

Energy Efficiency for Municipal Buildings and Facilities



Investing in energy efficiency is one of the most important steps we can take to reduce our fossil fuel use and achieve 100 percent renewable energy.

City and town governments can take several steps to make schools, municipal offices, police and fire departments, and other public buildings more efficient. By maximizing the energy efficiency of municipal buildings, local governments can reduce their energy use, cut down on pollution, save taxpayer money, and set a positive example for residents and businesses in the community to follow.

The American Council for an Energy-Efficient Economy estimates that we can reduce our use of energy by 40-60% by 2050 through energy efficiency measures. Cities and towns can achieve major gains in energy efficiency today, and realize the benefits for years to come.

First step: Complete an energy audit.

Typically, the first step towards improving the energy efficiency of municipal buildings is to complete an energy audit. Trained professionals will evaluate various aspects of the building — including lighting, heating and cooling systems, appliances, and insulation — to identify opportunities for energy savings. Often, an energy audit will include an estimate of how long it will take for each efficiency measure to pay for itself through reduced energy costs — known as the “payback period.”

These audits are available to most municipalities through the Mass Save program (except for cities and towns that are served by a municipal utility).

Some communities choose to enter into an energy performance contract, where local officials hire a contractor to identify and carry out energy efficiency upgrades, with the costs of the contract typically covered by the energy savings.

How can we make municipal buildings more efficient?

According to a [recent survey](#) of 191 cities and towns conducted by the Environment Massachusetts Research & Policy Center, these are the most common energy efficiency measures implemented by municipalities in Massachusetts:

- Installing LED or high-efficiency fluorescent interior lights. (82.2%)
- Installing new, high-efficiency heating and cooling equipment. (71.2%)
- Installing occupancy sensors to automatically turn lights on and off as needed. (70.2%)
- Weatherizing the building (for example, by installing additional insulation or high performance windows). (66.0%)

Other common energy efficiency practices include:

- Installing an energy management system. These systems help to optimize a building's energy performance by enabling the control and monitoring of building facilities, such as heating and cooling equipment, by computer.
- Installing variable frequency drives (VFDs) to decrease motor speed in heating and cooling systems when possible.
- Instituting a program to encourage municipal employees to reduce energy usage through their behavior.

What funding and support is available for municipal energy efficiency efforts?

- The Massachusetts Department of Energy Resources has assembled a list of [recommendations and resources](#) for communities interested in energy efficiency upgrades.
- The [Mass Save](#) program provides energy audits for municipalities that are served by investor-owned utilities (rather than municipal utilities). Mass Save also helps to identify incentives and financing opportunities for energy efficiency upgrades.
- Cities and towns that have joined the [Green Communities](#) program can qualify for grants to offset the cost of energy audits and energy efficiency upgrades. The Green Communities program also provides technical assistance and advice for municipal clean energy and energy efficiency efforts.
- Some regional planning agencies, such as the [Metropolitan Area Planning Council](#), provide technical assistance for communities within their coverage area that are considering energy efficiency upgrades. These agencies sometimes help to connect city and town governments with qualified contractors through a joint procurement process.
- Through the Industrial Assessment Center program, the [Center for Energy Efficiency and Renewable Energy](#) at UMass Amherst offers free energy audits for water or wastewater treatment facilities with annual energy bills of at least \$100,000.
- The [UMass Clean Energy Extension](#) offers free assistance for clean energy projects on a

case-by-case basis. Usually it is a good idea to contact the utility company first to see what support they can provide, and then contact UMass Clean Energy Extension if additional assistance is needed.



LED Streetlights

Upgrading streetlights to LED fixtures can result in significant energy savings. In 2015, the Town of Swampscott received funding through the Green Communities program to change its streetlights to LEDs. As a result, Swampscott reduced municipal electricity usage by more than 477,000 kilowatt-hours per year, saving \$80,000 on its lighting bills.

Although there is a significant cost associated with LED fixtures, the payback period is typically around [7 years](#). In addition to using less energy, LED fixtures also last longer than other types of outdoor lighting, cutting down on maintenance costs.



LEED Certification

Some communities require all new or renovated municipal buildings to meet higher standards for energy efficiency — for example, by qualifying for LEED certification. LEED is an international certification system for green buildings, taking into account energy efficiency, sustainable construction materials, water conservation, and other factors. Different levels of LEED certification are available, including Silver, Gold, and Platinum.

The Collaborative for High-Performance Schools (CHPS) is a similar certification system, specifically for school buildings.

In a [recent survey](#) conducted by the Environment Massachusetts Research & Policy Center, 19.4 percent of communities that responded said that they require new or renovated municipal buildings to meet LEED or other energy efficiency standards.