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# The “Longest Running and Perhaps Most Successful” U.S. Energy Efficiency Program

By John P. Millhone<sup>1</sup>

The U.S. Weatherization Assistance Program (WAP) addresses a major problem facing the nation today—the high energy costs that fall most heavily on low-income families who struggle to avoid losing their homes.

WAP underwrites a portion of the cost of retrofitting the homes of low-income families. The energy and dollar savings help make housing more affordable, and the benefits of the one-time WAP investment last for years. In addition to fewer foreclosures and unpaid utility bills, the retrofitted homes are healthier without temperature extremes or leaking combustion gases. Reductions are achieved in air pollution and greenhouse gas emissions. Jobs are created in inner-city neighborhoods. See: Summary of Benefits.

Despite these timely benefits, the future of WAP is uncertain. President George W. Bush—a one-time champion—zeroed it out in the FY 2009 budget he submitted to Congress. The Democratic Congress is likely to restore some level of funding. The outlook is that WAP will survive, but fall far short of the leadership role it could play in addressing today’s energy and housing crisis. That is, unless there’s a change in policy direction.

After providing a capsule description of WAP as it exists today, this paper will trace the origin of the program back to its launch by President Gerald Ford; its maturation under six Presidents; the incorporation of advanced, cost-effective housing retrofit measures; the matching funding attracted from states, utilities, and other programs; the current uncertainty about its future, and actions needed to move it beyond survival to more effectively address today’s energy and housing challenges.



Weatherization recipients in Virginia.<sup>2</sup>

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<sup>2</sup> Photo by Bill Beachy. From the Weatherization Assistance Program Technical Assistance Center photo gallery: [http://www.waptac.org/doclib/index.asp?dl\\_typ=2](http://www.waptac.org/doclib/index.asp?dl_typ=2)

## **Weatherization Today.**

WAP is currently the largest energy efficiency program within the U.S. Department of Energy with a fiscal year 2008 appropriation of \$227.2 million. For every \$1 invested by DOE, the program leverages \$1.53 in other federal, state, utility, and private resources. The funds are used to reduce the energy costs of low-income families by increasing the energy efficiency of their homes. The housing retrofits create average energy savings of \$358 per year. The weatherization services are provided by community agencies that serve families throughout the United States, and many agencies located in inner-city neighborhoods provide training and employment opportunities. The program creates more than 8,000 local jobs.

In 2000, the grassroots popularity of WAP caught the attention of presidential candidate George W. Bush, who promised to increase the program by \$1.2 billion over 10 years if he were elected president. President Bush kept his pledge by proposing increases in WIP funding during his first term. He reversed his policy in his second term and in the FY 2009 budget submitted to Congress in January 2008, he asked to terminate the program.

Next year's funding for WAP is now (as of June 1, 2008) working its way through the Senate and House Appropriation Subcommittees. Also critical is the 2009 funding for the Department of Health and Human Service's (DHHS) Low Income Home Energy Assistance Program (LIHEAP). The bulk of LIHEAP funds provide direct financial assistance to low-income families, but a portion is allocated for weatherization assistance—sometimes equaling or more than the DOE funds. In the meantime, other co-funders and community weatherization agencies are left uncertain about the future or what to tell the increasing number of families seeking assistance.

Before the announcement of the 2009 budget, the DOE Weatherization website championed the program as “this country's longest running and perhaps most successful energy efficiency program.” To see how it received this description calls for a review of its origin and history.

To do this, we'll trace the Weatherization program from its start by President Gerald Ford, how it took form under President Jimmy Carter, attracted non-DOE funding under President Ronald Reagan, was broadened to better represent low-income families in hot climate states under President George H. W. Bush, was reshaped into an integrated whole-house approach under President Bill Clinton, and was championed by President George W. Bush in his 2000 campaign and first term before he proposed zero funding.

## **Launched by President Gerald Ford**

The Weatherization program was born in 1976 in response to the nation's first energy emergency. In 1973, the Organization of Petroleum Exporting Countries (OPEC) shut off oil shipments to the U.S. and other nations that supported Israel in the then ongoing Yom Kippur War.

The U.S. reactions revealed the energy time warp we've been through since then. Motorists at that time were stunned when the retail price of gasoline “soared” from 38.5 cents a gallon in May 1973 to 55.1 cents in June 1974. Drivers of cars with even-numbered license plates were allowed to purchase fuel only on even-numbered days; those with odd-numbered plates, odd-numbered days. Year-round

daylight savings time was ordered on January 6, 1974, to reduce night-time energy use. The national motto became “Don’t Be Fuelish.”

States enacted a mixed array of laws to soften the impact of soaring fuel price on low-income homeowners. In response, President Ford proposed and Congress recognized the need for a common, national plan and several energy efficiency initiatives to promote conservation. One of the programs was the Weatherization Assistance Program—designed to help low-income families reduce their home heating fuel use. The initial appropriation was \$26 million.

### **Advanced Under President Jimmy Carter**

The popularity of the program accelerated rapidly during those energy crisis years, which also saw the creation of the U.S. Department of Energy in 1977. The annual funding for Weatherization more than doubled to \$65 million that year, tripled to \$199 million the next two years before easing down to \$175 million the following year.

Equally important for its long-term performance, the basic design of the Weatherization program took shape. The program integrated federal, state and local roles; established clear and compassionate eligibility standards; focused on the most cost-effective retrofit measures; and provided limited, but adequate, support for administration, training, and technology assistance.

The integration delivery of Weatherization services was provided through federal grants to states based on the number of their potential Weatherization recipients.<sup>4</sup> Although DOE provided funding and technical guidance to the states, they then ran their own programs. States selected their local service providers who now make up a nationwide network of more than 900 agencies that cover all U.S. counties, Native American tribal lands and insular territories. The local agency networks were comprised of community action agencies, units of local government, and other nonprofit organizations



Preparing holes for sidewall insulation.<sup>3</sup>

<sup>3</sup> From the Weatherization Assistance Program Technical Assistance Center photo gallery: [http://www.waptac.org/doclib/index.asp?dl\\_typ=2](http://www.waptac.org/doclib/index.asp?dl_typ=2)

<sup>4</sup> The allocation formula includes three factors for each state: 1) low-income population; 2) climatic conditions; and 3) residential energy expenditures by low-income households. [DOE Weatherization Allocation Formula]

that served the families in their communities. In this way, the program began to attract non-DOE funds and directly created more than 8,000 local jobs—about 50 jobs for each \$1 million in the DOE appropriation.

Low-income households who seek Weatherization services apply to their local agencies. Eligibility depends primarily on income. To be eligible, a household must have an income that falls below 125 percent or 150 percent of the national poverty level. As an alternative, a state may set the income eligibility limit at 60 percent of its medium income, which often increases the number of eligible households. While the income eligibility limits vary among the states, they currently average about \$32,000 for a family of four, drop to half that for a single person, and increase to \$50,000 for a family of eight.

DOE estimates that as many as 20 to 30 million families are eligible for Weatherization nationwide. Within this pool of eligible households, the program gives preference to people over 60 years of age, those with disabilities, families with children, and those with high energy use or with high energy costs.

From the start, Weatherization has focused on selecting the most cost-effective mix of energy-saving measures for each home. Initially, the focus was on the obvious measures—insulation, caulking and weather-stripping around doors and windows. The menu has grown to include a wide variety of measures encompassing the building envelope, its heating and cooling systems, electrical system and appliances. From this growing list of Weatherization services, the states submit their audit plans and priority measures to DOE for review and approval. The state audit protocols must be updated at least every five years to ensure they include the latest technologies. Steady pressure to use cost-effective measures is maintained by a DOE cap on the average expenditure a state can spend to weatherize its dwellings. The cap is \$2,966 in 2008. Each year it is adjusted to the lower of either 3 percent or the change in the Consumer Price Index. DOE currently reports the average expenditure is \$2,500.

The final core feature of the new program provided for its administrative and training and technical assistance (T&TA) requirements. The administration costs are limited to 10 percent of the appropriated funds and are divided between the states and the local service providers. The T&TA costs also are limited to 10 percent with the bulk of the funds going to the states and local providers. While this may appear to be seen an administrative detail, the result has been the creation of a national Weatherization network that has transformed the delivery of residential energy saving services well beyond the originally targeted low-income homes. The trained retrofit providers and the graduates of the WAP program now provide retrofit services to all income classes.

### **Expanded Funding Under President Ronald Reagan**

President Ronald Reagan initially proposed to eliminate the Weatherization Program, along with the Department of Energy. However, Weatherization quickly recovered, along with DOE, and expanded during Reagan's first term, before declining during his second term. This pattern repeated under President Clinton and, more drastically, under President George W. Bush (See Table 2). The expansion under Reagan came from a large increase of attracting non-DOE funding. By the end of his term, the Weatherization Program raised more than \$300 million annually—often more than two times the DOE investment.



The primary reason for this expansion was the Weatherization network established from Washington to the states and local agencies that now covered every county in the country. The program became well known. Each state was required to hold an annual public hearing to describe its draft plan for the coming year and to get feedback. States also were required to report annually on their expenses and number of homes weatherized. The T&TA funding helped educate the agencies' workers on the latest cost-effective energy-saving technologies. The publicity and performance of the local agencies attracted additional funding sources.

The non-DOE funding came from three sources: the DHHS LIHEAP funds mentioned above, Petroleum Violation Escrow (PVE) funds, and "other"—a mixture of utility and state programs.

LIHEAP, like the Weatherization program, was a response to the 1973 OPEC oil embargo. A pilot initiative, Project Fuel, was created in Maine in 1974 by the Office of Economic Opportunity to provide emergency assistance to low-income households facing sharply rising energy costs. A variety of assistance strategies, patterned after the Maine experiment, were tried until LIHEAP was created in 1982. The primary mission of LIHEAP is to provide for home heating, medically necessary home cooling and emergency assistance to low-income families.

In its early years, it also supported minor weatherization efforts—weather-stripping, caulking, etc. LIHEAP then formalized these investments by allowing states to transfer up to 15 percent of their LIHEAP allocations to the DOE's Weatherization program.

The Petroleum Violation Escrow (PVE) funds also trace their origin back to the OPEC oil embargo. When oil supplies were reduced, prices soared and the federal government regulated oil prices from 1973 to 1981 to prevent price gouging. DOE was responsible for enforcing the law and brought lawsuits against several oil companies in the 1980s. These overcharge cases were settled or decided in court and the oil companies paid substantial amounts into PVE funds. The courts ordered the funds to be distributed by DOE to the states where oil companies were charged with gauging their customers. In turn, the states were ordered to use the funds to benefit energy consumers and not supplant state funds. The use of the PVE funds to expand Weatherization services was significant and popular for many years, but



Changing a furnace filter in a Vermont home.<sup>5</sup>

<sup>5</sup> From the Weatherization Assistance Program Technical Assistance Center photo gallery: [http://www.waptac.org/doclib/index.asp?dl\\_typ=2](http://www.waptac.org/doclib/index.asp?dl_typ=2)

these funds are now exhausted and only two states used small amounts of remaining PVE funds for Weatherization in 2006.

Utility companies are the primary source of the "Other Funds." The utility funding is achieved primarily through intervention in utility rate cases before state public utility commissions and the creation of public benefit programs in states that restructured their electric utilities. Other sources also include state general revenues, property owner contributions, rehabilitation grants and private donations. The amounts vary greatly. More than half the "Other Funds" were received by four states (Wisconsin, \$41.0 million; Massachusetts, \$23.0 million; Ohio, \$18.2 million; and New York, \$10.0 million.). No "Other" funds were obtained in 16 states. See Table 1 for funding source by states.

During the 1980s, as the funding sources were expanded and the program gained experience and recognized the cost-effectiveness of a wider range of energy-efficiency measures, the range of energy-saving measures was expanded. In 1984, DOE allowed improvements in existing space heaters and water heaters. In 1985, replacement of defective furnaces and boilers were approved.

### **Stabilized and Renewed Under President George H. W. Bush**

The Weatherization program experienced a period of stability and renewal under President George H.W. Bush. The DOE funding for Weatherization remained steady, ranging from \$162 million to \$198.9 million. Growing amounts of non-DOE funding were attracted each year, providing a combined program of about \$400-450 million in each of these four years. The rapid changes under President Reagan were consolidated into a mature program.

The long-term direction of the Weatherization program was enhanced by a comprehensive evaluation by the Oak Ridge National Laboratory (ORNL), the DOE laboratory that provides scientific and technical support for the program. ORNL made an intensive review of the 1989 Weatherization program, including 368 of the local agencies and 14,971 of the Weatherized dwellings, comparing the measures selected, the costs, and the energy savings. From this rich data base, ORNL produced 12 final reports between 1990 and 1994 on ways to improve the performance and cost-effectiveness of the program.

ORNL examined the program with an objective eye, finding it was cost-effective, but not nearly as outstanding as its supporters had expected. For each \$1 spent, the energy savings at that time were found to be \$1.09.<sup>6</sup> The return was \$1.72 if you included quantifiable non-energy benefits, such as increased value of the home, increased employment, and more funds available to homeowners for other expenditures.

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<sup>6</sup> The program benefit/cost ratio compares the discounted value of energy savings to total program costs with an assumed lifetime of 20 years and a discount rate of 4.7%.

The evaluation found big differences among local agencies. “Some agencies achieve savings of 30 to 40 percent of pre-weatherization consumption,” it reported. “Others produce no measurable savings. Some agencies were found to employ state-of-the-art procedures, use a variety of funding and technical resources, and perform sophisticated self-examinations. Others followed the same procedures year after year, did not evaluate their impacts, and relied entirely on DOE for funding.”

There were some surprises. The weather-stripping of windows and doors had been seen widely as the most effective way to reduce convective air losses. Blower-door technologies found that windows and doors contributed a relatively small share of these air losses. The serious leaks were found in attics and basements.

When problems were found, so were solutions. Mobile homes are a special problem. They constituted 18 percent of the Weatherized households; 23 percent in the southern states. They have high owner occupancy, 78 percent, by individuals with the lowest incomes. The evaluation found “many are leaky, uncomfortable, and have high energy bills.” The past retrofits had included a high percentage of window and door measures—not nearly as cost-effective as other options. Nationally, Weatherization projects in mobile homes produced only about two-thirds the energy savings achieved in single-family detached dwellings. However, the study also identified an Indiana program that—against this pattern—used blower-door guided infiltration sealing and blown cellulose insulation between the belly board and floor of mobile homes to achieve a 32 percent savings, providing a model for other mobile home retrofit projects.

The evaluation also heralded the introduction of sophisticated, computer-based audit models that compute the cost-effectiveness of competing building envelope and heating and cooling equipment



Blower Door Testing in New York.<sup>7</sup>

<sup>7</sup> From the Weatherization Assistance Program Technical Assistance Center photo gallery: [http://www.waptac.org/doclib/index.asp?dl\\_typ=2](http://www.waptac.org/doclib/index.asp?dl_typ=2)

investments. The National Energy Audit (NEAT) audit, developed for DOE's Weatherization program, had been introduced just prior to the evaluation and the early adaptors showed significantly higher energy savings.<sup>8</sup>

### **Cooler, Leaner Program Under President Bill Clinton**

The DOE funding for Weatherization climbed over \$200 million the first two years of the new president then dropped to \$111 million—the smallest amount in 18 years—before increasing gradually over the rest of his two terms. A healthy program was preserved by the sustained funding from non-DOE sources, which stayed above \$200 million and rose back to \$350 million in 2001.

Despite some funding worries, the program improved significantly in three areas. Many of the recommendations from the comprehensive evaluations were implemented, improving its performance; the DOE regulations expanded to embrace cooling efficiency measures; and the regulations broadened to give more attention to health and safety issues.

In spite of the funding reductions, DOE was able to say in 1996 that “technical advances produced 80 percent higher energy savings per dwelling than had been achieved in 1989.” The increases in savings were attributed to improved training for the agencies staffs, the use of NEAT and other advanced audit tools, and improvements in management practices. To expand the audit option, DOE also developed a Manufactured Housing Energy Audit (MHEA) and approved the use of a multifamily audit option: Energy Audit—Queens Information Package (EA-Quip).

The mid-1990s also saw Weatherization give more attention to low-income households in the south. The early program focused on lowering heating bills. By the late 1980s, there were news reports of low-income elderly citizens dying from heat exposure in the south. Congress responded in 1990 by authorizing the expansion of Weatherization to encourage hot-climate states to include cooling efficiency measures in the program.

DOE changed the program's regulations to permit the use cooling efficiency measures, such as air conditioner replacements, ventilation equipment, and sun screening and shading devices. The late 1990s saw the emergence of “Weatherization *Plus*”—a larger vision of the program as a transforming agent within local communities that championed increased utility funding, whole house weatherization, and growing attention to health and safety issues.

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<sup>8</sup> A copy of the final report of the evaluation is available at <http://weatherization.ornl.gov/Evaluations/ProgramEvaluation1989.htm> Click on “1. Weatherization Works: Final Report of the National Weatherization Evaluation.”





Testing a furnace for carbon monoxide.<sup>9</sup>

The combination of a better trained workforce and advanced audits led DOE to relax some of its project restrictions. The requirement that at least 40 percent of program funds be spent on materials could be waived in states that required the use of approved, advanced audits. Local agencies were given greater freedom to invest in improvements in heating and cooling equipment. Using advanced diagnostics and audits, agencies could install cost-effective improvements tailored to particular dwellings in specific climates.

Increased attention was given to health and safety benefits. Service technicians focused on electric wiring that posed fire hazards. They identified old, faulty furnaces that were emitting poisonous carbon monoxide gases. Special measures were taken to avoid the health hazards of lead-based paint. The audits looked for water seeping into older homes that became a major cause of mold and mildew.

These improvements attracted a rapid increase in non-DOE funding, increasing the size of the program to more than \$500 million in 2001—one of the highest levels in the history of the program.

### **Mixed Messages Under President George W. Bush**

The popularity of the Weatherization program caught the attention in 2000 of presidential candidate George W. Bush, who promised to increase the program's by \$1.2 billion over 10 years if he were elected. He kept and even slightly surpassed his commitments in his budget requests during his first

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<sup>9</sup> From the Weatherization Assistance Program Technical Assistance Center photo gallery:  
[http://www.waptac.org/doctlib/index.asp?dl\\_typ=2](http://www.waptac.org/doctlib/index.asp?dl_typ=2)



Diagnosing air pressure imbalances with manometer in West Virginia home.<sup>10</sup>

term in office. From 2002 to 2006, the Weatherization program had the highest five years of total DOE and non-DOE funding in its history.

After 2006, it was a different story. Bush's requests dropped rapidly, and in January, 2008 he asked Congress to terminate the program in his FY 2009 budget submission to Congress.

A conflict in "corporate culture" is at least a partial explanation of this change. The primary mission of EERE, where the Weatherization program is located, is to conduct research and development (R&D) on new energy efficiency and renewable energy technologies. In this culture, Weatherization is an outsider—and a heavy one. Nearly 20 percent of EERE's budget is spent on the Weatherization program. The funds are a vulnerable target for researchers eager to explore advanced technologies. Indeed, the same tension was partially responsible for the large cut in Weatherization fund during the Clinton term. Ironically, the same connection between the building sciences and Weatherization that is fundamental to its successes is now threatening its survival.

The DOE budget explains: "In FY 2009, Weatherization Assistance Funds are redirected to R&D programs which deliver greater benefits. EERE's Energy Efficiency portfolio has historically provided approximately 20 to 1 benefit to cost ratio. Weatherization has a benefit cost ratio of 1.55 to 1."

The benefit to cost ratio is a facile tool. The Weatherization ratio, as seen above, comes from actual energy savings in real dwellings. The R&D ratios come from the estimates of the research staff on what their efforts will achieve sometime in the future. This is not just an apples-oranges comparison; it's comparing an apple now and an imagined orange grove sometime in the future. A fallacious

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<sup>10</sup> Photo by Rich Courtney. From the Weatherization Assistance Program Technical Assistance Center photo gallery: [http://www.waptac.org/doctlib/index.asp?dl\\_typ=2](http://www.waptac.org/doctlib/index.asp?dl_typ=2)

comparison is being used to justify ending a presidential commitment. Using the metric this way, there could never be a rationale for using federal funds to improve the energy efficiency and reduce the energy costs of low-income households.

The DOE budget message also risks collateral damage. As seen above, a noteworthy success of Weatherization, including its growth under President Bush’s first term, is its attraction of non-DOE funds, particularly from the states and utilities. These sources look to DOE for the administrative and scientific services which assures them that their contributions to Weatherization will be used effectively. The new DOE message — that the program fails to meet a cost-benefit hurdle — risks turning off these sources of non-DOE funds. Opponents of the state and utility programs will be able to argue: “The U.S. Department of Energy is trying to kill its own funding of this program because it’s not cost effective when compared with other energy programs. Why should we waste our money on it?”<sup>11</sup>

The turnabout in the funding for the Weatherization program is coming at a time of rising energy prices for low-income households. The following table summarizes the impact on low-income families of rising energy prices:

**The Mean Level of Low-income Residential Energy Expenditures  
Per Household by Primary Heating Fuel<sup>12</sup>**

Year	Natural gas	Propane	Fuel oil	Electricity	All
2001	\$1,360	\$1,634	\$1,626	\$1,013	\$1,270
2006	\$1,815	\$2,141	\$2,461	\$1,252	\$1,682
2007	\$1,832	\$2,358	\$2,604	\$1,334	\$1,742
2008	\$1,915	\$2,545	\$2,895	\$1,381	\$1,834

The rising energy prices fall particularly hard on low-income families. The average residential energy burden for low-income households rose from 12.6 percent to 14.6 percent of income from 2001 to 2005, the most recent year for which data is available. The average energy burden for non-low-income families remained unchanged at about 3.2 percent of income.

**Weatherization Three-Step Action Plan**

Despite DOE’s request, Congress is likely to keep the Weatherization program alive. When the President proposed sharp reductions in the past two years, Congress has kept the appropriation above \$200 million. The House Energy and Water Appropriations Committee on June 25<sup>th</sup> approved \$250 million for FY 2009, \$23 million above the 2008 appropriation. However, the public interest won’t be well served by just keeping the program alive. The public interest will only be served by building on the program’s experience to improve efforts to provide affordable energy to low-income households. To do this requires three related actions: 1) Determine an appropriate level of funding in FY 2009; 2) Support a new comprehensive evaluation of the program, similar to the evaluation that improved the program in

<sup>11</sup> Ironically, the dual energy-human service nature of the program is having a benefit in some states. Energy offices and human services offices are being encouraged to cooperate, which is also having a spill-over benefit in other state programs.

<sup>12</sup> The table is from “Short and Long-Term Perspectives: The Impact on Low-Income Consumers of Forecasted Energy Price Increases in 2008 and a Cap-and-Trade Carbon Policy in 2030” by Joel F. Eisenberg. December 2007. ORNL/CON 503. The table is based on the Energy Information Administration’s (EIA) price estimates and the National Oceanographic and Atmospheric Administration (NOAA) projections of a near-normal winter.

the early 1990s; and 3) Recognize the role of the program within the larger mission of livable future communities.

### **Funding level in FY 2009.**

On February 5<sup>th</sup>, 2008, the Energy and Environmental Study Institute (EESI) sponsored a briefing to congressional staff on the impact of the FY 2009 budget on state programs in the Dirksen Senate Office building. In the Question and Answer wrap-up, a TV newsman asked the spokesmen for the states: “What would it cost to pay for all the changes you’re proposing?”

The question appeared to catch the speakers by surprise before they answered—appropriations at the level authorized in the Energy Security and Independence Act of 2007. The wish list for Weatherization in the Act starts at \$900 million in 2009 and rises to \$1.5 billion in 2012. That’s beyond the “art of the possible,” but the question requires attention from all the affected players.

Stimulated by president’s early championing, the total Weatherization funding soared to a record \$731 million from all sources in FY 2006 and is now in danger of collapsing. The PVE funds are all spent. With lower requested funds for LIHEAP and high energy prices, states are likely to apply all available funds to direct financial assistance. Uncertain financial conditions are likely to distract utilities and states from the already spotty “Other” source of funding. Representatives from Congress, the states, and the Weatherization providers need to huddle to find the level of funding required from Congress to see the program across this bumpy patch.

### **New Comprehensive Evaluation.**

For nearly 10 years, the program’s leaders have recognized the need for a second comprehensive evaluation of the Weatherization program. The evaluation that reshaped the program in the early 1990s was based on 1989 data.

DOE announced plans for a new national evaluation in 2004 in its Weatherization Program Notice to the states. The program has change greatly since 1989. DOE pointed to several program changes: the expanded use of computerized dwelling audits, management changes stemming from the earlier evaluation, the adding of cooling and base load measures, new approaches for mobile homes, the expanded inclusion of multifamily buildings, increased flexibility to improve energy-related health and safety problems, and new opportunities to leverage Federal funds with utilities, other state programs and the owners of large multifamily buildings.

ORNL, which led the evaluation of the 1989 program, was asked by DOE to prepare a new evaluation plan using 2006 Weatherization data. ORNL issued a request for proposals and selected an independent contractor. Working with the states and local agencies, a 363-page evaluation plan<sup>13</sup> was drafted and presented to DOE in January 2007. Then nothing happened. DOE apparently had changed its mind and was no longer interested in evaluating a program it was planning to kill.

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<sup>13</sup> The plan is available on the ORNL website: <http://www.osti.gov/bridge> It is: “National Evaluation of the Weatherization Assessment Program: Preliminary Evaluation Plan for Program Year 2006” ORNL/CON-498.



For the reasons given by DOE in 2004, the evaluation of the Weatherization program as it exists now is an important step to identify the changes that will enable it to continue the program's successful service to low-income households.

### **Weatherization Plus.**

The nationwide network of service providers who have delivered Weatherization services to millions of households has long had a vision of a larger mission called "Weatherization *Plus*." In 1998, this network formed a Millennium Committee which a year later set forth its vision in "Weatherization *Plus*; *Opportunities for the 21<sup>st</sup> Century*."

The committee published six white papers that describe the potential linkages between Weatherization and other building sector change agents:

- Advanced technologies
- Partnership for Advanced Technologies in Housing (PATH)
- Climate Change
- Million Solar Roofs
- Community sustainability
- Electric industry restructuring

Nearly a decade later, the hope survives. The DOE guidance to the states on November 8, 2007 (Weatherization Program Notice 08-1) promotes the evolution of the program to serve this larger mission and urges states to support plans to introduce Weatherization *Plus* in 2010. (Someone hadn't got the word.)

The Weatherization program is unique in providing a connection between grassroots community self-improvement efforts and the nation's leading scientific and technical resources in the buildings field. The combination has indeed made it "this country's longest running and perhaps most successful energy efficiency program." With sustainable financing; an evaluation to update its services; and creative thinking about its larger, community role; the program will continue to play a leading role in a future, when affordable energy for low-income households is certain to be an even higher public priority.



Weatherization Client in Mississippi<sup>14</sup>

<sup>14</sup> From the Weatherization Assistance Program Technical Assistance Center photo gallery

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## Summary of Benefits

### Direct Benefits:

- More than 5.8 million homes have been Weatherized since the program's inception; more than 3 million with Weatherization Assistance Program funds; the remainder from leveraged funds.<sup>15</sup>
- For individual families, the gain is immediate—averaging a 31 percent reduction in heating bills and an overall reduction of \$358 in energy bills, depending on fuel prices.<sup>16</sup>

### Other Quantifiable Benefits:

- For every \$1 invested by DOE, the Program leverages an additional \$3.39 from other federal, state, local and private sources. Agencies use leveraged resources to weatherize more low-income homes and to deliver more services.<sup>17</sup>

### Non-Quantifiable Indirect Benefits:

- Increased spending power. The energy bills amount, on average, about 14 percent of low-income families' gross income. Economists estimate more than 80 percent of these expenses leave the low-income community. Weatherization reduces this drain and keeps economic activity within those communities.<sup>3</sup>
- Affordable housing. The upgrading of the energy systems in homes and apartment buildings in low-income communities increases their value and helps address the nationwide shortage of affordable housing.<sup>3</sup>
- Job creation. The program is delivered by more than 900 local agencies that provide more than 8,000 technical jobs in low-income communities, which represents about 52 jobs for every \$1 million of DOE investments. The program is spending about \$4.5 million for training and technical assistance in 2008, most of it at the state and local level.<sup>18</sup>

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<sup>15</sup> DOE FY 2009 Congressional Budget, p. 458-459.

<sup>16</sup> DOE Weatherization Assistance Program home page (03/05/2008).

<sup>17</sup> DOE Weatherization Assistance Program brochure. October 2001.

<sup>18</sup> DOE FY 2009 Congressional Budget, p. 469.

**Table 1: Sources of Funding by States in 2006 (000's)<sup>19</sup>**

State	DOE	LIHEAP	PVE	Other	Source	Total	Homes Weatherized
Alabama	\$2,724	\$ 831	\$0	\$ 300	ABC Trust, AL Power	\$3,854	701
Alaska	1,734	600	0	3,000	Alaska Housing Finance	5,334	403
Arizona	1,338	1,200	0	1,500	Utility DSM Program	4,038	750
Arkansas	2,203	1,315	0	0		3,518	640
California	7,085	38,282	0	0		45,367	27,123
Colorado	6,521	5,164	0	2,559	Xcel Energy	14,243	3,200
Connecticut	2,759	0	0	6,000	Utility and CDBG funds	8,759	1,550
Delaware	744	400	0	457	State General Funds	1,701	536
Dist. Of Columbia	712	794	0	652	Trust Fund	2,158	316
Florida	1,750	3,860	0	150	Utility Rebates	5,760	450
Georgia	3,339	4,860	0	2,400	Utility Rebates	10,599	866
Hawaii	235	0	0	0		235	92
Idaho	2,077	2,235	0	2,411	Utility Funding	6,723	694
Illinois	14,058	22,900	0	7,500	Util. Pub. Benefit Funds	44,458	5,920
Indiana	6,403	4,741	1,000	2,000	Utility Funding	14,144	1,947
Iowa	5,154	5,537	0	4,824	Utility Funding	15,514	1,300
Kansas	2,706	4,140	0	0		6,846	1,705
Kentucky	4,540	4,156	0	0		8,696	1,751
Louisiana	1,997	2,222	0	0		4,220	726
Maine	3,240	5,674	0	0		8,914	1,646
Maryland	3,030	2,750	0	2,080	Utility Funding	7,860	1,700
Massachusetts	6,938	8,448	0	23,000	Utility Funding	38,386	2,950
Michigan	15,447	3,000	0	4,500	Mich. Pub. Serv. Cmsn.	22,947	8,188
Minnesota	10,758	10,573	0	2,290	Utility; State Funds	23,622	10,965
Mississippi	1,656	0	0	0		1,656	607
Missouri	6,368	2,000	0	2,362	Util. Rate Case Interv.	11,000	1,726
Montana	2,623	1,606	800	2,257	Utility Funding	7,286	1,691
Nebraska	2,611	4,538	0	0		7,149	1,595
Nevada	1,064	0	0	3,500	Utility Funding	4,564	1,129
New Hampshire	1,593	750	0	1,463	Utility; HOME Pgrm.	3,807	1,320
New Jersey	5,267	5,607	0	3,725	Cl. En. Pgrm; Util. Bd	14,599	1,314
New Mexico	1,998	710	0	1,777	Utility; State Funds	4,485	826
New York	21,818	37,600	0	10,000	Private Donations	69,418	14,064
North Carolina	4,177	9,432	0	0		13,608	3,852
North Dakota	2,589	2,000	0	0		4,489	1,247
Ohio	15,501	21,243	0	18,199	Public Benefits Funds	54,943	12,737
Oklahoma	2,832	1,261	0	10	Private Donations	4,102	936
Oregon	2,922	3,529	0	7,462	Pub. Purp; 'ECHO' Fund	13,913	3,819

<sup>19</sup> The information is from the National Association for State Community Service Program's publication, "U.S. Department of Energy Weatherization Assistance Program; Funding Survey for Program Year 2006." Charts: "State Weatherization Assistance Program Funding Survey; TOTAL BY FUND – 2006" and "State Weatherization Assistance Program Funding Survey; Source of "OTHER" Funds."

State	DOE	LIHEAP	PVE	Other	Source	Total	Homes Weatherized
Pennsylvania	15,102	27,992	0	0		43,093	18,768
Rhode Island	1,254	2,503	0	930	Utility Funding	4,686	808
South Carolina	1,982	1,998	0	0		3,980	516
South Dakota	1,992	1,589	0	0		3,580	576
Tennessee	4,534	2,703	0	0		7,237	1,082
Texas	6,607	12,032	0	1,822	Utility Funding	20,462	1,480
Utah	2,161	2,250	0	622	Utility Funding	5,033	682
Vermont	1,354	0	0	6,869	Vt. Wea. Trust Fund	8,223	1,443
Virginia	4,034	10,891	0	0		14,925	1,632
Washington	4,689	6,557	0	8,460	Utility Funding	19,705	1,062
West Virginia	3,321	3,573	0	500	Utility Funding	7,393	1,299
Wisconsin	9,431	14,476	0	41,032	Utility Funding	64,939	9,654
Wyoming	1,222	1,729	0	1,895	State General Funds	4,846	1,202
<b>Totals</b>	<b>238,194</b>	<b>312,348</b>	<b>1,800</b>	<b>178,777</b>		<b>731,120</b>	<b>163,205</b>
<b>% of \$'s</b>	<b>32.6%</b>	<b>42.7%</b>	<b>0.2%</b>	<b>24.5%</b>			



**Table 2: Weatherization Assistance Program Funding**

<b>Fiscal Year</b>	<b>President</b>	<b>DOE Appropriation</b>
1977	Gerald Ford	\$ 27.5 <sup>20</sup>
1978	Jimmy Carter	65.0
1979	" "	199.0
1980	" "	199.0
1981	" "	175.0
1982	Ronald Reagan	144.0
1983	" "	245.0
1984	" "	190.0
1985	" "	191.1
1986	2 <sup>nd</sup> Term	182.1
1987	" "	161.3
1988	" "	161.3
1989	" "	161.3
1990	Geo. H.W. Bush	162.0
1991	" "	198.9
1992	" "	194.0
1993	" "	185.4
1994	Bill Clinton	206.8
1995	" "	214.8
1996	" "	111.7
1997	" "	120.8
1998	2 <sup>nd</sup> Term	124.8
1999	" "	133.0
2000	" "	135.0
2001	" "	152.7
2002	Geo. W. Bush	230.0
2003	" "	223.5
2004	" "	227.2
2005	" "	228.2
2006	2 <sup>nd</sup> Term	242.6
2007	" "	206.4
2008	" "	227.2
2009	" "	250.0 <sup>21</sup>

<sup>20</sup> Figures are in millions

<sup>21</sup> The House Energy and Water Appropriation Committee's markup on June 25, 2008.