

Energy Efficiency in Buildings

Green Opportunities for New Jersey

What is Energy Efficiency in Buildings?

Energy efficiency means using less energy in building construction and operations. Using less energy in buildings saves money and helps the environment. Energy efficiency tools include:

- Reducing electricity and gas use
- Installing efficient lighting, HVAC, refrigeration, and other appliances
- Insulating homes and repairing leaky doors and windows
- Using smart controls to turn off heating and lights when not in use

New Jerseyans saved an average of \$536 per household on their utility bills in 2015 through energy efficiency.

Energy efficiency is the cheapest way to achieve clean energy and better environmental health. If we can integrate energy efficiency into construction and fix up existing buildings, we will succeed in reducing our energy usage. Not only will we save on energy, but we will also save money for households and businesses, create new jobs, improve indoor air quality, and fight climate change.

Households Save Money Through Energy Efficiency

Residential homes use energy efficiency by weatherizing or retrofitting their homes. People who invest in home energy upgrades see major savings on their utility bills. The federal government also provides

weatherization assistance to low-income households, which brings financial and energy benefits from weather-proofing houses.

Businesses Are Saving Costs Too

Companies can save money by investing in energy efficiency early. By using efficient lighting, recycled materials, and smart infrastructure like sensors, or programmable thermostats, businesses save on electricity and reduce greenhouse gas emissions. Federal programs like ENERGY STAR provide additional savings. Customers in NJ already save about \$11 for every \$1 spent on commercial and industrial energy efficiency programs.

Every dollar invested in the Weatherization Assistance Program doubles its impact, bringing \$2.53 in community benefits.

Energy Efficiency Creates Jobs

Energy efficiency brings major employment opportunities, especially in building retrofits, home and business energy audits, and new technology development. Clean energy jobs provide stable earnings: average wages are \$4,900 more than the national median, and 75 percent of employees have middle-wage jobs. More energy efficiency jobs are accessible to low-credentialed employees compared to fossil fuel jobs: 49 percent of employees in energy and resource efficiency do not have a bachelor's degree.

Every dollar saved on utility bills has 2.24 times the effect on domestic employment and wages compared to a dollar spent.

Every \$1 million invested in energy efficiency creates about 8 jobs, compared to 2.5 jobs created for every \$1 million spent on fossil fuel industries. Clean energy jobs are high-quality, local, and cannot be offshored. Energy efficiency brings significant employment and economic benefits to communities.

Energy Efficiency Helps the Environment

Using less energy is a cost-effective and surefire strategy for avoiding greenhouse gas emissions and mitigating climate change. By using efficient building materials, low-intensity appliances, and weather-proofing homes to reduce leakage, energy efficiency programs reduce electricity usage by wide margins. Decreasing the amount of coal- or gas-based electricity used limits the amount of carbon emissions released by buildings, which consume 40 percent of all energy used.

Energy Efficiency Improves Health

Improving energy efficiency in buildings creates public health benefits, in addition to saving money and energy. Health impacts include:

- Improved indoor air quality and ventilation
- More money to spend on health care from lower utility bills
- Elimination of other air pollutants like lead paint and mold through home energy upgrades

Energy efficiency achieves better health outcomes by lowering the amount of pollutants such as nitrogen oxides (NOx), sulfur dioxides (SOx), and fine particulate matter in the atmosphere. Issues with respiratory health like lung cancer, COPD (chronic obstructive pulmonary disease), and asthma, are lessened. Energy efficiency also mitigates climate change and reduces the risk of impacts like heat waves, which can cause heart and respiratory problems, or flooding, which leads to water contamination and spread of disease. By 2030, air quality improvements from efficiency standards for cars are expected to save 100 to 300 lives each year and avoid 14,000 lost work days. Disproportionately vulnerable populations like children, environmental justice communities, and the elderly, gain immensely from energy efficiency.

Energy efficiency improves ventilation and indoor air quality. This reduces asthma attacks, respiratory illness, and lung problems.

New Jersey Supports Energy Efficiency

The state of New Jersey has historically emphasized the importance of energy efficiency and clean energy programs. To achieve our goals on energy, equity, and public health, state agencies are overseeing several energy efficiency initiatives:

- High performance green building standards in new state construction
- Free benchmarking for hospitals, municipalities, public schools, universities, multifamily units, retail, and other sectors
- Subsidies and support from the NJ SmartStart Buildings Program
- Incentives from the Office of State Energy Facilities and NJ Clean Energy Program to provide loans and subsidies for energy efficiency projects

New Jersey Can Do More!

The state should improve energy efficiency savings by requiring a **30 percent reduction (below 2015 levels) for electric and natural gas usage in NJ by 2030**. New Jersey can also expand energy efficiency technologies at industrial facilities by supporting policies and measures that expand the use of industrial energy efficiency technologies, such as combined heat and power, and waste heat recovery, technologies that will serve to reduce GHG emissions, maximize efficiency, and help industrial facilities be more competitive nationally and globally.