair as to violate decent housing standards.”<sup>9</sup> Two years later, when signing the Act that created the Department of Housing and Urban Development, Johnson echoed these sentiments and proclaimed that “the Congress and the Executive are joining in a commitment here today to eliminate substandard housing in America and build homes for

families.”<sup>10</sup> While building conditions were a major housing concern in the 1940s through the 1960s, attention has since shifted to issues of affordability, fair housing, and most recently, foreclosures. The issue of upgrading substandard and distressed housing has, in general, receded in American minds and the national policy agenda.

Definitions of distressed and substandard housing remain in our federal agencies but are not effectively integrated into federal policy or programs. The US Census Bureau defines housing with severe physical problems as a home with at least one of the following conditions: lack of critical plumbing such as piped water, a toilet, or shower; insufficient heating equipment for the winter; lack of electricity or severe electrical problems including exposed wiring; public safety hazards such as no light fixtures and loose steps or railings; a combination of at least five specific maintenance problems including water leaks, holes in the floors, walls, or ceilings, and extensive peeling paint.<sup>11</sup>

<sup>8</sup> Dwight Eisenhower, *Annual Budget Message to the Congress: Fiscal Year 1955* (January 21 1954). Available at: <http://www.presidency.ucsb.edu/ws/index.php?pid=9919&st=substandard&st1=housing>

<sup>9</sup> Lyndon Johnson, *Special Message to the Congress Recommending a Program for Cities and Metropolitan Areas* (January 26, 1966). Available at: <http://www.presidency.ucsb.edu/ws/index.php?pid=27682&st=substandard&st1=housing>

<sup>10</sup> Lyndon Johnson, *Remarks Upon Signing the Housing and Urban Development Act of 1968* (August 1, 1968). Available at <http://www.presidency.ucsb.edu/ws/index.php?pid=29056&st=substandard&st1=housing>

<sup>11</sup> U.S. Census Bureau, “Population Profile of the United States” (Internet Release, 2000). Chapter 7: The Places People Live: Housing, 1999

HUD provides its own definition of substandard housing that substantively overlaps in the areas of plumbing, electricity, and adequate heating. However, HUD redefines the maintenance standard as that which is so dilapidated that it provides unsafe or inadequate shelter, including endangering the health of residents and possessing a critical defect or a combination of defects that require substantial rehabilitation. The agency also adds two conditions not present in the Census – the lack of a kitchen and being declared unfit for habitation by the government.<sup>12</sup> These two definitions should be combined into a single standard for distressed housing in order to more effectively drive national housing policy.

The existing definitions of distressed housing have a particularly weak impact on housing policy because they are inadequately tracked. National and longitudinal tracking according to HUD's definition are not readily available. The US Census tracks distressed housing through a sample of properties in its American Housing Surveys. While revealing some general trends, this method does not provide a database of problem buildings that can be targeted for improvements and resources.

The data that has been gathered on distressed housing reveals that WAP has inherited a legacy problem. According to the strict Census definition, 1.9 percent of occupied housing units that represent 2.02 million housing units were distressed in 2005.<sup>13</sup> This does represent a clear improvement in substandard housing since the data were first recorded. In 1940, 18.1 percent of occupied units were distressed.<sup>14</sup> Moreover, these downward trends hold true across a variety of

conditions. In 1990, for example, only one percent of homes lacked complete plumbing compared to half the population in 1940.<sup>15</sup> With respect to carbon emissions, the usage of coal and wood dropped from three-quarters of households in 1940 to only 1.8 percent in 2000. Finally, while electricity usage as a source of heating was not even recorded in 1940 and was only 1.8 percent of the population in 1960, it is now 30 percent of all homes. In addition, gas now heats half of all households.<sup>16</sup>

Despite the downward trends of substandard housing, a set of patterns seem to hold steady across time as it relates to: what types of housing are likely to be substandard, where substandard housing is located, and who is most likely to live in those houses.

**What.** Old homes are in worse condition than new structures. Residents of older buildings report more problems with broken windows, plumbing, electricity, leaky roofs, and wet basements. Moreover, lead-based paint is unique to older structures. The Consumer Product Safety Commission estimates that about two-thirds of the homes built before 1940 may have lead paint.<sup>17</sup> These old homes represent a significant portion of the nation's building stock. In fact, the 17.4 million units of housing built before 1940 account for 15 percent of the total housing stock and outnumber the 11.2 million new units built between 1995 and 2000.<sup>18</sup>

**Where.** Distressed housing is dispersed across the nation. The Northeast faces the highest share of housing with severe physical problems, at a rate of 2.9 percent.<sup>19</sup> In addition, different regions of the

<sup>12</sup> Laurel Hill Center, "HUD's Definition of Substandard Housing". Available at: <http://www.laurel.org/huddefinition.htm>

<sup>13</sup> U.S. Census Bureau, "National Tables," *American Housing Survey* (2005). Table 2-7. Available at: <http://www.census.gov/hhes/www/housing/ahs/ahs05/tab2-7.pdf>

<sup>14</sup> U.S. Census Bureau, "General Characteristics," *Census of Housing*. Table 6: State of Repair and Plumbing Equipment for All Dwelling Units by Occupancy and Tenure, For the United States by Regions, Urban and Rural, 1940

<sup>15</sup> U.S. Census Bureau, Housing and Household Economic Statistics Division, "Historical Census of Housing Tables, Plumbing Facilities" (December 02, 2004).

<sup>16</sup> Ibid.

<sup>17</sup> Barbara T. Williams, "These Old Houses: 2001" *Current Housing Reports*, U.S. Census Bureau (February 2004).

<sup>18</sup> U.S. Census Bureau, "Structural and Occupancy Characteristics of Housing: 2000," *Census 2000 Brief* (November 2003).

<sup>19</sup> U.S. Census Bureau, "National Tables"

country face different types of particular housing problems. Old homes are most common in the Northeast and the Midwest, where they make up 28.9 percent and 21.2 percent of the housing stock, respectively. Old units are rarest in the South, at 2.2 percent of local stock. This region does, however, possess 56.1 percent of the nation's mobile homes. The 4.9 million mobile homes account for 11.6 percent of all homes in the South. The West follows, with 7.1 percent of its housing being mobile homes.<sup>20</sup> Nationally, mobile homes are most prominent in rural areas, where they equal 16 percent of homes.<sup>21</sup> Finally, overcrowding is a problem concentrated in the West, particularly California. Of the ten jurisdictions with the highest density of overcrowded units, Hialeah, Florida is the only one outside of California.<sup>22</sup>

*Who.* Some portions of the population occupy a disproportionate share of the nation's distressed housing. Renters are 1.75 times more likely than homeowners to live in housing with severe physical problems.<sup>23</sup> Hispanic and Black households are most likely to live in a house with several critical problems, at rates of 3.8 and 3.4 percent, respectively. The share of households living in distressed housing drops significantly for Asian and Pacific Islanders and White non-Hispanic households, at approximately 1.6 percent. Seniors also appear to be more likely than the total population to live in distressed housing. Six percent of residents at least 65 years of age self-rate their housing as below par, and approximately two percent of housing occupied by the elderly could be classified as having severe physical problems.<sup>24</sup> Finally, overcrowding is heavily concentrated within a single demographic: households with foreign-born residents account for almost two-thirds of all occupied units with more than 1.5 persons per room.<sup>25</sup>

While these data provide some insight into building conditions and vulnerable populations, homes should be evaluated onsite to adequately determine the current size and scope of the distressed housing problem challenge in the United States. We need to be intentional about identifying the legacy of housing divestment and ensure that our new investments make some inroads to ameliorate the problems. WAP can serve as a key federal agency to identify, track, and upgrade our nation's distressed housing. This program is a particularly powerful link between a federal definition of distressed housing and a policy solution, because it is designed to audit and bring skilled contractors to the homes that are most likely to be distressed.

## Overlapping Challenges for Weatherization and Distressed Housing

WAP addresses the critical dual needs of fighting climate change and improving housing equity. Residential units consume 22 percent of the nation's energy and cause 20 percent of our greenhouse gas emissions. The 25 million units that are home to our lowest income citizens are almost one-quarter of all residential units in the country. Most of these units were built before 1980 and many were poorly constructed. Not surprisingly, lower income households use 28 percent more energy per square foot than higher income households, primarily because they live in older, less energy efficient homes. Older multifamily rental housing, which is home to many of our nation's low and very low-income residents, are at risk from disrepair and renovations that are decades old. These 26 million apartments located

<sup>20</sup> U.S. Census Bureau, "Structural and Occupancy Characteristics of Housing"

<sup>21</sup> U.S. Census Bureau, "Population Profile of the United States"

<sup>22</sup> U.S. Census Bureau, "Structural and Occupancy Characteristics of Housing"

<sup>23</sup> U.S. Census Bureau, "National Tables"

<sup>24</sup> U.S. Census Bureau, "Population Profile of the United States"

<sup>25</sup> U.S. Census Bureau, "Structural and Occupancy Characteristics of Housing"

in the U.S., including those that are home to some nine million families below the poverty level and four million elderly households, could cost-effectively reduce energy by up to 30 percent for an annual savings of \$9 billion.<sup>26</sup> This dividend would have a proportionately higher value to low income renters, since they pay roughly 20 percent of their monthly income for utilities, compared to 4 percent for the average household.

Many of these single and multifamily homes are distressed and pose problems that complicate weatherization. Retrofitting a home with health and safety issues without first upgrading the building can seal in dangerous air or otherwise exacerbate existing problems. However, these fixes drive costs up, do not always lead to direct environmental benefits, and may require different types of training and job skills. Federal and state WAP guidelines balance the needs for the rehabilitation of distressed housing, lower energy usage, and large quantity of homeowners demanding service in several ways. First, federal regulations pursue equity by requiring that states prioritize households that are elderly, disabled, include children, or have the highest energy burdens.<sup>27</sup> Second, WAP guidelines in 30 states allow health and safety expenditures of up to 10 percent or more of a program's budget and 6 states set the limit at 20 percent or more. Third, federal guidelines limit service providers to an average expenditure of \$6,500 per unit. Despite the need to operate within these program constraints, service providers often encounter distressed properties with needs beyond these WAP resources.

One-quarter of service providers indicate that over 25 percent of the homes they encounter have health and safety problems beyond the scope of WAP (see *Figure 1*). This rate reaches a high of 30 percent for Southern service providers, while only 17.6

percent of Western/Southwestern providers see such extensive problems in over one-quarter of homes. While distressed conditions prevent immediate use of WAP funding for weatherization, half of service providers report that they are able to use other resources to upgrade building conditions and then weatherize the homes in at least some cases. For example, an Ohio service provider flags 40 percent of homes for deferral through an initial pre-audit intake process, but then locates financing for all but 12 percent of homes. The ability to leverage resources varies significantly by region, with almost three-quarters of Northwestern service providers able to do so in contrast to only one-third of Southern ones. Many of these successes, however, can be attributed to the enterprising nature of individual weatherization providers rather than to programmatic levers needed to get the work done. Ultimately, weatherization providers have to defer or walk away from up to 13 percent of homes nationally because of health and safety issues.<sup>28</sup>

When service providers are unable to locate the resources to provide necessary improvements, they still seek to help tenants through a variety of solutions. Because the particular options available depend on the extent of problems and whether they undermine weatherization, a single provider often employs several types of solutions. The most common solutions are to advise tenants of the problem and to refer them to another organization that can fix the problem, at 70 and 62 percent of the time, respectively. This highlights the critical role that weatherization providers could play if a robust network existed to absorb these referrals or fund homeowner repairs. Unfortunately, the common expectation among service providers about the ultimate fate of deferred homes is that they will never receive service, although some providers indicate that up to half of deferrals do fix

<sup>26</sup> Benningfield Group, Inc, "U.S. Multifamily Energy Efficiency Potential by 2020," prepared for the Energy Foundation (October 19, 2009).

<sup>27</sup> Electronic code of Federal Regulations, Part 440, § 440.16(b). Weatherization Assistance for Low Income Persons. Available at: <http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr;sid=b8743138090832460becb035ba545b1d;rgn=div5;view=text;node=10%3A3.0.1.4.22;idno=10;cc=ecfr#10:3.0.1.4.22.0.85.2>

<sup>28</sup> Green and Healthy Homes Initiative and National Coalition to End Childhood Lead Poisoning, "Identified Barriers and Opportunities to Make Housing Green and Healthy Through Weatherization: A Report from Green and Healthy Homes Initiative Sites," (2010).



the problems and return for service. Only about one in ten providers notify local governments of problems and these situations are often limited to legal violations.

## Identifying Barriers to Weatherization

*When the [homes of] people that have the most extreme need can't be done, there's something wrong.<sup>29</sup>*

These distressed housing conditions directly threaten the energy efficiency and equitable access goals of the weatherization program, because they are severe enough to prevent weatherization services in thousands of the lowest-income homes until these health and safety hazards are resolved. One in ten providers indicate they can never partially weatherize a home without upgrading the underlying building deficiencies, and this generally occurs for highly specific reasons such as unexpected trouble accessing a portion of the home. Through their home audits, weatherization providers observe problems with the building stock representative of not only their clients but also low-income families throughout the country. This section highlights several specific problems that dominate the concerns of service providers.

In addition to the general distressed housing conditions almost universally faced by service providers, specific types of problems vary regionally (see Figure 2). Forty percent of Southern providers face structural problems or extensive repairs needed that are well beyond the scope of the weatherization work. Almost six out of ten service providers encounter building code violations, with the highest rates in the West and Midwest. Over half of the weatherization providers commonly encounter lead and asbestos, and the problem is greatest in the East. Finally, three in ten Western service providers find homes being used illegally. Three specific building

conditions emerged as the major challenges to weatherization (see Figure 3):

**Roofing.** Inadequate roofs a particularly big challenge to service providers because they can be expensive to repair and are very common. Three-quarters of providers commonly encounter roofs that need significant repairs or replacement. Even in the Northwest and West where this problem is slightly smaller, almost six in ten providers cite it as a primary issue. Roofs are a key first step in weatherization because they protect the home from weather conditions, helping keep it cool in the summer and warm in the winter. In addition, roof leaks can be a key source of water and moisture problems. However, major roof repairs or replacements are beyond the scope of weatherization providers because of their cost. High quality roof replacement can cost \$4,500 for a mobile home and, depending on home size, even more in fixed homes.

**Electrical systems.** As with roofing, unsafe electrical and wiring systems are a common and expensive problem. Seven in ten service providers face these significant upgrades before being able to weatherize some of their homes. In the Midwest, four out of five providers face inadequate electrical systems. Service providers most often cite the need to replace knob and tube wiring, a pre-World War II electrical system. Other wiring challenges include overloaded panels and unsafe or exposed wires running throughout the house. These problems not only create hazards but also prevent weatherization because providers cannot install insulation around the wiring. Many service providers are not trained or licensed to do the electrical work themselves even if the fixes are within a program's budget. Repairs are more expensive when they cannot be done partially, and many states require that contractors repairing an electrical panel also bring the entire home's electrical system up to code. This complete electrical upgrade can cost \$5,000 or more. This can be a prohibitive cost for weatherization providers, and in the many cases that a service provider does

<sup>29</sup> Community Action Agency in West Virginia, interview with author (September 2010).

not have licensed electrical contractors, the homeowner or another organization must bear these expenses entirely prior to a weatherization provider's involvement.

**Water and moisture.** The third set of challenges that weatherization providers indicate significantly impairs their work is water issues such as mold and mildew, groundwater infiltration, and structural water damage. Research indicates that mold and moisture hazards occur in 28 percent of audited homes.<sup>30</sup> These problems must be fixed prior to weatherization or the newly sealed building will exacerbate any indoor air quality problems they have created. Service providers generally remove mold if the problem is not too extensive. For example, a provider in Indiana remediates below ten square feet of mold, but attributes the majority of its deferrals to the larger areas of mold that are not an allowable weatherization expense. Despite a federal requirement for a written mold and moisture policy, many service providers lack such a policy and are not sure of the allowable cutoff for their services. In addition to these remediation costs, resources that are sometimes even greater must be dedicated finding and fixing the sources of mold and moisture.

**Other building conditions.** Beyond these primary causes of deferral, service providers encounter less frequent problems and those that they can cover through leveraged funds. Most common, 45 percent of service providers describe HVAC and plumbing as major challenges, with a lower rate of only one-fifth in the East. Other problems occasionally cited as causing deferrals are unsanitary conditions; asbestos; unoccupied or in foreclosure; incomplete renovations or additions; illegal cooking appliances; problems with doors and windows; illegal propane tanks; and illegal drug activity.

**Mobile homes.** Service providers that work on a significant share of mobile homes indicate that the majority of problems found in fixed homes are even more pronounced in mobile homes. This

housing type is more likely to need roof replacement, and many roof repairs still require extensive annual maintenance. Problems with roofs are compounded when leaks cause structural problems throughout the mobile home. Leaky water heaters or other appliances can require floor replacements in multiple rooms. In addition, some problems are unique to this housing type. In particular, damage to the belly or skirting of the mobile home increases upgrade costs. While some states allow home rehabilitation grants and loans to be provided to mobile homes, this housing type is often excluded from public programs. Thus, the weatherization providers are sometimes the only ones with funding for mobile home repairs. When they cannot fully afford to address a unit's issues, the home remains unfixed and unweatherized.

## Existing Elements of a National Strategy

The federal approach to improving the energy efficiency of low-income homes has evolved over the past three decades. The country has not yet designed a comprehensive strategy to upgrade its poorest housing stock, but weatherization providers have learned how to address many of the distressed conditions of their targeted building stock. Service providers provide general health and safety repairs through the portion of their WAP budget allocated for this purpose in combination with piecemeal funding leveraged from other federal, state and local programs. This existing structure is inconsistent in its support to troubled building stock, with smaller service providers, properties in rural areas, and mobile homes having the most difficulty leveraging funds for upgrades. However, an asset map of the programs that WAP providers currently access to supplement their core activities should serve as the basis for identifying the building blocks and gaps in creating a new federal approach to weatherization and distressed housing.

<sup>30</sup> Green and Healthy Homes Initiative



Service providers commonly leverage their WAP funding with the same pool of four federal programs that account for over \$12 billion in combined federal resources. The Low Income Housing Energy Assistance Program (LIHEAP), Community Development Block grant, Home Investment Partnerships Program, and USDA Rural Development (RD) programs are critical partners to WAP. Several other federal programs complement these low-income housing upgrade efforts (see *Table 1 for summary, Appendix I for additional detail*). With one exception, these programs are housed outside of the Department of Energy, highlighting the critical need for interagency coordination. Of these programs, LIHEAP best structures its guidelines to coordinate with WAP. In fact, its rules allow recipients to selectively follow DOE guidelines for weatherization, so providers can adhere to the program rules with greater flexibility for a given need.<sup>31</sup> The primary constraints to coordinating these funds are different income limits for program eligibility; different processing time for accessing grant funds; and geographic exclusions. Most related HUD programs are targeted to urban properties, while the USDA RD funds can only be used in communities below 25,000 residents.

An increasing amount of support for weatherization is emerging below the federal level. In fiscal year 2009, funding at the state and utility level reached \$4.3 billion.<sup>32</sup> Much of these energy efficiency resources are funded through utility charges at a statewide level, and then administered through public benefit funds. Other states turn to the utilities themselves to manage weatherization efforts. The major constraint of utility run programs is that they are only available to the customers of participating utilities, leaving the remaining geographic areas and individual homeowners ineligible. In addition to utility fees, 45 states and the District of Columbia directly budget state funds to provide incentives for

residential energy efficiency. The extent and form of utility and state resources that service providers can leverage to weatherize distressed housing varies across the country.

Local governments are not a significant or reliable source of funding for health and safety housing upgrades necessary for weatherization. Four out of five service providers indicate that no local funds are available. Of the 15 percent that affirms the presence of some local funding, many indicate that these resources are limited and insufficient. Because most providers cover multiple cities and counties, local government funding is generally restricted to a portion of a provider's service area where it exists at all. Funding is most likely to be available in the West, where almost 30 percent of weatherization providers affirm the presence of local funding. In contrast, only six and ten percent of Southern and Midwestern providers, respectively, are aware of local funding (see *Appendix I for a summary of innovative local programs*).

<sup>31</sup> Administration for Children and Families (ACF), "Optional Use of DOE Weatherization Rules for LIHEAP Funds Spent on Weatherization Activities," *LIHEAP-IM-99-11* (June 15, 1999). Available at: [http://www.acf.hhs.gov/programs/ocs/liheap/guidance/special\\_topics/im99-11.html](http://www.acf.hhs.gov/programs/ocs/liheap/guidance/special_topics/im99-11.html)

<sup>32</sup> American Council for an Energy-Efficient Economy (ACEEE), "The 2010 State Energy Efficiency Scorecard," *Report Number E107* (October, 2010).

**Table 1: Existing programs to leverage WAP to address distressed housing**

<b>Program</b>	<b>Agency</b>	<b>Budget \$ Billions</b>	<b>Related Activities</b>	<b>Constraints</b>
Low Income Home Energy Assistance Program (LIHEAP)	HHS	5	<ul style="list-style-type: none"> <li>Reduce low-income energy bills</li> <li>15% of funds: weatherization and related home repair</li> </ul>	Stricter income limits than WAP
Community Development Block Grant	HUD	3.8	<ul style="list-style-type: none"> <li>Development activities including revitalization that benefit low to moderate income residents</li> <li>Very small share of funds for weatherization</li> <li>18 percent of program funds for single-family rehab</li> </ul>	Not available to rural service providers
HOME Investment Partnerships Program	HUD	2	<ul style="list-style-type: none"> <li>Affordable housing preservation</li> <li>Large, flexible rehabilitation component</li> </ul>	<ul style="list-style-type: none"> <li>Only available to urban properties</li> <li>Requires a 25% match from local governments</li> <li>Strict income limits</li> <li>Extensive rehabilitation is constrained by: 1) a per unit subsidy limit and 2) the final value of rehabilitated property must be below area median home purchase price</li> </ul>
USDA Rural Development (RD)	USDA	1.1 ARRA: 1.5	<ul style="list-style-type: none"> <li>Section 502: Loans to low-income households for a variety of housing services including repair, renovation, and home relocation</li> <li>Section 504: Low-interest loans of up to \$20,000 for home rehab. Rehab grants up to \$7,500 for elderly homeowners</li> <li>Housing Preservation Grants: Rehab for lowest-income housing</li> </ul>	<ul style="list-style-type: none"> <li>Only available to rural properties</li> <li>Section 504 and Housing Preservation Grants are very small</li> <li>Slow processing time can make it difficult to leverage with WAP for particular homes</li> </ul>
Bonneville Power Administration (BPA)	DOE	3	<ul style="list-style-type: none"> <li>Regional power and energy transmission</li> <li>Weatherization for customers</li> </ul>	Funds and programs can only be leveraged for customers
National Affordable Housing Trust Fund	HUD	Request: 1	<ul style="list-style-type: none"> <li>Preservation and creation of affordable housing for extremely low-income households</li> <li>Flexible rehabilitation activities</li> </ul>	Stricter income limits than WAP
Low Income Housing Tax Credits (LIHTC)	Treasury	5.5	Creation of multifamily affordable housing, just over one-third of projects are rehabilitation	<ul style="list-style-type: none"> <li>Specific to multifamily</li> <li>Broader purpose. than weatherization</li> </ul>
Energy Efficiency and Conservation Block Grants (EECBG)	DOE	ARRA: formula 3.2 Competitive 0.45	<ul style="list-style-type: none"> <li>Municipal energy efficiency efforts</li> <li>Financial incentives and the development of local and state government energy efficiency programs</li> </ul>	<ul style="list-style-type: none"> <li>Directed to larger municipalities</li> <li>Not intended for rehab</li> <li>Through municipalities, service provider may not be able to tap into directly</li> </ul>
State public benefit funds, utility programs, and state-run programs		4.3	<ul style="list-style-type: none"> <li>Rebates, loans, grants, and tax incentives for energy efficiency improvements</li> <li>State rehabilitation programs</li> </ul>	Lots of variation

# PART IV: Building a Comprehensive Solution

## Policy Recommendations

*Energy Conservation is certainly the primary focus of WAP; however, this program allows us to identify other obstacles to individuals remaining in their home. Remaining [in their home] is the most cost effective, humane approach to providing safe affordable housing for our citizens... Rather than 'piecemealing' services to customers, the federal government and local stakeholders from the State down should be looking to 'WRAP' any and all services that make sense to achieve the goal of providing basic needs to our citizens.<sup>33</sup>*

A deliberate and comprehensive strategy is necessary to empower service providers to conduct critical health and safety upgrades while ensuring that the least efficient building stock and that of the neediest families will be weatherized. Such a strategy should begin with key changes in existing federal programs to improve their efficiency and access. These changes should center both on how federal programs can effectively relate to each other and on WAP, as the hub of existing weatherization efforts. Our policy recommendations fall into four categories that can be applied at the federal, state, and local levels: 1) alignment of programs, including the establishment of standardized

protocols; 2) resources for home upgrades; 3) training for services providers; and 4) improved data collection.

### Alignment of Programs

*To the maximum extent possible, the use of weatherization assistance shall be coordinated with other Federal, State, local, or privately funded programs in order to improve energy efficiency and to conserve energy.<sup>34</sup>*

#### **Inter-agency coordinating body.**

A comprehensive national strategy requires a single driver to push change across federal, state, and regional programs while also connecting these efforts. We recommend that the White House Council on Environmental Quality (CEQ) expand its energy efficiency mission to also coordinate with the upgrading of distressed housings. In 2009, CEQ launched the Recovery through Retrofit working group as part of an executive order to build a retrofit industry that grows green jobs and boosts energy savings. The Council was

<sup>33</sup> Community Action Agency in New York state, Emerald Cities Collaborative survey response (August 2010).

<sup>34</sup> Electronic Code of Federal Regulations. Title10. Part 440—Weatherization Assistance for Low-Income Persons. § 440.16(e). Available at: <http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=22dd19f034d229b8850f1aba4fa13e47&rgn=div5&view=text&node=10:3.0.1.4.22&idno=10>.

specifically charged with developing a plan to develop a private market for residential weatherization. CEQ has begun to coordinate existing federal programs and build a private retrofit market that can continue energy efficiency improvements after the ARRA money runs out, but can gain greater success by addressing this portion of the market head-on.

CEQ has identified three main impediments to building a national retrofit market – access to information, financing, and skilled workers.<sup>35</sup> This report’s findings indicate that this list must add distressed housing as a fourth barrier to weatherization. Only by adopting the mission of upgrading this stock as part of its charge can CEQ properly spearhead a retrofit strategy that leverages the full assets of all federal agencies to weatherize the housing stock they have inherited. The Administration must then strengthen CEQ so that it can compel programmatic change within and across agencies.

***Incentives for coordination across programs.***

Many of the repairs needed in low-income homes fall outside the scope of energy efficiency improvements, and they should not be the full responsibility of WAP. Service providers will be more effective, however, if they can easily combine retrofits with other upgrades. Such coordination can include leveraging multiple funding streams within a single agency, referring clients to external programs, or managing volunteer work from other organizations. Each of these strategies harnesses the ability of WAP grantees to serve as a gateway to other home upgrades. Federal and state policy should encourage these providers to work with programs in other federal agencies, nonprofit partners, and market-rate organizations.

Leveraging other federal programs allows service providers to provide health and safety upgrades that exceed the cost allowed by state WAP guidelines. However, such coordination currently requires service providers to spend more time on paperwork as well as manage multiple program restrictions, income requirements, and reporting

Service providers recommend “changing the legislation for all funding sources to be compatible with each other (i.e. HOME Program, CDBG, etc.) allowing the ability of agencies to readily and easily bring to bear multiple funding sources to achieve the objective of affordable, safe, and energy efficient housing. Compatibility would pertain to eligibility guidelines including household income, allowable activities, etc.”

**Source:** Community Action Agency in Pennsylvania, Emerald Cities Collaborative survey response (August 2010).

systems. This is especially challenging for small and less sophisticated service providers. In addition, rural agencies lack federal programs that can match the needs emerging from their WAP clients. The primary policy recommendation of many service providers throughout the country is that federal agencies work together to provide greater opportunity for and ease in coordination among WAP and other federal programs (see Figure 4). Regulatory requirements for program access need to be simplified across agencies.

Coordinating WAP with other programs can require navigating multiple levels of guidelines. As one service provider notes, “Arizona puts some LIHEAP into the weatherization program which helps the problem somewhat when our local office allows it, and CDBG funding can help also if clients qualify for both.” Even LIHEAP, which encourages coordination at a federal level, must pass both state and local hurdles for joint adoption. Federal changes can facilitate access to multiple programs. Standards should be adopted at the federal level that pre-qualify WAP grantees for related grants to upgrade distressed housing. This will allow providers to circumvent the complex,

<sup>35</sup> Council on Environmental Quality, Middle Class Task Force, *Recovery Through Retrofit* (October 2009).

disjointed regulatory requirements for participation including eligibility based on income, tenant status (homeowner vs. renter), and property type. Further, the federal government should provide incentives for state and local plans to prioritize rehabilitation funding for housing stock that is also slated to be weatherized. Streamlining paperwork for program evaluation across agencies can also encourage service providers to use multiple funding streams wherever possible. Finally, coordination must be timely so that service providers are able to quickly and effectively manage their weatherization properties.

Federal efforts should begin by coordinating the programs with which many service providers already work – LIHEAP, CDBG, HOME, and USDA RD (*see Appendix II for key policy recommendations by agency*). Next, federal efforts should provide a more central role for HUD to take advantage of its expertise in upgrading a variety of residential properties. This strategy includes dovetailing weatherization funding with existing programs within HUD in order to address the 17.4 percent of audited homes with lead paint hazards.<sup>36</sup> Currently, service providers use lead and asbestos safe practices, but lead and asbestos abatement are not eligible services. HUD should prioritize WAP properties for the Office of Healthy Home & Lead Hazard Control’s Lead Control Program, which is distributed through state and local governments, and for the Operation LEAP (Lead Elimination Action Program) competitive grants to nonprofits. WAP guidelines also need to clarify that this activity is acceptable for its grantees. This coordination would allow weatherization providers to work in more homes and deepen their services provided without increasing the burden on WAP funding. The joint provision of weatherization and lead abatement could serve as a guide for the additional alignment of health, safety, and energy efficiency retrofits. HUD can also play a key role in energy efficiency and housing upgrades for multifamily properties, which has not historically been a focus for DOE.

Any changes that connect multiple federal programs should be careful to maintain the flexibility that service providers currently achieve by tapping each program as needed. Service providers are concerned that uniformity can hurt their clients: “The state agency is exploring merging LIHEAP and DOE in a way that’s not good for us. There is less of a focus on health and safety under DOE than LIHEAP... When they try to combine, they go to stricter energy, less health and safety standards.” A cohesive federal strategy should not shift standards to the most restrictive guidelines that are already in place. Rather, federal coordination should highlight flexibility. LIHEAP successfully models inter-agency cooperation through its guidelines that allow the selective

Two sets of legislation currently pending in Congress would bolster a cohesive federal strategy to promote weatherization and the upgrade of distressed housing. The Healthy Housing Council Act (HR3793 and SB1658) proposes to coordinate building health and safety across nine federal agencies through a Council that would provide technical assistance and education to existing programs to further healthy housing goals. The Safe and Healthy Housing Act, or Research, Hazard Intervention, and National Outreach for Healthier Housing Act (HR3891 and SB3654) increases health and safety funds within LIHEAP, CDBG, and HOME by \$10 million. In addition, the bill would develop a private market strategy based on Energy Star, establish a healthy homes seal of approval, and launch a media campaign.

<sup>36</sup> Green and Healthy Homes Initiative



adoption of WAP rules. WAP should reciprocate this relationship and other federal programs should replicate this method of working together. Expanding options for program compliance increases collaboration without unnecessary standardization.

***Upgrade protocol with standard referral networks.*** Currently, no standardized protocol exists for assessing the full range of potential problems within a building and then implementing necessary changes. A comprehensive strategy should develop such a protocol to ensure that key home upgrades are not missed. Appendix III provides an example of a model protocol that integrates assessment, distressed housing upgrades, and energy system improvements.

Such a protocol will often require service providers not only to leverage multiple sources of federal funding, but also to work with other nonprofits and union contractors to perform distressed housing upgrades beyond their scope. Federal resources can help build a robust referral network by both facilitating communications across organizations and tracking the needs and progress of individual properties. In particular, CEQ should develop a standardized project referral and management infrastructure to move projects through a streamlined “queue.” State and local governments could use the audits submitted by weatherization providers that flag energy, health, and safety problems to place problem properties in line for rehab funding. The referral network should also provide options for those cases in which weatherization may not be worthwhile. Service providers should use this network to build relationships with housing financing assistance and counseling agencies that can relocate tenants to other rental properties or help residents and homeowners improve their credit standing to qualify for a mortgage or home loan.

Some service providers already partner with vocational schools, churches, and other nonprofits to get volunteer labor for low-skill projects. These partners are particularly important in rural areas with less robust referral networks. WAP should encourage the use of these organizations through

their guidelines, small grants, or other strategies that build on existing success stories. While this solution will not resolve the extensive building problems, it can free up resources to dedicate to the most challenged homes.

## Resources for Home Rehabilitation

Much of the demand by service providers for increased program coordination stems from their need for greater access to resources. Although cooperation can maximize impact, resources are spread thin across existing programs. Within WAP, resources are insufficient to meet demand, leading to waitlists that are up to several years. This problem is confounded by homes that require extensive repairs and could be alleviated by targeting resources to prevent delays on the neediest homes. This need is reflected in the policy recommendations of service providers themselves. Prompted to suggest any policy change to facilitate the weatherization of distressed housing, almost two-fifths of providers recommend increasing funding as their top priority. Southern and Midwestern service providers are particularly focused on this need, in contrast to the Northwest where under 20 percent of providers flag resources as a priority. Eighteen percent Northwestern and Eastern providers, and 12 percent of providers nationally, do offer a related recommendation to establish new programs and grants for home upgrades.

A comprehensive federal strategy must address these needs by increasing the total funding available for health and safety upgrades. These funds can be successfully administered either through WAP or another federal program, but should be provided through multiple avenues. First, WAP itself should be adjusted to allow additional resources to be dedicated to home rehabilitation. Second, they should be targeted to specific distressed housing conditions and the neediest geographic areas. Third, funds should be available for two building types that currently lack adequate access to funding: mobile homes and

multifamily houses. Fourth, they should promote the maintenance of building improvements. Fifth, resources should be provided as low-interest loans as appropriate.

### **Program changes to WAP**

Weatherization providers balance their focus on energy efficiency with their unique role as the first responder to distressed homes. The legacy of substandard housing requires that many of the changes needed to resolve the health and safety conditions of low-income homes occur outside of DOE. However, the agency can facilitate many repairs to homes and reduce its deferral rate by adjusting WAP rules and regulations. These changes would not burden the WAP mission, as evidenced by the fact that service providers themselves are requesting these program changes even without increased funding. DOE should improve WAP by allowing greater flexibility: expanding allowable expenditures to maintenance and relocation costs; and allowing multifamily owners to access WAP funds as loans (*see Appendix IV for additional recommendations*).

**Greater flexibility.** WAP regulations at the federal and state levels reduce a service provider's ability to respond on a case-by-case basis to the individual circumstances of clients' homes. Asked to suggest changes that would assist in weatherizing distressed homes, as many service providers called for greater flexibility in WAP as they did for additional funding – at a rate of two-fifths. This request varies geographically, with almost half of Western service providers prioritizing the additional flexibility as compared to one-fifth of providers in the East. Two critical changes in WAP flexibility can enable deeper retrofits: first, WAP should increase the maximum amount that can be spent on non-energy efficiency home upgrades; and second, the program should adjust how program success is measured.

States impose caps on the share of program costs that can be spent on non-energy efficiency related repairs, including health and safety upgrades needed to begin weatherization. The expenditure limits vary by state, but average between ten and fifteen percent, which amounts to \$650 to \$975 per unit. In contrast, current spending on health and safety measures already approaches \$2200 when including leveraged funding from other programs.<sup>37</sup> Service providers suggest that home repair limits should more accurately approach \$6,000, particularly for mobile homes or fixed homes with roof and electrical problems. Removing or raising the limit for non-energy related upgrades would allow service providers already working in homes to easily resolve many health and safety problems. This would efficiently take advantage of the opportunity to upgrade homes while they are already undergoing repairs as well as reduce deferral rates for WAP.

In addition to state limits for non-energy efficiency upgrades, federal WAP rules cap the average expenditure per home at \$6,500. This limit discourages work on expensive or time-consuming homes, even if the need and environmental payoff would be great. A comprehensive federal strategy should instead create incentives for providing deep retrofits with significant savings, as opposed to basic weatherization on straightforward homes. WAP could accommodate the weatherization of distressed homes by both increasing the allowable average expenditure and providing a second measure of success. WAP should create a voluntary compliance system in which service providers illustrate a certain rate of energy savings per dollar rather than number of units served. This would reward service providers for improving the most challenging and least efficient building stock in which weatherization can lower energy usage by up to 40 percent.<sup>38</sup> This compliance metric should exist as an alternative to rather than replacement for an average expenditure limit, because focusing solely on energy reduction could reduce the total number of homes served. WAP should maintain its efforts to help

<sup>37</sup> Green and Healthy Homes Initiative

<sup>38</sup> Council on Environmental Quality

many low-income families, not only the neediest. In addition, the majority of service providers do not yet have sufficient access to the data needed to reliably measure energy change (*see below*). Thus, energy-saving criteria should be tested by those with utility data as the federal governments work in parallel to increase data transparency.

**Expand allowable expenses.** The health, safety, and energy efficiency improvements made by service providers only create the desired long-term effects when tenants maintain their upgraded home. However, service providers do not currently have funding to help educate and maintain these homes after the limited guidance that accompanies weatherization. Because of this, weatherization providers report that they sometimes repeat expensive repairs such as replacing furnaces after only a few years. Periodic education and maintenance could help prevent the need for large reinvestments in weatherized homes. We recommend a new program focused on the maintenance of weatherization upgrades that allows service providers to offer clients a free home inspection, home cleaning, and maintenance education six months to one year after the initial work. Similar visits would be repeated regularly as the maintenance costs are phased in for the owner.

Service providers seek to help their clients as much as possible within the constraints of accessible programs. Sometimes, for lack of a better solution, this even leads to expenditures on repairs that exceed the value of the home. DOE does not require that upgrades remain below the value of the home, and WAP grantees may not be able to identify alternative housing options. Rather than turn away a client, service providers conduct repairs and weatherization that do not make economic sense. The costs of repairs are most likely to exceed home value in the case of mobile homes, which account for almost 15 percent of weatherization units and a higher share of rural units. A service provider in rural Virginia suggests that the “vast majority of the mobile homes they work with should be replaced” and estimates that

it often spends \$6,000 on a mobile home worth less than \$2,000 without increasing its resale value.<sup>39</sup> Upgrading a distressed mobile home can exceed the cost of purchasing a well-maintained, used one. We do not believe that expenditures should be capped at home value, because residents of those homes still need assistance. Instead, WAP should allow its funds to be applied to mobile home replacement or relocation costs to fixed homes. When confronted with the most distressed housing stock, this is an efficient use of federal funds to maximize energy, health, and safety outcomes. Although relocation funds do not directly rehabilitate building stock, these resources lower energy usage by realistically responding to the worst of our nation’s housing legacy.

“For what we have spent on some of these trailers, we could have bought them a new mobile home.”

**Source:** Community Action Agency in Ohio, ECC interview (September 2010).

**Multifamily loans.** The federal government needs to help service providers more easily leverage other financing to improve conditions of existing affordable rental housing. Many retrofits of distressed rental housing use multiple financing sources to fund the upgrades and WAP should coordinate with the affordable housing industry and their state agencies to harness this complex portfolio. Structuring WAP funds as loans is essential for owners that want to leverage other sources of financing in conjunction with WAP funds, most notably the LIHTC. While HUD and DOE recognize that LIHTC rental properties are important affordable housing assets to benefit from weatherization, an unintended consequence of applying WAP funds to these properties can be reducing their eligible basis and triggering taxable income issues.

<sup>39</sup> Community Action Agency in Virginia, interview with author (September 2010).



## Targeted programs

The demand for weatherization and need for distressed housing upgrades greatly exceeds the resources available. However, by focusing additional resources in critical areas, the federal government can maximize the impact of these funds. In particular, new resources should be focused on the building conditions that are most likely to prevent weatherization deferrals, the neediest geographic areas, and the home types with the least access to program funding.

**Building condition.** Many service providers recommend targeting additional funding to roof replacement, electrical upgrades, and mold and moisture remediation because they are the most expensive health and safety problems that they currently have difficulty funding within WAP or other public programs and lead to the majority of deferrals. A targeted funding stream for roof replacement would allow service providers “to address the overwhelming number of roofs that need extensive repair/replacing in our counties. Currently the list of homes [for one service provider] needing roof repairs, for which there is no funding source, exceeds 220 homes.”<sup>40</sup> Some funds should be further targeted to high-quality roof replacement for mobile homes. EPDM roofing lasts 20 to 25 years without the need to revisit a mobile home annually for new sealant. This program is particularly needed because it is difficult to provide a sufficient savings investment ratio on EPDM roofs for WAP guidelines. Resources focused on electrical problems can help service providers with both the high expenses of individual projects and the need to maintain access to licensed workers to perform the repairs. A program focused on mold and moisture must flexibly respond to the cost and specifics of the work that varies greatly depending on the source of water. In addition, written deferral policies and state guidelines must be adapted to allow service providers to work in homes that have a significant amount of mold or moisture.

These targeted roofing, electrical, and mold programs can be administered in several ways depending on strategic choices at the federal level and on the ground. First, service providers use funds to hire permanent crews reserved for these specific issues. This approach could be particularly helpful in rural areas where there are fewer potential contractors available for individual jobs. Second, the program could fund weatherization providers but allow them to subcontract to licensed contractors. This provides the advantages of matching skilled jobs to workers trained in particular health and safety issues; keeping costs for the providers lower than required for a full-time staff; and maintaining some control within a service provider over the quality of work. Many WAP grantees already regularly subcontract other components of their work in a similar program structure. Third, a strong referral program could match service providers to reliable options to complete the work with greater flexibility than an in-house crew. This approach would be most attractive to those weatherization providers interested in focusing on their primary mission to increase energy efficiency without an added responsibility to upgrade distressed building conditions. The federal government should structure program funds so they can be accessed in any of these ways according to local need.

**Geographically based funding.** The demand for weatherization services exceeds funding all over the country, even after the infusion of additional funds through the federal stimulus. However, the challenges of distressed building stock are particularly pronounced in rural areas and cities undergoing disinvestment. Rural service providers face the dual challenges of fewer funding sources for leveraging and fewer options for referring residents to contractors trained to address health and safety problems. Additional WAP funding should be targeted to jurisdictions that document the highest unmet demand for both energy efficiency and general rehabilitation. WAP should distribute competitive grants to both individual service providers and local governments to

<sup>40</sup> Community Action Agency in Maine, Emerald Cities Collaborative survey response (August 2010).

upgrade the most challenging homes in these areas. These funds should not be subject to the typical constraints of WAP.

**Funding by building type.** Mobile homes are often cited by service providers as housing units with significant structural, health, and safety hazards, but the fewest opportunities to fund upgrades. Just as resources should be provided for mobile home replacement when necessary, a funding stream should be dedicated to those homes that can be effectively upgraded. The other building sector with the greatest need for additional resources is multifamily housing. According to the American Housing Survey, 52 percent of households eligible for weatherization assistance are renters, yet historically only 15 percent of WAP funds have been used for energy-related improvements in multifamily buildings and in many instances, states have explicitly restricted eligibility to single-family homes.<sup>41</sup> Yet, the importance of multifamily weatherization is clearly demonstrated by the HUD-DOE interagency agreement and choice by a number of states to

increase work in this area. Further increasing the funds directed to multifamily housing would not only help those families most at need, but would also help DOE and states ensure that weatherization funds are spent by the statutory deadlines. For multifamily weatherization to occur at scale, the DOE must make a significant investment in increasing the capacity of WAP grantees to undertake the weatherization of multifamily buildings and encourage states to promote this activity.

**Low-interest loans.** Low-interest loans can increase the funding for health and safety conditions available to homeowners without expanding program budgets as much as a grant program would. A comprehensive federal strategy should include loans targeted to a low-income client base likely to have low credit score. Service providers should be able to connect homeowners, regardless of community size, to a program modeled on the USDA RD's Section 502 program. This could be an especially important asset to mobile home residents that have even greater

A service provider in Twin Falls, Idaho recently administered a low-interest home repair loan program to clients that applied for weatherization. As a Community Housing Development Organization (CHDO), the Community Action Agency provided funding through HUD and the Idaho Housing and Finance Association. The program provided zero to two percent interest loans of \$1,000 - \$20,000 for geographically and income eligible homeowners that own property meeting certain standards including being worth more than the combined value of any loans. Eligible expenses included roofing, electrical, and a wide variety of other health and safety repairs including flooring, plumbing, and wheelchair accessibility. The program structured repayment in response to client circumstance by providing the choice of repaying the loan in installments or upon transferring ownership of the property. The major drawback from the perspective of the service provider was the burden of coordinating administration across HUD and DOE. Over several years, the CAA used the program to successfully upgrade many homes. The provider discontinued the program when HUD determined it was not a qualifying activity, and is now seeking federal assistance to restart a similar program.

**Source:** South Central Action Community Partnership, "Home Repair Loan Program" brochure.

<sup>41</sup> U.S. Department of Energy, "Weatherization Assistance Program, Program Accomplishments" (2006).

difficulty securing home loans, because many loan programs specifically excluding mobile homes. The program would need to carefully address several challenges: the paperwork must be simple enough to process on a timeline that coordinates with other weatherization and rehabilitation services; simplified deferred loan procedures should be included that can help low-income recipients in the case of unexpected challenges; and loans should be targeted to those that can repay these costs over time. Some residents – particularly the elderly, unemployed, and lowest-income – may not be in a position to assume additional debt, even if their home needs critical improvements.

## Training for Weatherization Service Providers

Repairing the wide range of potential distressed housing conditions requires a more extensive skill set than weatherization. Many service providers already have the construction expertise to offer more comprehensive home improvements. However, many other service providers that have focused exclusively on weatherization can benefit from additional training. Fifty-eight percent of service providers have expressed interest in new training focused on health and safety improvements (*see Figure 5*). Interest peaks in the East, where almost two-thirds of providers would like this training. Even in the West, where interest was lowest, almost half of agencies are open to training. Several types of training would improve the integration of upgrading distressed housing and reducing energy usage. First, service providers should receive training in identifying and addressing structural, health, and safety hazards. Second, grantees should be trained about the issues and opportunities specific to multifamily housing. Third, service providers should be trained specifically in the program structure, resources, and referral network available to them to minimize the number of homes that remain unaddressed.

**Construction training.** Training sessions should be targeted to each stage of work conducted on a home. Most WAP homes are first evaluated through a preliminary walk through or audit to identify potential energy savings. The workers conducting these initial evaluations should receive additional training to recognize distressed housing conditions including health and safety hazards. The service providers that complete the weatherization should also receive additional training so they can simultaneously provide home rehabilitation. Training can be effectively targeted to high-skill repairs needed in the majority of homes, such as electrical wiring. Trade unions provide a strong training network that can guarantee quality craftsmanship. This training will have to be paired with assistance in meeting any licensing requirements by state.

**Multifamily housing.** Several states have proactively targeted multifamily projects in their weatherization plans. States including New York, Oregon, Ohio and Kansas, have led with innovative strategies that support multifamily housing weatherization and green retrofits, resulting in new opportunities for HUD-assisted and LIHTC properties to benefit from these investments. Ohio has dedicated staff to streamlining multifamily projects.<sup>42</sup> However, in

Kansas pursues two strategies to increase multifamily weatherization. First, the state reserves a quarter of its WAP funds for multifamily properties participating in one of several other federal programs including LIHTC. In addition, the state does not require the building owners to share the retrofit costs.

**Source:** National Housing Trust and Enterprise Community Partners, “Multifamily Weatherization Best Practices” (March 2010).

<sup>42</sup> National Housing Trust and Enterprise Community Partners, “Multifamily Weatherization Best Practices,” (March 2010).

many states, multifamily weatherization is significantly impeded by grantees' unfamiliarity with technical and building construction and science issues of larger buildings. The vast majority of grantees are only trained to assess and weatherize single family homes. In addition, a lack of transparency about the application process, eligibility, and subgrantee contact information is preventing multifamily owners from participating. Training and technical assistance is needed to support these policy goals. Weatherization of multifamily housing has historically been identified as a unique challenge for energy conservation efforts. The diversity in housing types across the multifamily sector, from scattered sites and low-rise garden apartments to high-rise buildings, adds significant complexity to energy audits and related energy efficiency upgrades. This has added to the technical uncertainty regarding optimal weatherization strategies and how to implement them at a scale that preserves rental housing for those most in need.

Effective strategies for improving energy efficiency in multifamily buildings are linked to innovations in the private, non-profit, utility, and governmental sectors. In order for building owners to participate under the current program, they must be informed and receive targeted training on how to access these new and expanded funding opportunities. In addition, they require significant technical assistance on diagnostic evaluation tools and cost-effective energy improvements that maximize energy, water and health savings. HUD's experience in the multifamily sector can complement WAP in providing these services. This additional outreach and technical assistance is critical to identifying a pipeline of projects that can deliver on the aggressive production goals while ensuring that all building owners have the knowledge and resources to succeed.

***Program options and referrals.*** In addition to construction training, weatherization service providers will need support in navigating the various resources, including union contractors, that

can assist in addressing distressed housing conditions. The federal government should provide training to smaller agencies to familiarize them with related federal programs, their guidelines, and eligible activities. This training should be accessible through multiple avenues including in-person sessions, online webinars, and written how-to guides. Easily accessible assistance can help build the capacity of less sophisticated service providers to coordinate building rehabilitation and energy efficiency retrofits. Similarly, service providers need training in navigating a referral system for repairs that are required beyond WAP's scope. This training will have to be customized by location because the contractors and available resources vary geographically.

## Improved Data Collection

*Total savings are hard to measure, especially because of privacy. Utilities used to provide that kind of information after a year. Now we can't get that, the client has to get it for us. It would be useful to have greater utility data... We sometimes find [the energy usage change] by looking on a bill from client that shows data for one year earlier.<sup>43</sup>*

Building owners and property managers lack information about potential savings, how to select appropriate efficiency improvements, and the availability of related financial assistance and incentives. This persistent informational gap hinders single-family and multifamily energy improvements. In addition, program and policy improvements for weatherization should be driven by data on energy usage reductions, services provided, number and causes of deferrals, and when deferrals become walk aways. Beyond improving program design, data driven analysis can help build the case for a private weatherization market that will rely on evidence of a sufficient return on investment after ARRA funds are depleted. The current focus on federal energy

<sup>43</sup> Community Action Agency in California, interview with author (September 2010).

For over a decade, the Louisiana Home Energy Rebate Option (HERO) has integrated data collection into program implementation. Energy savings from energy efficiency retrofits are measured against an audit of energy usage prior to improvements. If the weatherization reduces energy usage by at least 30 percent, participants receive a rebate of up to \$3,000 that equals the lesser of 20 percent of either energy savings or the cost of improvements. Utility savings for participants average \$300 to \$600 per year. HERO has served over 17,900 homes. Already, the data from this program has demonstrated the potential savings of weatherization. HERO could reach a broader set of residents and serve as a model for additional market sectors by including mobile and multifamily homes in its scope.

**Source:** EmPower Louisiana, Louisiana Department of Natural Resources. Available at: <http://www.empowerlouisiana.org/HeroProgram.aspx> and Michael Sciortino "States Stepping Forward: Best Practices for State-Led Energy Efficiency Programs," ACEEE Report E106 (September 2010).

efficiency programs represents an excellent opportunity to begin collecting data on their effectiveness and demonstrated results.

A comprehensive federal strategy for weatherization and housing rehabilitation must include funding to establish a standardized database available to service providers to collect data on energy usage and building conditions. With resources and training available to facilitate data collection and analysis, DOE should require the use of this database as part of its reporting requirements. Consistent and comprehensive reporting will help program design by tracking which building conditions prevent weatherization or remain unfixed, identifying model service providers with the greatest gains in energy efficiency, and monitoring whether multiple sources of funding are successfully leveraged by providers. The data can also be used for innovate public education campaigns to expand the demand for weatherization services.

While service providers should collect and utilize their program data more effectively, they lack access to a much greater quantity of information that could greatly impact program design and evaluation. The federal government should work with utility companies to increase data transparency and access by making energy usage data publicly available at the individual property

level. Although this raises privacy concerns, they can be resolved by allowing building owners to opt out of any public data sharing. The federal government should lead by example in demonstrating the value of these utility data: The energy usage of all federal properties, including affordable housing, should be available in a public database at a property level. The federal government owns or manages sufficient property to begin to drive significant change. Its data, especially when combined with all utility data, can demonstrate the energy savings of existing programs and services, improve program evaluation, and help service providers target their efforts to the least-efficient building stock.



# PART V: Conclusion

The residential retrofit program has the potential to rebuild the fabric of communities: changing the social, economic and physical environments (the triple bottom line) to be healthier and more energy conscious. The impact of increasing energy efficiency while upgrading distressed housing conditions would create significant cost savings, health benefits and employment opportunities throughout the country. These opportunities should be pursued to reduce the inefficiency and inequity of existing programs. Without linking weatherization to overcoming the legacy of distressed housing, a new public and private weatherization market will create an energy divide that exacerbates the economic challenges of the poorest families.

We recommend that CEQ lead the development and implementation of a cohesive federal strategy that both weatherizes and rehabilitates low-income housing. Such a strategy should leverage the key services provided by WAP grantees in auditing and upgrading low-income homes. These service providers have identified extensive problems in their clients' building stock, particularly around roofing, electrical systems, mold and moisture. Although many providers

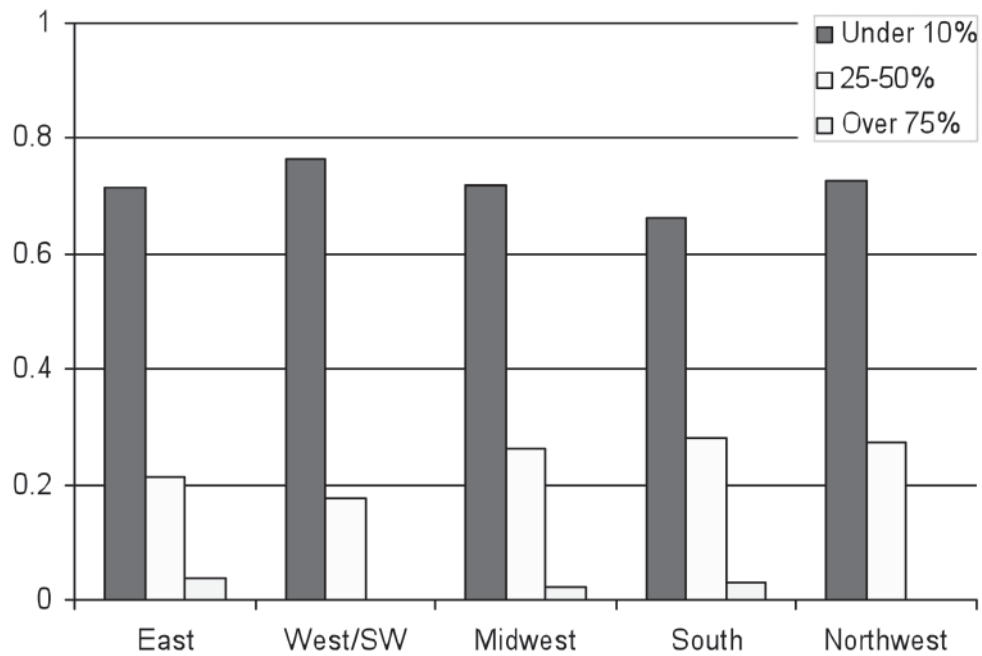
leverage additional resources to address most of these problems, they need additional assistance to address the most challenging homes that comprise service deferrals and denial.

A successful network of federal programs will coordinate DOE, HUD, HHS, USDA and other relevant federal agencies; provide additional resources to resolve health and safety hazards; increase the flexibility and program options within WAP; specifically target the challenges of multifamily housing; and improve the data collection needed to further refine federal policy and program implementation. Only by deliberately reworking these important elements of our existing policy structure can we capture the maximum value of energy savings each time we enter a home.

# Figures

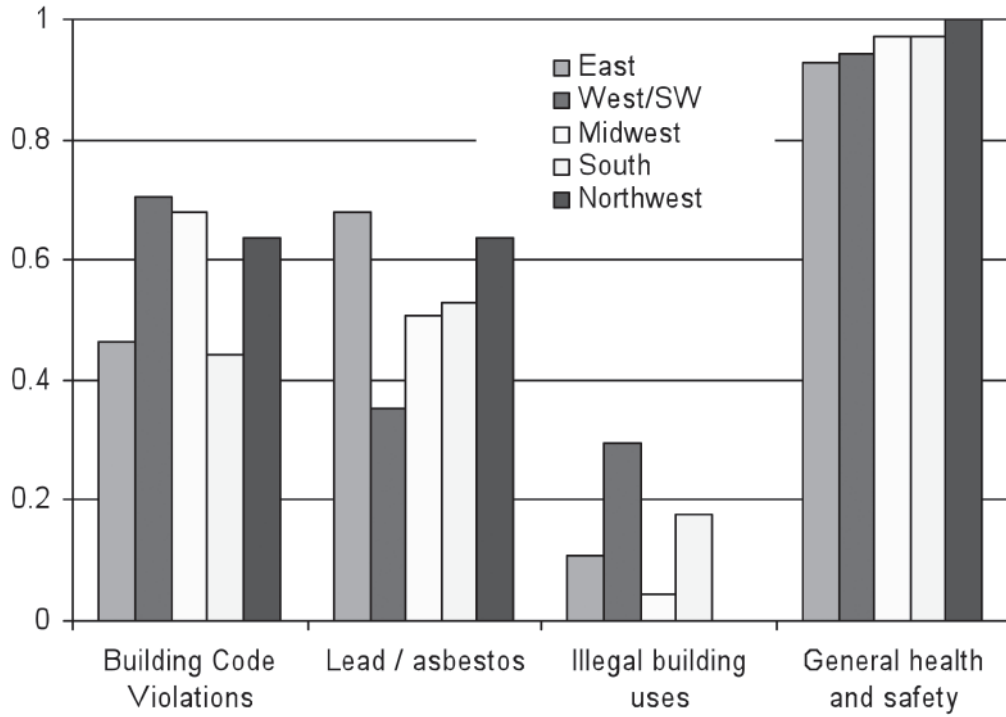
**Figure 1:**

**Share of Homes Encountered by Service Providers with Housing Repairs Needed beyond the Scope of WAP**



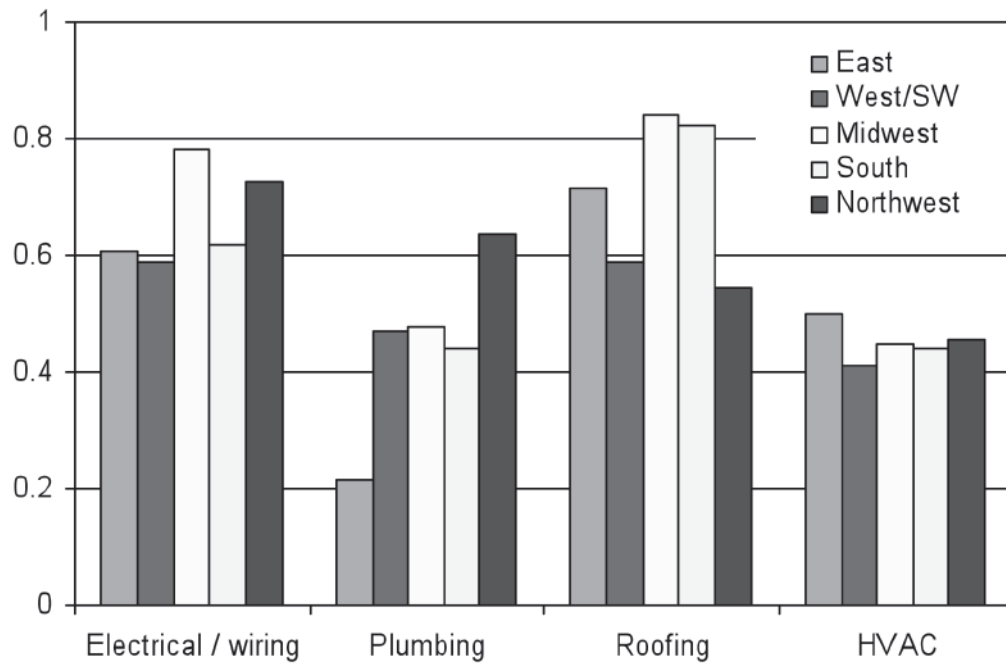
**Figure 2:**

**Types of Problems Encountered**



**Figure 3:**

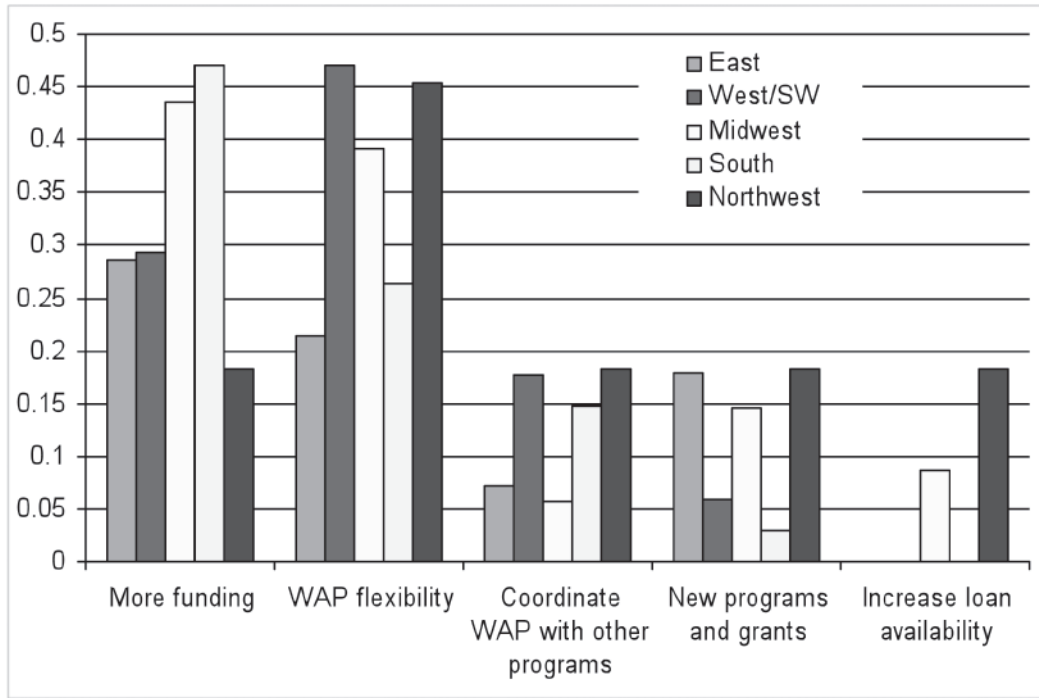
**Specific Building Problems Encountered**





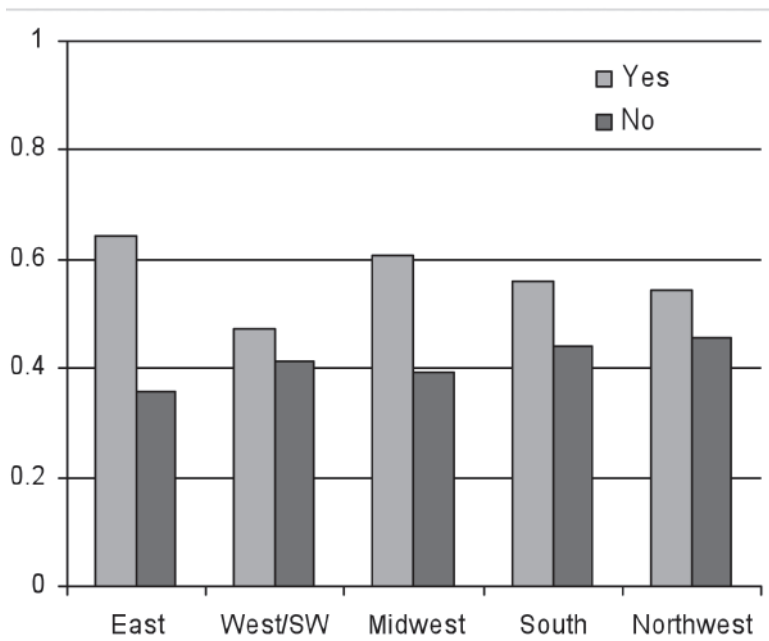
**Figure 4:**

**Federal Policy Changes Proposed by Service Providers**



**Figure 5:**

**Interest in Additional Training**



# Appendix I: Related Programs

## Federal programs

***Low Income Home Energy Assistance Program (LIHEAP).*** This 25-year-old, \$5 billion, Department of Health and Human Services (HHS) program reduces energy bills in households with incomes below 150 percent of the poverty level or 65 percent of the state's median income. While this income limit is stricter than WAP's, the two programs do overlap in mission, and LIHEAP guidelines attempt to facilitate leveraging. LIHEAP allows state programs to dedicate up to 15 percent of funding to "provide low-cost residential weatherization and other cost-effective energy-related home repair," and this can be increased to 25 percent with a waiver. In fiscal year 2006, one in ten LIHEAP dollars was spent on weatherization assistance.<sup>44</sup>

The enabling legislation for LIHEAP specifically seeks leveraging with other low-income, energy-related federal programs, and encourages LIHEAP to follow state-level WAP guidelines for home improvement. LIHEAP allows recipients to selectively follow DOE guidelines for weatherization, so providers can adhere to the

program rules with greater flexibility for a given need. For example, LIHEAP rules do not set an average expenditure limit per unit or require that weatherization funds be spend mostly on materials. "Grantees that want to carry out more comprehensive weatherization activities such as furnace replacement therefore might prefer LIHEAP rules in these cases."<sup>45</sup> WAP does not have a reciprocal rule that allows its grantees to follow LIHEAP guidelines as desired. In addition to the explicit program coordination in LIHEAP guidelines, this program serves as an important WAP partner in two ways. First, many weatherization providers identify units for WAP funds through LIHEAP program lists. Second, LIHEAP funding can be accessed for both urban and rural homes.

***Community Development Block Grant (CDBG).*** Begun 36 years ago, HUD administers \$2.75 billion annually in CDBG funds directly to urban entitlement communities and another \$1.18 billion through states to smaller jurisdictions. The program prioritizes development activities spanning revitalization and economic development

<sup>44</sup> ACF, *LIHEAP Report to Congress for FY2006* (April 22, 2009). Appendix C. Available at: [http://www.acf.hhs.gov/programs/ocs/liheap/report/appen\\_c.html#t2](http://www.acf.hhs.gov/programs/ocs/liheap/report/appen_c.html#t2)

<sup>45</sup> ACF, "Optional Use of DOE Weatherization Rules." Available at: [http://www.acf.hhs.gov/programs/ocs/liheap/guidance/special\\_topics/im99-11.html](http://www.acf.hhs.gov/programs/ocs/liheap/guidance/special_topics/im99-11.html)

that benefit low to moderate income residents. Rather than using the poverty threshold for its guidelines, CDBG sets its income limits according to area median income, focusing on households with less than 80 percent of median income of the area. However, some programming can be distributed to households above that limit, simplifying coordination with WAP. Residential rehabilitation is one many activities that fall within the scope of CDBG funds. While less than 0.1 percent of total CDBG entitlement funds are spent narrowly on energy efficiency improvements and no such spending occurs in the state run programs, service providers can tap into CDBG for the repairs needed to upgrade distressed housing prior to weatherization. Approximately 18 percent of CDBG entitlement funds are dedicated to housing rehabilitation programs, which accounts for half program spending on housing.<sup>46</sup> The primary limitation of CDBG in supporting WAP is that rural service providers are unable to access these funds.

#### ***HOME Investment Partnerships Program.***

\$2 billion in federal HOME funds have been distributed annually since 1990 to communities through the states. The program focuses on affordable housing with a large rehabilitation component and is intended to be flexible in eligible activities. HOME can provide alternatives when rehab and weatherization is prohibitive: Program resources can be used for financial assistance in the purchase of homes. WAP providers must work within several HOME guidelines in leveraging funds. Most significantly, funds can only be used for urban properties. Resources are also dependent on municipal participation, because spending requires a 25 percent match from local governments. Service providers must also follow strict limitations on recipient income: At least 90 percent of rental recipients must earn below 60 percent of area median income and all renters and homeowners must earn below 80 percent of area median income. Finally, extensive rehabilitation is

constrained by two property-based rules: first, a per-unit subsidy limit that varies geographically; and second, the final value of rehabilitated property required to be at or below 95 percent of area median home purchase price.

***USDA Rural Development (RD).*** In contrast to HUD, the USDA RD funds provide several leveraging opportunities for rural service providers in communities with below 20,000 residents. The primary funding opportunity, Section 502, distributes approximately \$1.1 billion annually in direct housing loans to households that are unable to obtain a conventional loan and earn below 80 percent of area median income. ARRA has funded an additional \$1.5 billion in Section 502. Service providers that identify residents willing to take on loans can leverage WAP funds for a variety of housing services including repair, renovation, and home relocation. Although all housing units must be modest for the area, the program can facilitate substantial work because loans can be set up to the full value of the home. These funds can be used for manufactured housing, but the housing must be permanently installed.

Two smaller USDA RD programs provide alternatives for households that do not qualify for Section 502. Section 504, the Very Low-Income Housing Repair program, targets resources to health and safety repairs and other home improvements. Households with below 50 percent of area median income can access one percent interest loans of up to \$20,000, and homeowners who are at least 62 years old can also qualify for grants of up to \$7,500 to remove health and safety hazards. Section 504 provides approximately \$34 million in direct loans and \$32 million in grants each year. Housing Preservation Grants allocate \$10 million annually to service providers to rehabilitate low-income housing for households with below 80 percent of area median income, with a preference for very low-income populations. The

<sup>46</sup> Office of Community Planning and Development, "National Expenditures – Use of Funds by all Grantees as of 9/30/2010" Disbursement Reports, Department of Housing and Urban Development (HUD) (2010). Available at: [http://www.hud.gov/offices/cpd/communitydevelopment/budget/disbursementreports/profiles/National\\_Expenditure\\_FY10.xls](http://www.hud.gov/offices/cpd/communitydevelopment/budget/disbursementreports/profiles/National_Expenditure_FY10.xls); "State Disbursements – Use of CDBG Funds by States as of 9/30//2010" Disbursement Reports, HUD (2010) Available at: [http://www.hud.gov/offices/cpd/communitydevelopment/budget/disbursementreports/profiles/StateExpenditure\\_FY10.xls](http://www.hud.gov/offices/cpd/communitydevelopment/budget/disbursementreports/profiles/StateExpenditure_FY10.xls)

rehabilitation grants are flexible and can be used over a period of up to two years. Service providers have noted that the primary drawback to USDA RD programs, in addition to their scale, is that slow processing sometimes prevents the funds from being readily available when needed in combination with WAP for a particular home.

#### ***Bonneville Power Administration (BPA).***

Service providers in the Pacific Northwest can benefit from efforts to promote energy efficiency by BPA, a \$3 billion federal agency that is part of DOE and provides regional power and energy transmission. BPA's weatherization for its customers includes a variety of repairs from replacing showerheads to electrical and plumbing upgrades.

***National Affordable Housing Trust Fund.*** This HUD program was created in 2008 for the preservation and creation of affordable housing for extremely low-income households, and \$1 billion has been requested to fund the program in 2011. All renters and homeowners receiving funds must earn less than 50 percent of area median income, and three-quarters of the 90 percent of program funds that are reserved for rental properties must be directed toward families below the poverty line. Although this income eligibility is stricter than WAP, rehabilitation uses are more flexible and include general home improvements, handicap accessibility, and other building safety measures.

#### ***Low Income Housing Tax Credits (LIHTC).***

This approximately \$5.5 billion tax credit program was created in 1986 and is critical to 90 percent of the affordable housing produced today. While the program is primarily directed to new construction, just over one-third of projects are rehabilitation. In addition, LIHTC projects leverage other federal funding sources accessed by weatherization service providers. Specifically, approximately 30 percent of projects use HOME funds and 6 percent leverage CDBG funds. This leveraging varies by

region, with LIHTC projects in the Northeast using these two HUD programs over twice as often as in the South.<sup>47</sup>

***Energy Efficiency and Conservation Block Grants (EECBG).*** ARRA created a \$3.2 billion energy efficiency program to fund municipal energy efficiency efforts. The first round of the program, including the vast majority of its funded, is modeled after CDBG. Round one formula grants were distributed directly to larger cities with some funds for rural jurisdictions channeled through the states. \$455 million of round two funds have been distributed to 23 projects comprising regional and state consortia. In addition to audits and retrofits, eligible activities for the funds include financial incentives and the development of local and state government energy efficiency programs. These funds are targeted to energy savings and are not intended for broader rehabilitation efforts.

## **State and regional**

The American Council for an Energy-Efficient Economy (ACEEE) estimates that up to 40 percent of state energy efficiency improvements can result from programs that rely on consumer utility charges.<sup>48</sup> These programs can be administered by independent entities as public benefit funds or contained within the existing utility structure. Nineteen states plus the District of Columbia have statewide public benefits funds. Although these funds can be used for all building sectors, the Universal System Benefits Program in Montana and Systems Benefits Charge in New York State are among several that specifically target low-income residents as primary recipients of the funds.<sup>49</sup>

Utilities also play a crucial role in providing resources for residential weatherization in every state except Alaska, Delaware, Maine, and West

<sup>47</sup> HUD, "Updating Low Income Housing Tax Credit Database: Projects Placed in Service through 2007," *Low Income Housing Tax Credit Database* (February 2010). Available at: <http://www.huduser.org/Datasets/lihtc/tables9507.pdf>

<sup>48</sup> ACEEE.

<sup>49</sup> DSIRE, "Rules, Regulations, & Policies for Energy Efficiency," (accessed November 2010). Available at: <http://www.dsireusa.org/summarytables/rppeef.cfm>

Virginia. In the remaining states plus the District, utilities offer a total of 563 rebate programs to fund Energy Efficient appliances, window replacements, electrical upgrades, and other energy efficiency improvements. Minnesota's utilities offer the maximum of any state at 43 programs, with California and Washington close behind. Utilities across the country also offer over one hundred loan programs, including ten each in Washington and Oregon and nine in North Carolina. Utility grant programs for residential weatherization are less common and are offered only in California, Florida, Minnesota, New Hampshire, New Jersey, and Oregon.<sup>50</sup>

ACEEE ranks the efficacy of these combined public benefit funds and utility run programs at a state level.<sup>51</sup> The measure does not exclusively focus on residential weatherization, but provides a strong indicator of a state's capacity to assist in these efforts. Vermont leads the country with a \$30.7 million electricity efficiency program accounts for 4.4 percent of the state's utility revenues. California ranks next in *per capita* spending, with an almost \$1 billion program that equals 2.86 percent of utility revenues. With at least 1.75 percent of utility revenue dedicated to electricity efficiency, Rhode Island, Washington, Utah, Oregon, Massachusetts, Minnesota, Idaho, and Iowa round out the top ten states. In comparison, North Carolina dedicates the median share of utility revenues to electricity efficiency at 0.6 percent. Natural gas efficiency is a related and key component of residential weatherization programs administered by public benefits funds. All of the top five states in this category except Wisconsin are among the top ten electricity efficiency spenders, and each spends at least \$35 per customer on natural gas efficiency. Utah and Vermont spend the most in this category, at over \$50 per customer. In contrast, over half of states spend \$7 or less per customer. Overall, Alabama, Alaska, Louisiana, Mississippi, and West

Virginia ranked at the bottom of all states for public benefits funds and utility-administered programs, with no programs of this type in place.

These programs tend to have a larger total budget for weatherization and related health and safety than WAP or other federal energy efficiency and rehab programs. Thus, these funds can be a critical source of assistance beyond a service provider's federal health and safety budget. However, even in the states with the strongest programs, weatherization efforts administered by utilities have drawbacks. Most significantly, utility participation adds two layers of qualification. First, many service providers do not serve homes in the geographic areas covered by participating utilities. Second, even if a home is located properly, the homeowner or tenant must use the utility that administers a weatherization program to qualify for its funds. Thus, many agencies that have at least some access to utility funds can still only leverage that funding for a subset of their neediest homes.

In addition to public benefits funds and utility programs, states governments directly budget and administer financial incentives. The most common form of resources for residential energy efficiency offered by states is rebates for energy efficiency improvements: 33 states plus the District offer a combined 69 rebates. This is followed by loans, 30 of which are offered across 17 states plus the District offer a total of 30 loan programs. Nineteen states offer a total of 25 property, personal income, and sales tax incentives for energy efficiency. Only Colorado, Illinois, New York, and Pennsylvania offer statewide grants for residential energy efficiency improvements.<sup>52</sup>

<sup>50</sup> DSIRE, "Financial Incentives for Energy Efficiency," *Database for State Incentives for Renewables and Efficiency* (accessed November 2010). Available at: <http://www.dsireusa.org/summarytables/finee.cfm>

<sup>51</sup> ACEEE

<sup>52</sup> DSIRE, "Financial Incentives for Energy Efficiency." See database for details on each of these programs.



The quality and extent of resources available through their state governments varies significantly. ACEEE most highly rates Alaska, Colorado, Maryland, Massachusetts, Oregon, and Pennsylvania for energy efficiency programs spanning all building sectors, which also serves as a strong proxy for the level of funding available for residential weatherization. Many states are increasing their energy efficiency budgets, making it easier for service providers to leverage state funds. For example, Utah and Alaska have recently increased their state budgets for energy efficiency, with Alaska's advances particularly focusing on residential programs including multifamily.<sup>53</sup> In contrast to the gains occurring in most states, Alabama, Florida, Iowa, Mississippi, and South Dakota lack any statewide financial incentives for energy efficiency.<sup>54</sup>

Many state-led programs are focused on energy efficiency without financing other home improvements that may be needed prior to weatherization. For example, Alaska's recently created Home Energy Rebate Program is available to all homeowners regardless of income and provides rebates for energy efficiency improvements. The rebate encourages participation and demonstrates energy savings by including an initial and post-weatherization audit. Depending on the degree of increase in energy efficiency, rebates can total up to \$10,000. However, because eligible expenses are detailed by the program and the rebate amount is driven by energy efficiency, this program is not designed to address distressed housing with extensive additional rehabilitation needs. Moreover, residents are not allowed to participate in both this program and WAP, and so the two programs

cannot be leveraged to address the neediest homes.<sup>55</sup> Allowing this coordination would help target the state's most distressed housing.

Service providers can complement WAP funding with state programs that are specifically targeted to rehabilitation and the preservation of existing housing stock, rather than energy efficiency per se. For example, Florida's State Housing Initiatives Program (SHIP) has provided \$1.7 billion to over 150,000 homes since 1992.<sup>56</sup> The program targets low-income homeownership, but is flexible in eligible expenses and the amount that can be spent per unit. One service provider who received equal SHIP and WAP funding until last year was able to use these combined funds for a whole-house approach to services that included both weatherization and health and safety, with repairs sometimes costing as much as \$60,000.<sup>57</sup> Similarly, Ohio includes Community Housing Improvement Programs (CHIP) as part of its Consolidated Housing Plan.<sup>58</sup> These local plans are funded by CDBG and HOME, the Ohio Department of Development, and city and county governments. These grants are focused on owner rehabilitation and home repair for low to moderate income households. Depending on the local program, CHIP can provide as much as \$35,000 for rehab.<sup>59</sup> Thus, service providers can refer homes to CHIP as a critical step for deep upgrades of distressed housing prior to weatherization. This program could be improved by expanding eligibility from single-family to multifamily homes.

South Carolina has created a program that improves energy efficiency by acknowledging that some existing housing stock has extensive problems that would require more than

<sup>53</sup> ACEEE

<sup>54</sup> DSIRE, "Financial Incentives for Energy Efficiency."

<sup>55</sup> Alaska Housing Finance Corporation, *The Home Energy Rebate Program Consumer Guide* (April 20, 2010).

<sup>56</sup> State Housing Initiatives Partnership §420 (July 2009). Available at: <http://flhousing.org/sites/default/files/SHIP%20Statute%20July%202009.pdf>

<sup>57</sup> Community Action Agency in Florida, focus group discussion with the author (September 2009).

<sup>58</sup> State of Ohio, *Consolidated Plan, Executive Summary* (2010). Available at: <http://archives.hud.gov/reports/plan/oh/stateoh.html> and <http://development.ohio.gov/Community/ohcp/documents/FY2010ConsolidatedPlanExecutiveSummary.pdf>

<sup>59</sup> See examples: Adams County City Government, available at: <http://www.adamscountyoh.com/chipcommunity/housingimprovementprogram.asp> and Medina County Government, available at: <http://www.co.medina.oh.us/chip/summary.pdf>

Table 1. Municipal Financing for Residential Energy Efficiency

Rebates	Loans	Property Tax Incentives	Grants
Long Beach, CA	Palm Desert, CA	Howard County, MD	King County, WA
Aurora, CO	San Francisco, CA	Montgomery County, MD	Seattle, WA
Lakewood, CO	Sonoma County, CA	Cincinnati, OH	
Roaring Fork Valley, CO	Boulder County, CO	Cleveland, OH	
Orange County, FL	Sarasota County, FL		
Sarasota County, FL	Babylon, NY		
Atlanta, GA	Hamilton County, OH		
Boston, MA	River Falls, WI		
Cape Cod, MA			
Elyria, OH			

**Source:** DSIRE. Financial Incentives for Energy Efficiency.

weatherization. The state’s model income tax rebate program helps address the extensive challenges of older mobile homes by providing financial assistance for replacement. The South Carolina Manufactured Housing Tax Credit provides a \$750 nonrefundable tax credit for the purchase of an ENERGY STAR mobile home. However, to the extent that low-income households buying these homes have a lower tax liability, the benefit to the homeowner is lower.<sup>60</sup>

Numerous additional state-level programs exist across the country that can be leveraged by service providers. Overall, these programs can be strengthened by creating a stronger link between weatherization and the rehabilitation of distressed housing conditions. Moreover, states must ensure that homes can be weatherized even if they are not covered by any utilities that dominate state-level energy efficiency programs. States that currently lack residential energy efficiency programs should

look to Vermont, California, Colorado, Oregon, Massachusetts and other state leaders for models of how to expand services.

## Local Governments

While local governments are not a robust resource for low-income residential weatherization, several cities have existing programs that can serve as models to build more local efforts around the country. Colorado and Ohio lead the nation, with four municipally run programs in each state (*see Table 1*). For example, Boulder, Colorado finances its Climate Action Plan, including weatherization, through an innovative local tax on energy usage that parallels the state level public benefit funds described above.<sup>61</sup> Cities in Ohio provide funding through a wide range of mechanisms, spanning rebates, loans, and property tax incentives.

<sup>60</sup> Michael Sciortino, “States Stepping Forward: Best Practices for State-Led Energy Efficiency Programs,” *ACEEE Report E106* (September 2010).

<sup>61</sup> City of Boulder Colorado, *Climate Action Plan, 2009/2010 Progress Report*. (July 2010). Available at: [http://www.bouldercolorado.gov/index.php?option=com\\_content&view=article&id=13344&Itemid=4154](http://www.bouldercolorado.gov/index.php?option=com_content&view=article&id=13344&Itemid=4154)

# Appendix II:

## Policy Recommendations by Agency

**CEQ:** Create incentives for programs across agencies (WAP, LIHEAP, CDBG, HOME, and USDA RD) to jointly prioritize and co-fund homes.

Develop project referral standards and protocols, data collection, project management, tracking and reporting system for on-site property evaluations. Track this information in a standardized database available to service providers with data on energy usage, building conditions, and deferrals.

**DOE:** Increase WAP flexibility by removing or raising the state WAP limits for non-energy related repairs and expanding allowable WAP expenditures to include maintenance, mobile home replacement, and relocation costs to fixed homes.

**HUD:** Encourage local jurisdiction to prioritize the use of Community Development Block Grant funds (CDBG) that leverages DOE WAP or other weatherization funding. Moreover, dedicate new resources to the building conditions leading to the highest rate of WAP deferrals including roofing, electrical systems, mold and moisture, and older mobile homes.

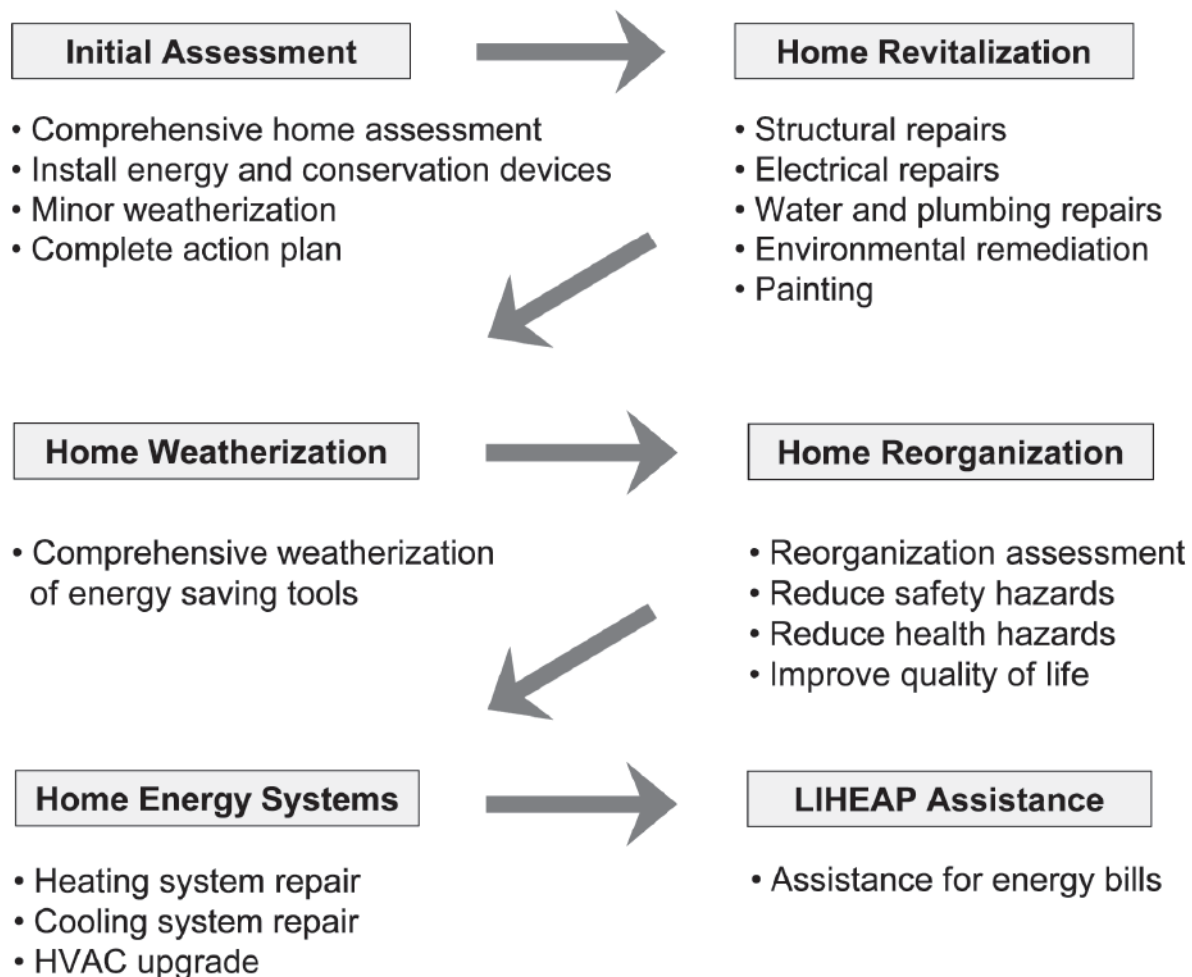
**HHS:** Work with other agencies, particularly DOE and HUD, to establish reciprocity that allows all grantees to follow LIHEAP guidelines as desired, just as LIHEAP already allows its grantees to selectively follow DOE guidelines for weatherization.

**DOL:** Train energy efficiency auditors and weatherization contractors to identify and repair distressed housing conditions beyond energy inefficiency.

**USDA:** Align Section 502 eligibility and processing with WAP so that USDA RD grants can be used in conjunction with WAP funds at the property level.



# Appendix III: Model Distressed Home Upgrade Protocol Six Factor Formula



Source: Garry Harris, Model Distressed Home Upgrade Protocol: Six-Factor Formula, interview with the author (March 2011).

## Appendix IV: Additional Recommendations

*Clarity in state WAP guidelines.* State WAP guidelines are critical tools as service providers decide whether to defer a home and what improvements to provide. Thus, unclear guidelines discourage service providers from repairing or entering homes with particular problems, even when an activity may be permitted. For example, a service provider in Indiana has deferred many homes with knob and tube wiring that they would prefer to repair, because they are unsure whether they will be reimbursed according to state rules that handle electrical issues on a case-by-case basis. Skipping the replacement of knob and tube electrical systems means losing the huge energy savings that could be gained by insulating those walls. In other cases, service providers seek increased support for solar installation, mold and moisture remediation, and other distressed housing repairs. The DOE has begun to address this problem in a recently-released new that helps enhance and clarify health and safety program expenditure guidelines.<sup>62</sup> These changes will help enable WAP to be a more effective piece of a comprehensive federal strategy to weatherize and upgrade the nation's distressed housing.

*Market-rate services.* CEQ's responsibility to develop a private weatherization market stems from the need to continue to employ workers trained for WAP at elevated ARRA levels. Any attempt to create this market should expand upon this core asset of trained workers within a system of organizations that are already weatherizing. CEQ can begin to build out a private market by helping nonprofit weatherizers set up a market-rate arm. State and federal programs can assist with licensing, permits, or other components of setting up such a service. These WAP grantees will need help navigating the business end of this work to the extent that it differs from their grant-based services. In addition, federal programs can provide technical assistance in education and marketing to a middle- or upper-income customer base. Once established, service providers can use profits from their market-rate work to subsidize the low-income weatherization and rehabilitation.

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<sup>62</sup> US Department of Energy, *Health & Safety Guidance, Weatherization Program Notice 11-6* (January 12, 2011).





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