

# Town of Palmer

## Municipal Energy Efficiency



## CASE STUDY

### BACKGROUND

A few years before the Green Communities program began, the town of Palmer, located in the Pioneer Valley in western Massachusetts, participated in a program that offered free energy audits of their municipal facilities. The audits identified several measures that Palmer could take to reduce its energy consumption, but the town didn't have the funding available to begin implementing the recommendations right away.

In the spring of 2010, Palmer was one of the first Green Communities DOER designated. One of the criteria to earn designation in the Green Communities program is to establish an energy use baseline and develop a five year plan to reduce municipal energy use by 20 percent. The early energy audits laid the groundwork for the town, and the Pioneer Valley Planning Commission (PVPC) helped to develop the energy reduction plan.

Palmer's Town Planner and Economic Development Director has coordinated implementation of this plan, in collaboration with the town's facilities directors. She took on these additional responsibilities because she saw it as a valuable opportunity to bring grant money into Palmer, to reduce the town's energy costs, and to lead by example in promoting the environmental and financial benefits of energy efficiency and renewable energy.

### ACTIONS

Palmer has reduced its energy consumption through several improvements to aging town facilities.

#### Energy efficiency measures

Palmer has implemented energy efficiency upgrades in almost every town facility. These were funded through a combination of municipal funds, three Green Communities grants from DOER totaling over \$600,000, Mass Save<sup>®</sup> rebates, and funding from the Massachusetts School Building Authority. The town has prioritized replacement of outdated equipment that needed substantial repairs or was costly to maintain, then worked to optimize operation of the new equipment.

- ◆ **Exterior lighting upgrades** – Palmer has upgraded exterior lighting to LED lighting at several town facilities, including at schools and the wastewater treatment plant. The Department of Public Works has begun to upgrade traffic signals to LEDs as the old lights burn out.
- ◆ **Interior lighting upgrades and controls** – Interior lighting has been upgraded in Palmer's wastewater treatment plant and as part of a renovation of the senior center. Lighting retrofits had already been done in some other buildings shortly before the Green Communities program began.
- ◆ **HVAC upgrades and controls** – Palmer has done a comprehensive retrofit of the heating, ventilation and air conditioning (HVAC) system in Town Hall, with the assistance of an engineering firm the town hired, including:
  - Installation of a new, efficient natural gas boiler to replace the oil boiler that was original to the 1965 building
  - Replacement of the chiller and unit ventilators
  - Upgrades to HVAC piping
  - Installation of an energy management system to provide centralized control, scheduling and monitoring of the HVAC equipment
  - Commissioning to ensure that the new system was operating properly

The boilers were also upgraded in the town's three schools.



Palmer reduced annual energy consumption in its Town Hall by 62%

**AT A GLANCE:**

- ◆ Population: 12,200
- ◆ Size: 32 square miles
- ◆ Reduction of municipal energy consumption: 37%
- ◆ Annual energy cost savings: more than \$55,000

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- ◆ **Weatherization** – Palmer has weatherized several facilities by adding insulation and sealing air gaps.
- ◆ **Efficient appliances** – ENERGY STAR certified kitchen appliances were selected for the renovated senior center.
- ◆ **Wastewater treatment system improvements** – To meet environmental requirements, Palmer separated the flow of rainwater runoff from sewage by eliminating 26 combined sewer overflows. Now only the sewage is directed to the town's wastewater treatment plant, which has made the plant's load more consistent and reduced the average by more than 50 percent. The town then improved the plant's energy efficiency by installing a smaller, more efficient model to serve as the primary aeration blower; removing a blower that was original to the 1979 plant; and using two remaining, less efficient blowers only for backup. The blower has a variable frequency drive that optimizes operation and energy use by controlling the speed to maintain the desired dissolve oxygen level in the aeration tank. In total, these changes cut the wastewater treatment plant's energy consumption in half in less than five years. The town is currently considering opportunities to further optimize the system by downsizing equipment in pumping stations to match the reduced flow rate.

**Energy audits** – In 2014, after substantially reducing energy consumption, Palmer had free energy audits conducted through its electric utility company, National Grid. These audits helped the town to assess the efficiency of their buildings after making several improvements and identify additional opportunities for energy savings.

## RESULTS

Palmer was one of the first communities to achieve the Green Communities program's energy reduction goal, reducing municipal energy consumption by 37 percent from fiscal year 2009 to 2014. While the town hasn't quantified the energy cost savings for some measures, the total annual savings is more than \$55,000.

Many of these projects involved upgrading aging facilities or replacing outdated equipment, so in addition to the energy savings, the town has benefited from improved comfort in town buildings and a reduction in maintenance requirements. Palmer is actively continuing efforts to further reduce its energy consumption.

## RECOMMENDATIONS

**Designate an employee to lead the effort.** It has been important to have a staff person committed to leading Palmer's energy efficiency efforts. While this work was not originally part of the Town Planner and Economic Development Director's responsibilities, she has made a commitment to it and built it into her formal goals. The current Town Manager's support has also been essential to Palmer's success.

**Engage and maintain regular communication with facilities directors.** Facilities directors throughout the town have been critical to reducing Palmer's energy consumption. When the Green Communities program began, some were already thinking about energy use in their facility and had ideas for energy efficiency measures, which were then made possible by grants from the program.

**Take advantage of assistance available from regional planning agencies.** PVPC has played a major role in Palmer's energy efficiency work, including helping to compile energy consumption data in order to determine baseline use and helping to develop the town's energy reduction plan.

**Use the pre-approved vendor list for energy efficiency.** Palmer benefited from Chapter 25A of Massachusetts General Laws, which allows a simplified procurement process for hiring pre-approved vendors to implement energy efficiency projects costing up to \$100,000.

**Consider all of the benefits.** Palmer's Town Planner and Economic Development Director emphasizes that saving energy in municipal facilities and bringing in grant and rebate money is fiscally responsible to residents. The town has also seen non-energy benefits, including improved comfort in buildings and reduced maintenance, which have been especially valuable in making the case for some projects in which energy savings was more difficult to quantify.

"Saving energy in town facilities is being fiscally responsible to our residents."

- Linda Leduc, Town Planner and Economic Development Director

