

A Living History of Energy Efficiency in Virginia

Thomas Jefferson's Virginia home, Monticello, is an early testament to energy efficiency. Jefferson designed his home to maximize the lighting and heating potential of natural sunlight, he integrated progressive ventilation and insulation strategies, and he retrofitted the fireplaces to apply fuel-saving principles. Virginia continues in Jefferson's energy efficiency tradition through a partnership with the U.S. Department of Energy's (DOE) Weatherization Assistance Program (Weatherization). Weatherization reduces energy costs for low-income families by increasing the energy efficiency of their homes, while ensuring their health and safety.

Low-income households typically spend 14% of their total annual income on energy, compared with 3.5% for other households. Rising energy prices or severe changes in weather can make this burden unmanageable. Low-income families often have to cut back on other necessities to pay their energy bills.

Weatherization measures provide a long-term solution for these families. Increasing the energy efficiency of a low-income home reduces the household's total energy costs and provides a long-term boost to their budget. Families can use the energy savings for other necessities, such as groceries, medicine, and clothing.

SHAPING HISTORY WITH TECHNOLOGY

The Weatherization Program began as an emergency response to the 1970's oil crises. In this early phase, job trainees installed low-cost conservation measures, such as plastic window insulation. Weatherization has evolved into a sophisticated energy efficiency program, employing professionally trained crews and advanced technologies to reduce energy costs for low-income families.

Virginia's Department of Housing and Community Development administers the program and 22 local agencies deliver services to eligible residents in every county.

NATIONAL WEATHERIZATION PROGRAM

Homes weatherized in 1999	68,000
DOE allocations in 1999	\$135 million
Average annual energy cost savings per household	\$300
Average space heating savings	25-30%
Energy benefits returned for every \$1 invested	\$2.10
Jobs supported	7,000

VIRGINIA

Homes weatherized in 1999 (with DOE \$)	985
DOE funding in 1999	\$2.4 million
Clients served in 1999	1,719
Elderly	30%
People with disabilities	30%
Families with children	40%

Weatherization crews use computerized energy audits and advanced diagnostic equipment, such as the blower door and digital manometer, to determine the most cost-effective energy efficiency measures appropriate for each home. Crews also test heating units for combustion safety, carbon monoxide, and gas leaks. Typical weatherization services for single-family and mobile homes include installing insulation; sealing ducts; tuning and repairing furnaces; and mitigating heat loss through windows, doors, and other infiltration points. Clients are also educated on the proper use and maintenance of the installed measures.

Virginia maintains its technical edge through innovative training techniques and integrating new technologies. Virginia launched a training center to provide classroom and field training to weatherization staff. The training center is equipped with a complete heating system lab and several advanced technologies, including a radiant floor. The trainers use a unique model “House of Pressure” to teach air movement principles.

Virginia also participated in a pilot project to test a new duct sealing technology. The pilot demonstrated that the technology seals duct leaks more rapidly and effectively than traditional methods.

**MARKING PROGRESS,
ONE HOME AT A TIME**

Virginia leverages core DOE funding for Weatherization to secure additional resources for the program. By combining DOE and leveraged resources, Virginia weatherized 2,403 homes in 1999, reducing energy consumption by 108,011 million BTUs. These impressive figures tell only part of the story. The true impact of the Weatherization Program is best measured one house at a time.

Regina Olson* was amazed by the increase in warmth after her Charlottesville home was weatherized. Regina had lived in the home for almost 10 years and though she always kept her thermostat at 80 degrees Fahrenheit in winter, she could never get warm enough. After weatherization, she turned the thermostat down to 72 degrees Fahrenheit and discovered her home was even warmer, while her utility bills decreased noticeably. Weatherization provided an economic boost for Regina’s fixed budget and improved her health by maintaining a comfortable temperature.

Sue Hollins* bought a kerosene space heater to keep warm after her mobile home’s heating system failed. She began feeling ill a few days later, but attributed it to the flu. Fortunately, the elderly homeowner was slated for weatherization services that week. When the weatherization auditor from People, Inc., walked into the home, he immediately noticed strong kerosene fumes. Knowing this



Virginia crew insulates the belly of a mobile home to increase energy efficiency.

was an indicator of a poorly-vented space heater, he retrieved a carbon monoxide detector from his truck and diagnosed a dangerous level of the colorless, odorless gas.

Sue was immediately taken to the emergency room for oxygen treatment. People, Inc., repaired her electric heating system, disengaged the kerosene heaters, and weatherized her home. Tears well up

in Sue’s eyes when she talks about her ordeal, “If it hadn’t been for [Weatherization], I wouldn’t be here. Both my dogs, they wouldn’t be here either.”

Weatherization Works!

Weatherization produces an impressive range of energy, economic, and environmental benefits for low-income households and communities. Nationally, for every \$1 invested in the program, Weatherization returns \$2.10 in energy-related benefits. Weatherization measures reduce national energy consumption and curb demand for imported oil. Weatherization works for Virginia and America!

**Names have been changed to protect the privacy of the subjects.*

TO LEARN MORE ABOUT THE WEATHERIZATION ASSISTANCE PROGRAM, CONTACT:

Weatherization Assistance Program • U.S. Department of Energy, EE-42
1000 Independence Avenue, SW • Washington, DC 20585-0121 • (202) 586-4074

Visit the Weatherization Web site at: www.eren.doe.gov/buildings/weatherization_assistance
or call the Energy Efficiency and Renewable Energy Clearinghouse at: 1-800-DOE-3732

