



Climate Change Solutions



Vermont Trims Energy Bills for Low-Income Families

The Vermont Energy Investment Corporation, a nonprofit organization, has developed a number of innovative financing arrangements and partnerships to help low- and moderate-income Vermonters reduce their energy bills.

When less energy is used, fewer fossil fuels are burned. The combustion of fossil fuels produces carbon dioxide, an important atmospheric gas that is increasing in concentration and contributing to global climate change.

Working with the state housing finance agency and other public and private partners, the Vermont Energy Investment Corporation (VEIC) has cut energy use in low-income multifamily buildings, helped low- and moderate-income Vermont homeowners make energy efficiency improvements, and led a successful effort to establish a city ordinance on energy efficiency for residential rental units.

Removing Barriers to Efficiency

Energy costs can place a significant burden on low-income families. In Vermont, at least 15 percent of the annual budget of an average low-income family

goes to pay winter heating bills. Nationwide, households receiving Aid for Families with Dependent Children spend an average of 26 percent of their total income on electricity and other energy such as fuel for home heating. In comparison, the average family in the United States spends only 3.8 percent of its total income on energy.¹

Improving the energy efficiency of low-income housing could make life better for millions of Americans while reducing greenhouse gas emissions and other energy-related pollution.

Building owners often are reluctant to invest in energy upgrades. They may lack capital for the upfront expense of energy improvements, preventing them from making even the most cost-effective upgrades. They also may lack the energy expertise to ensure that their investments will provide a reasonable and timely return. In rental housing, short-term tenants are unlikely to make energy and efficiency upgrades because they may not remain in the housing long enough to enjoy the benefits. Owners of rental housing have no direct incentive to invest in energy efficiency if their tenants pay the energy bills.



Pipefitter Bob Fitzgerald solders a connection in a new high-efficiency gas-fired water-based heating system at a 51-unit senior citizen home in Burlington, Vermont.

VEIC has focused much of its work on removing barriers to energy efficiency. The organization provides financing, technical

RESULTS AT A GLANCE

- Working with public and private partners, the Vermont Energy Investment Corporation (VEIC) implemented energy efficiency measures in nearly 100 low-income multifamily buildings.
- Energy efficiency measures installed in 20 low-income multifamily housing projects in 1997 will save 416 megawatt-hours of electricity, 465 therms of natural gas, and \$53,000 per year in energy costs—resulting in carbon dioxide (CO₂) emission reductions of over 33 tons per year.
- Since 1986, Vermont's Home Energy Improvement Loan program, established by VEIC and the Vermont Housing Finance Agency, has provided more than \$800,000 in

energy loans to 180 Vermont households. Energy savings in those single-family homes averaged 20 percent or about \$350 per year.

- VEIC has performed more than 3,000 home energy ratings that allow Vermont homeowners to qualify for a mortgage or obtain financing for energy improvements.
- VEIC led a successful effort to establish a city ordinance that requires residential rental properties in Burlington to be brought to a minimum standard of energy efficiency when they are sold to a new owner. The ordinance is expected to reduce energy-related CO₂ emissions from rental units by an estimated 3,300 tons per year once it has been in place for 10 years.

¹Energy and the Poor: The Crisis Continues (Boston, Law Center, 1995).

expertise, reliable information, and direct installation of measures to facilitate efficiency upgrades and investments in buildings.

The State's Role

A key to VEIC's success is its long-standing partnership with the Vermont Housing Finance Agency, a state agency, which has worked with VEIC to develop home energy improvement loans, energy efficient mortgages, and other innovative programs. The housing finance agency also has been a source of capital for some of VEIC's loans and performance contracts.

Although the Vermont Housing Finance Agency cannot control most factors affecting housing costs (e.g., land prices, construction costs, and the cost of capital), the agency has long recognized that it can help control energy costs. The housing finance agency has played an active role in lowering the energy bills of low- and moderate-income Vermonters.

All 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands have housing finance agencies similar to Vermont's. State housing finance agencies act as secondary mortgage buyers to promote affordable housing for low- and moderate-income people.

Improving Energy Efficiency in Multifamily Low-Income Housing

In VEIC's work with multifamily low-income housing, it operates as an energy services company (ESCO), entering into long-term relationships with building owners to implement energy efficiency measures. Through performance contracting (see box), VEIC assumes the financial risk for its projects and is paid out of the resulting energy cost savings. By

eliminating the client's risk and need for upfront capital, VEIC removes two major barriers to investments in energy efficiency.

As a nonprofit organization, VEIC's mission is to save energy. "We are interested only in covering our costs, not generating a profit," says VEIC Executive Director Beth Sachs. This allows VEIC to fill a void left by commercial ESCOs, which generally are unwilling to take on smaller projects or those where the profit margins may be unacceptably low.

At least 15 percent of the annual budget of an average low-income Vermont family goes to pay winter heating bills.

An Attractive Opportunity

Performance contracting for energy efficiency improvements is especially attractive to local public housing authorities, according to Sachs. The U.S. Department of Housing and Urban Development (HUD) provides an incentive to public housing authorities to use performance contracting for energy efficiency improvements by "freezing" the annual subsidy paid to the housing authority for utility costs. The subsidy is frozen at the levels used prior to the installation of energy improvements, which allows the public housing authority to retain the cost savings for up to 12 years. The housing authority can then pay the debt service for the energy improvements and the newly reduced utility bills out of the subsidy.

Once the performance contract is completed, HUD lowers the subsidy needed by the housing authority to cover the new energy bills, and the cost of operating the housing is reduced permanently. The only condition is that the new energy costs plus the debt service must be the same as or less than the old energy bills. "This is a window of opportunity for public housing, and housing authorities should be jumping on it now," Sachs says.

Innovative Financing

In the late 1980s and early 1990s, the Vermont Housing Finance Agency launched programs to help owners of subsidized multifamily housing boost the energy efficiency of their buildings. Most of the financing for these programs comes from "project cost escrow funds," which are monies set aside at the time of the initial financing to be used 7-12 years after purchase of the building for necessary repairs and enhancements.

Before property owners can spend their project cost escrow funds, the Vermont Housing Finance Agency requires an energy audit. If the audit reveals cost-effective opportunities for energy efficiency investments such as improved insulation and heating equipment, the owners are encouraged to make those investments and to use the energy savings to pay for repairs, painting, or other improvements. In other words, Sachs says, "They get to spend the project cost escrow money twice to improve the property."

The Vermont Housing Finance Agency also works with multifamily property owners to take advantage of other funding sources—such as surplus operating income, increased cash flow from refinancing, and the agency's own capital—to improve energy efficiency.

WHAT IS PERFORMANCE CONTRACTING?

Energy services companies (ESCOs) sell energy efficiency and management services through long-term service agreements. They earn their fees from their clients' energy savings, thereby reducing financial risk to the client. An ESCO may be a division of an electric or gas utility, an independent company, or, as in the case of VEIC, a nonprofit organization. Through performance contracts, an ESCO implements and finances (or assists with financing) energy efficiency improvements for a client. The

client, typically a building owner or local housing authority, pays the ESCO for the improvements with savings from lower energy bills. Under a shared savings agreement, the client's payments to the ESCO are based on a percentage of the measured energy cost savings. If there are no savings, the client pays nothing. Under a guaranteed savings agreement, the client makes fixed payments to the ESCO based on an estimate of energy savings. If actual savings are less than the guaranteed amount, the ESCO pays the difference.

Improving Energy Efficiency in Single-Family Housing

Faced with a shortage of capital and a lack of financing opportunities, many homeowners cannot afford to improve the energy efficiency of their homes. To rectify this situation, the Vermont Housing Finance Agency and VEIC established Vermont's Home Energy Improvement Loan Program, which offers affordable loans to low- and moderate-income homeowners for energy investments. The program, created in 1986 and now being implemented by the Vermont Development Credit Union, offers low interest rates and loan terms of up to seven years. Energy costs and anticipated savings can be included when calculating debt-to-income ratios, which allows energy savings to be credited to the "income" side of the ratio when determining a purchaser's eligibility for financing energy improvements.

Since its inception, the program has provided more than \$800,000 in energy loans to 180 Vermont households. Energy savings averaged 20 percent.

Innovative Mortgage Products

The Vermont Housing Finance Agency provides affordable mortgages for 15-20 percent of the existing and new homes bought each year in the state. Many of these sales have involved VEIC's Energy Rated Homes of Vermont program, allowing energy efficiency to be incorporated into the mortgage process.

For low-income and first-time buyers of existing homes, VEIC worked with the Vermont Housing Finance Agency to develop the Yearly Energy Savings System (YESS) Mortgage Program, which offers a reduced mortgage interest rate to eligible homebuyers who make energy improvements at the time of purchase.

To ensure that low-income and first-time buyers of newly constructed homes will not be burdened by future high energy bills, the Vermont Housing Finance Agency requires that the home receive an energy rating of at least "4 Stars." A home energy rating is a standard measure of a home's efficiency, much like mileage ratings for cars. The ratings allow homebuyers to compare the energy efficiency of one house to

another in order to estimate future energy bills. Homes are rated from 1 Star to 5 Stars, with 4 Stars or higher considered energy efficient.

Vermont also offers "energy-efficient mortgages" to help all families (not just low-income) buy better homes and lower their energy costs. In Vermont, a home that earns an energy rating of 4 Stars or more is eligible for an energy-efficient mortgage, which allows consumers to qualify for homes that might otherwise be unaffordable. The energy rating assures the lender that the energy-efficient home's lower heating and electricity bills will free up money that the household can use to meet the higher monthly mortgage payment of a more expensive home.

Energy ratings below 4 Stars can be used to obtain "energy-improvement mortgages," which allow home buyers to finance the cost of energy improvements through larger mortgages. The improvements are tax-deductible because they are included in the loan, and the monthly savings in energy costs must exceed the additional amount of the mortgage.

Addressing the "Split Incentive" in Rental Units

Rental housing creates what energy analysts call a split incentive: tenants are unlikely to pay for energy efficiency improvements, and owners have little direct incentive to do so if the tenants pay the energy bills. As a result, renters often bear the burden of trying to stay warm in dwellings that are poorly insulated and expensive to heat.



A display in the Burlington Electric Department's lobby shows some of the ways Burlington residents can save energy.

Burlington is one of the coldest metropolitan areas in the United States and ranks among the top 10 percent of cities in fuel use per capita. More than half of Burlington's homes were built before 1939. In the city's Old North End, where most rental housing is located, 70 percent of the homes are more than 50 years old. Low-income residents there often find that they pay more for energy than for any other items in their household budgets, except food and rent.

To overcome this problem, VEIC led an effort with support from the U.S. Environmental Protection Agency's State and Local Climate Change Program to establish a city ordinance that requires residential rental property in Burlington to be brought up to a minimum standard of energy efficiency at the time of property transfer. This time-of-sale ordinance, which went into effect in September 1997, is designed to lower tenants' energy costs while minimizing costs to the property buyer or seller.

A Win-Win Proposition

Property owners can benefit from the ordinance in a number of ways. The average tenant in Burlington stays in an apartment for only one year, and over half of the frequent movers who were surveyed cite unaffordable energy bills as a primary reason for moving. With lower energy costs, tenants may stay longer. Building owners not only keep their rental units occupied, they also may gain from efficiency improvements that help alleviate property maintenance issues such as moisture and mildew, peeling paint, and roof damage from ice dams.

The costs of energy improvements could be passed on to tenants through higher rents, but any increase is expected to be offset by lower energy costs. VEIC's conversations with officials in communities with existing energy ordinances for rental units (in Wisconsin, Minnesota, and California) suggest that the ordinance should have little impact on rents compared with market forces.

The Burlington ordinance will require that an energy inspection be performed on rental properties before they are sold. A certificate of compliance, a stipulation

that work will be done to meet the standard, or an application for a waiver must be filed with the city clerk. Either the seller or the buyer may bring the property into compliance. A buyer who agrees to take responsibility has one year from the filing date to comply. The ordinance includes cost limitations and exemptions to avoid placing an undue burden on property owners.

The Burlington Electric Department administers the ordinance and offers information on financing, technical assistance, and other services to help rental unit owners comply with the ordinance and go beyond its minimum requirements.

The ordinance is being phased in over time. At present, it applies only to the Old North End Enterprise Community, and it will be expanded to all of Burlington in two years after a report is given to the city council.

VEIC estimates that the ordinance will reduce energy-related CO₂ emissions by 3,300 tons per year once it has been in place for 10 years.

“This is an area where public policy intervention was important because needed improvements were not getting made as a result of market forces,” Sachs observes. “The challenge now is to encourage owners to go beyond the minimum required to meet the standard and implement optimum, cost-effective improvements in their properties.”

Lessons Learned

Emissions can be reduced without affecting low-income families disproportionately. VEIC’s work is helping make energy more affordable for low-income residents of Burlington and other Vermont communities. It also contributes to municipal and state goals for reducing greenhouse gas emissions.

Energy audits are just the beginning

“Energy audits alone don’t save energy or empower people,” Sachs observes. VEIC’s work grew out of experiences that Sachs and co-founder Blair Hamilton had when they talked to people who had received energy audits. They discovered that few building owners actually implement the efficiency

measures recommended as a result of the audit process because they lack access to capital.

Barriers can be overcome

Sachs and Hamilton realized that the main obstacles to investing in energy efficiency are a lack of capital and trustworthy advice. By providing a one-stop shop for financing, technical expertise, and reliable information, VEIC has helped multifamily building owners, private homeowners, and others overcome these barriers to reduce their energy bills. VEIC has built a reputation as a trustworthy provider of services, based on its nonprofit status and its track record of cutting energy costs.

**Greenhouse gas
emissions can be
reduced without having
a disproportionate impact
on low-income families.**

VEIC’s work can be replicated in other states

According to Sachs, VEIC’s approach could be replicated by states and municipalities throughout the nation. Others could achieve results similar to VEIC’s by establishing partnerships among community action agencies, community development corporations, county planning organizations, state and municipal agencies, and other organizations.

Looking Ahead

VEIC is now preparing for electricity deregulation by creating a statewide energy co-operative that will provide customers with environmentally sustainable energy at affordable costs.

“The idea is not to lower customers’ rates, but to lower their bills,” Sachs says. The co-op would package energy services along with the energy supplied, helping customers slash their energy bills through energy efficiency

measures. Although the co-op’s reliance on “green” power might make its rates slightly higher than those of its competitors, customers’ bills would be lower because their homes would use less energy.

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U.S. Environmental Protection Agency’s

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