# Energy Efficiency

## Promoting Sustainability and Decarbonization

**There are new funding opportunities for energy efficiency improvements in buildings. This guide provides background information on funding and resources to help HUD program participants invest in their properties by:**

- **Describing the importance of energy efficiency and connecting energy efficiency to other sustainability and decarbonization concepts;**
- **Providing resources and background on how to implement energy efficiency measures; and**
- **Identifying funding that can be used to support energy efficiency projects.**

### *Why is energy efficiency important?*

Energy efficiency projects can reduce a building's overall energy usage in a variety of ways. Major benefits include decreased utility costs and reduced greenhouse gas emissions. Both new construction and existing buildings can gain long-term financial and environmental benefits from implementing these common energy efficiency measures:

- **Sealing the building envelope** to reduce a building's heating or cooling needs;
- **Upgrading electrical panels and wiring** to support renewable energy or building decarbonization;
- **Installing more energy efficient appliances** to reduce energy load; and
- **Investing in efficient heating and cooling systems** that use less energy.

The type of energy conservation measures (ECMs) that are chosen are generally part of an **energy management plan,** created from **benchmarking** data and developed from goals set by the **energy standard** selected. These ECMs can be the first step to other sustainability and decarbonization work.

For example, modernizing a building's electrical system may be required before **renewable energy systems** can be installed. Decreasing energy usage helps reduce the strain on both the building's electrical systems and the electrical grid, keeping them up and running during extreme weather events which contributes to **climate resilience**.

***Energy Efficiency in Action: The Warwick, Newport News, Virginia***

Community Housing Partners renovated a 4-story historic brick hotel into a housing development for people who were formerly homeless containing 88 single-occupancy rooms. Their projects focused on improving energy efficiency and indoor air quality; they reduced annual energy usage by 50% and costs by $40,000. The improvements included a variable refrigerant flow heating & cooling system; energy recovering ventilators; high efficiency water heaters; and ENERGY STAR windows, lights, and appliances. Additionally, the brick restoration prevents air leaks, which improves the building's envelope.

***Energy efficiency resources available to HUD communities***

## Background on Energy Efficiency Improvements:

- **Improving a building envelope** through insulation and sealing gaps reduces energy usage by minimizing the loss of heat in the winter and the loss of cool air in the summer. This process is also called **weatherization** because it helps protect a building and its occupants from the impacts of weather. Examples of improvements to weatherize your home include installing **energy efficient windows, door sealing, duct sealing, and insulation**.
- **Upgrading electrical systems** increases the capacity for, and overall efficiency of, electricity usage in a building. This enables a building owner to implement more advanced electrical projects such as **efficient electrical appliances** or renewable energy systems.
- **Heating and cooling systems** can be upgraded to more energy efficient models, such as **heat pumps, biomass stoves, and water heaters**. These appliances reduce energy consumption and provide an even larger benefit when combined with weatherization.

## Funding Opportunities:

- **The Home Energy Rebates Program** under the Inflation Reduction Act (IRA) is funded by the Department of Energy (DOE), implemented through states and Tribes, and has two components.
  - **Home Electrification and Appliance Rebates** provide funds for purchasing efficient electric home appliances, such as electrical stoves and electric heat pumps, and for electric service upgrades that facilitate building electrification.
  - **Home Energy Efficiency Rebates** provide funds for whole-house energy saving retrofits, such as building envelope sealing. Applicants will only receive the rebate if a certain level of energy savings is demonstrated, making this a program that requires benchmarking.
- **Weatherization Assistance Program** (WAP) funded by DOE provides grants to states and Tribes to work with local governments and residents to implement weatherization measures. WAP promotes energy efficiency by funding insulation projects, building envelope sealing projects, and more.
- **Energy Savings Performance Contracts** allow a building owner to pay for energy efficiency projects through the resulting energy savings—**eliminating up-front costs.** A third party **Energy Services Company** is a project partner that helps plan, finance, install, and monitor projects.
- **Energy Efficiency Home Improvement Tax Credits (25C)** and **Zero Energy Ready Homes Tax Credits (45L)** can help building owners offset the cost of energy efficiency measures. Improvements in the three categories above are all eligible.

For additional information, the DOE **Energy Savings Hub** describes how to fund specific energy efficiency measures and the **ENERGY STAR Rebate Finder** provides information about rebates and special offers available in a building owner's ZIP code.

**For more funding opportunities, visit the *Build for the Future* Funding Navigator on HUD Exchange and select the "Energy Efficiency and Renewables" project type in the first drop-down box and the "Energy Efficient Buildings" project subtype in the second drop-down box.**

These resources are just the start!
Look for other information that matches your needs here:

Build for the Future — A wealth of technical resources on energy efficiency and resilience

Build for the Future Funding Navigator — A user-friendly searchable database for IRA and BIL grants