



SECTOR:

MUNICIPAL AND SCHOOL BUILDINGS

INVESTMENT

- \$1.7 million

KEY MEASURES

- Lighting
- Occupancy Sensors
- Low-flow Toilets
- HVAC Units
- Energy Management System
- Insulated Swimming Pool Cover

ANNUAL ENERGY AND WATER SAVINGS

- KWh: 1,729,634
- Therms: 1,215
- Gallons Oil: 49,140
- Water (cf): 314,079
- \$202,750

EMISSION REDUCTIONS

- CO₂: 3,253,098 lbs.
- NO_x: 4,831 lbs.
- SO_x: 17,126

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Town of Belmont

In 2005, the Town of Belmont engaged NORESO to install energy conservation measures under terms of a 10-year energy savings performance contract (ESPC). The total project cost was \$1,693,000 and construction was completed between the months of July 2005 and August 2006. As a result, six schools and five town buildings now consume less energy and water, operate with more efficient and pleasing lighting, and function with the assurance of upgrades to critical systems that were previously operating beyond their useful lives. Improvements totaling \$1.7 million were funded from long-term savings to be generated by the measures themselves. In short, the Town turned its energy bills into capital improvements.

Measures implemented by NORESO included:

- 22,371 new lamps
- 8,136 new ballasts
- 482 occupancy sensors
- 210 new toilets and other plumbing improvements
- 6 new rooftop HVAC units serving critical areas of the high school
- 3 energy management system upgrades, along with new personal computers for control
- 1 automatically deployable insulated cover for the high school swimming pool
- A host of additional components guaranteed to generate annual savings of at least \$200,000

NORESOS provided project development, energy engineering, in-house lighting and water auditing and design, mechanical design engineering, assistance with financing procurement, material and subcontracted labor procurement, project management, commissioning services, and savings measurement and verification services.



Belmont's inquiry began when elected officials, department heads, and residents met informally to discuss self-funding energy renovations. The group's activities led to formation of a town committee, which completed the processes required. Belmont's decision to involve both school and town buildings on the same contract, a first in Massachusetts, was a powerful one. It optimized the mix of measures that bring quick savings, such as energy-efficient lighting, with those that pay for themselves more slowly, such as roof-top heating and ventilating (HVAC) units. In Belmont's case, replacement of the 35-year old HVAC units had been on the capital budget list for 10 years prior to the ESPC.

"We would never have had the manpower to do this all at once," said Jenny Fallon, Chair of the Town Committee.

ANNUAL ENERGY AND EMISSIONS REDUCTION BENEFITS

Energy and Water Savings

	Guaranteed Annual Energy Savings	Annual Savings Year 1
kWh	1,729,634	1,708,792
Therms	1,215	1,228
Gallons Oil	49,140	49,140
Water (cubic feet)	314,079	314,079
Dollars	\$202,750	\$218,582

Emissions Reductions

Emission Type	Emissions Units	
CO2	Lbs	3,253,098
NOx	Lbs	4,831
SOx	Lbs	17,126

**Equivalent Number of
Acres of Trees Planted**



446 Acres

**Equivalent Number of Cars
Removed from the Roads**



284 Cars

**For more information on Energy Management Services
in Massachusetts please contact Eileen McHugh at the
Division of Energy Resources at (617) 727-4732**