

# Town of Bedford Energy Policy and Guidelines

Bedford Energy Task Force

Approved:  
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School Committee 4/26/2011

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## Overview/ Executive Summary

The Town of Bedford has been actively working to reduce municipal energy consumption. The Town Facilities Director has been tracking energy consumption of town buildings since 2005. With energy efficiency investments and prompt repair of equipment that is not operating at peak performance, Bedford schools have reduced annual energy consumption by 40% from 2005 to 2010.

In 2008, the Selectmen appointed an Energy Task Force whose mission is to help further decrease Bedford's municipal energy consumption for the purpose of reducing expenditures and greenhouse gas emissions. The Energy Task Force has worked with local committees and the Selectmen to develop the following Town Energy Policy and Energy Reduction Guidelines to provide users of town facilities with a framework for energy use reduction. The policy is a general statement of Bedford's philosophy relating to energy conservation, whereas the energy reduction guidelines are specific and actionable. By following the energy reduction guidelines and making necessary technology investments, **the goal is to reduce Bedford's municipal energy use by 20% within five years.**

Each user of energy is asked to also be an energy saver. The following guidelines are only a beginning; each energy user/saver should take every opportunity to reduce energy consumption, and not be limited by the scope of these guidelines. Community involvement and support is a key part of reducing the Town's energy consumption. Although this document only covers energy conservation guidelines for town assets, many of these practices can also be applied by residents to reduce energy consumption in their own residences. Additionally, information specific to residential energy conservation has been included in this document.

A copy of this energy policy and reduction plan should be disseminated to all town personnel. Copies should be posted on staff bulletin boards, and in town and school facilities.

## Energy Policy

The Town of Bedford encourages and supports an energy conservation and management program to decrease municipal energy consumption and cost while maintaining a comfortable, healthy, and safe environment that is conducive to work, learning and play.

It is the responsibility of every user of energy to participate in this effort.

## Energy Reduction Guidelines

The Town of Bedford's Energy Reduction Guidelines address energy conservation with regard to current town assets, standards for new town building construction, and public outreach. These guidelines will be continuously reviewed and updated formally every five years.

### **A. Guidelines- Facilities Department/ Town and School Buildings**

#### **General**

1. Ensure doors between conditioned space and non-conditioned space remain closed at all times when HVAC is operating (e.g. between hallways and gym).
2. All exhaust fans should be turned off during unoccupied hours, except for areas that warrant humidity control as determined by the Director of Facilities.
3. All office machines (copy machines, laminating equipment, etc.) shall be switched off each night and during unoccupied times. Fax machines should remain on.
4. All computers should be turned off each night. This includes the monitor, local printer, and speakers. Network equipment is excluded.
5. All capable PC's should be programmed for the "energy saver" mode using *the power management* feature. If network constraints restrict this for the PC, ensure the monitor "sleeps" after 10 minutes of inactivity.
6. The evaluation of all donated equipment shall include consideration of life cycle cost.

## Air Conditioning Equipment

**Cooling Season Occupied Set Points : 74°F - 78°F<sup>1</sup>**  
**Unoccupied Set Point: 85°F**

<sup>1</sup> – Set points are in accordance with ASHRAE 55 "Thermal Conditions for Human Occupancy"

1. Occupied temperature settings shall *NOT be set below 74°F*.
2. During unoccupied times, the air conditioning equipment shall be off. (Air conditioning start times may be adjusted (depending on weather) to ensure comfort when the school/work day begins.
3. Outside air dampers should be closed during unoccupied times.
4. Ceiling fans should be operated in all areas that have them.
5. Shut down air conditioning in unoccupied municipal and school spaces during the summer months.
6. In all areas that have evaporative coolers such as shops, kitchens and gymnasiums, the doors leading to halls that have air-conditioned rooms or dining areas should be kept closed as much as possible.
7. Where cross-ventilation is available during periods of mild weather, HVAC equipment should be shut down and temperature adjusted by opening windows and doors.

## Heating Equipment

**Heating Season Occupied Set Points : 68°F - 72°F<sup>1</sup>**  
**Unoccupied Set Point: 55°F**

<sup>1</sup> – Set points are in accordance with ASHRAE 55 "Thermal Conditions for Human Occupancy"

1. Occupied temperature settings shall NOT be above 72°F.
2. The unoccupied temperature setting shall be 55°F (i.e. setback). This may be adjusted to a 60°F setting during extreme weather.
3. The unoccupied time shall begin when the occupants leave an area.
4. During the spring and fall when there is no threat of freezing, all steam and forced air heating systems should be switched off during unoccupied times. Hot water heating systems should be switched off using the appropriate loop pumps.
5. All domestic hot water systems should be set no higher than 120°F or 140°F for cafeteria service (with dishwasher booster).

6. All domestic hot water re-circulating pumps should be switched off during unoccupied times.
7. For heat pumps, there should be a 6°F dead-band between heating and cooling modes.

## **Lighting**

Use of lights should be minimized as much as practically possible.

1. Utilize natural lighting where appropriate.
2. All unnecessary lighting in unoccupied areas shall be turned off. The last person to leave each room of town/school buildings should make sure that lights are off.
3. All outside lighting shall be off during daylight hours.
4. Custodians will turn on lights only in the areas in which they are working once other occupants have left the building.

## **Water**

1. All plumbing and/or intrusion (i.e. roof) leaks should be reported and repaired immediately.
2. All landscape watering should be done between 5:00 AM and 10:00 AM.
3. When spray irrigating, the water should not directly hit buildings, paths, or roadways.

## **B. Guidelines- Department of Public Works**

### **Town Vehicle Fleets**

Saving fuel means saving money. Judicious maintenance and recycling resources add value by extending fleet life and reducing adverse environmental effects. In meeting operational needs, the Town staff shall consider energy consumption, emissions, and waste generation as part of their decision making process in the management of fleet assets.

The most fuel efficient vehicle in the required class should always be considered when evaluating a new vehicle purchase.

Town staff shall ensure that the Town's fleet assets are selected, acquired, and utilized for the best possible support of Town operations through environmentally responsible

**Fleet Management.** This includes assessing operational needs to minimize fleet size and planning vehicle and equipment use to maximize efficiency and minimize mileage driven.

Hybrid or other energy saving vehicles should be purchased on a replacement basis where appropriate technology exists. Replacement vehicles should have mileage equal to or exceeding the guidelines specified in the Green Communities "Guidance and Model Policy" for fuel-efficient vehicle purchase:

The inventory and replacement plan for non-exempt vehicles must include school vehicles.

Bedford will implement a monitoring system to record miles driven, fuel consumption, etc. for each vehicle in every department.

Vehicles shall only be recycled if the replacement vehicle meets the fuel efficient criteria prescribed above.<sup>ii</sup>

Bedford will enforce its "No Idling" policy.

## **Street and Traffic Lights**

### Street Lights

1. Street lights and other outdoor/exterior municipal lighting will be evaluated to determine whether timing mechanism should be installed or whether policies adopted to control usage. In some cases, this may result in certain lights being extinguished or removed.
2. Compact fluorescent or LED bulbs shall be used on a replacement basis and as funding permits.
3. Full cut-off features (to direct light downward) will be installed as bulbs are replaced.

### Traffic Lights

1. Traffic lights shall switch to blinking red after midnight (subject to MA DOT regulations)
2. LED lights shall be used on a replacement basis and as funding permits.

## **Parks and Playing Fields**

1. Automatic watering schedules shall be overridden when rain is abundant.
2. Watering shall take place between 5:00AM and 10:00AM when activities are not scheduled.

3. Mowers shall be replaced with more fuel efficient models when replacement is due.

### **C. Construction/ Renovations for Town Buildings**

1. New buildings' lights shall be configured to make maximum use of sunlight<sup>iii</sup>.
2. New buildings will utilize passive solar construction for maximizing winter light and warmth and summer coolness.<sup>iv</sup>
3. Parking lots and other outdoor areas that are lit at night shall be lit with full cutoff LED lights, solar-powered lights or other fixtures that minimize nonrenewable energy consumption.
4. The energy value of landscaping shall be considered in shielding the building from unwanted solar heat gain and winter winds.
5. Any new schools or additions to schools will follow the MA-CHPS guidelines.  
<http://www.chps.net/dev/Drupal/node/34>

### **D. Guidelines-Overall Town and School Departments**

#### **Use of Town Facilities**

All users of town facilities are responsible for ensuring compliance with the following guidelines:

1. Town Manager's Office should schedule use of space to conserve energy.<sup>v</sup>
2. Doors and windows shall remain closed when operating heater or air conditioner.
3. Building users shall be encouraged to dress appropriately for the season.
4. Natural lighting shall be used when possible. When natural lighting is insufficient, only necessary lights shall be used.
5. All lights and other powered equipment shall be turned off before leaving the premises.
6. Any problems, such as leaky doors or windows or water marks shall be reported.

7. Reservations should be cancelled when space will not be used so that area will not be unnecessarily heated/cooled.

### **Life Cycle Cost**

Life cycle cost should be considered when making all procurement decisions. <sup>vi</sup>

### **Energy Committees and Teams**

Each building or department will establish a team to ensure energy reduction. The purpose of the Energy Teams will be to define building-specific energy reduction measures, monitor energy use with assistance from the Town Facilities Director, and educate the building occupants. Each team will meet at least on a quarterly basis and will report back to their department head or the Facilities Directors who will have primary oversight of the Master Energy Committee.

### **Master Energy Committee**

The town will establish a Master Energy Committee. The establishment of this committee will ensure that the policy is supported and that all stakeholders are involved in the process.

The Master Energy Committee will meet as on a quarterly basis (at least) to discuss issues such as current energy usage in town buildings, employee involvement, needed tools, resources and the progress of the building energy committees with the ultimate goal of ensuring that Bedford reduces its municipal energy consumption.

### **Occupant Involvement**

The achievement of the goal of a 20% reduction in energy use in the Town of Bedford's school and municipal buildings will be facilitated by the active involvement of the building occupants. Behavior is key to reducing energy consumption. The American Council for an Energy Efficient Economy (ACEE) stresses that energy efficiency efforts need to move beyond technology dissemination and also focus on:

- Making energy visible
- Providing people with tools to manage their consumption and change their behavior
- Providing people with motivation (i.e. goals, budgets, etc)
- Making energy savings easy and fun

Because of this, the Town of Bedford shall seek to implement the following energy conservation measures whenever possible:

1. All department heads will be responsible for energy efficiency programs in their departments and agencies in accordance with these guidelines and any other

possible means of increasing the level of efficiency with which energy and other resources are used.

2. All Boards, Commissions, Committees, and other organizations that utilize any municipal building for meetings, events, and the like are also responsible for knowledge of and adherence to these guidelines.
3. Employees who are responsible for purchasing will be provided training and educational opportunities that enhance organizational understanding of green purchasing and sustainable best practices.
4. Biking, walking, carpooling, vanpooling and mass transit as employee commute options should be encouraged.
5. Town contracts will include energy-friendly provisions whenever practical.

## **Public Education and Outreach**

It is understood that an Energy Policy is only as good as its implementation.

It is also understood that effective implementation of this Energy Policy and guidelines will require consistent effort, observation and follow up by many individuals if the goal of energy reduction is to be achieved. (For instance, it is most likely to be a custodian who will notice a leaky window or lights left on over a weekend.) An accumulation of small but consistent efforts on the part of all town employees, plus timely and considered feedback is crucial to Bedford's success in energy use reduction.

It should also be emphasized that there is a direct link between energy savings (which produce cost savings or avoidance of cost increases) and being able to spend constrained financial resources on programs and services rather than energy. Outreach and education as well as the critical role that individuals play must be a component of the Town's efforts.

For these reasons, all town employees, and whenever possible, all users of town facilities should be enlisted as "energy savers" as well as "energy consumers".

In addition to reducing municipal energy consumption, citizens benefit from reducing their residential usage. The Town will maintain programs that can assist with residential energy reduction.

## **Appendix A**

### **Education/ Curriculum**

Schools are encouraged to integrate green/energy saving lesson plans into the curriculum. Many free resources are available including:

**NEED**

<http://www.need.org/>

**National Renewable Energy Laboratory- Education Programs**

<http://www.nrel.gov/education/>

**EPA - Environmental Education**

<http://www.epa.gov/enviroed/index.html>

**Alliance for Climate Education**

<http://www.acespace.org/>

**Massachusetts Department of Environmental Protection. Green Team**

*This program provides resources to help students and teachers slow climate change, recycle and prevent pollution in their schools, homes and communities. Each class that takes THE GREEN TEAM PLEDGE receives a Certificate of Recognition and is eligible to win great prizes. Classes that complete more activities advance to higher levels and are eligible to win more valuable rewards.*

<http://www.thegreenteam.org/kit.html>

**Other Resources**

**The Center for Green Schools**

<http://www.centerforgreenschools.org/guides.aspx>

**Residential Energy Conservation Resources**

**Home Energy Audits**

[http://www.masssave.com/residential/heating-and-cooling/get-the-facts/home-energy-assessments---what-to-expect/?sms\\_ss=email](http://www.masssave.com/residential/heating-and-cooling/get-the-facts/home-energy-assessments---what-to-expect/?sms_ss=email)

**Appliance Upgrade Rebates**

[http://www.nstaronline.com/residential/energy\\_efficiency/gas\\_programs/](http://www.nstaronline.com/residential/energy_efficiency/gas_programs/)

[http://www.nationalgridus.com/narragansett/home/energyeff/4\\_energystar.asp](http://www.nationalgridus.com/narragansett/home/energyeff/4_energystar.asp)

**Energy Efficiency Products**

[http://www.energystar.gov/index.cfm?c=products.pr\\_find\\_es\\_products](http://www.energystar.gov/index.cfm?c=products.pr_find_es_products)

**Mass Save**

<http://www.masssave.com/>

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<sup>i</sup> The unoccupied period begins when the occupants leave the area at the end of the school/work day. In the schools, it is anticipated that the temperature of the room will be maintained long enough to afford comfort for the period the teacher remains in the classroom after the students have left.

<sup>ii</sup> Heavy duty vehicles, defined as having a manufacturer's gross vehicle weight rating (GVWR) of more than 8,500 pounds, are exempt from municipal Efficient Fleet Policies. However, fuel efficient cruisers, passenger vans, and cargo vans shall be purchased when they become commercially available. Police and fire department administrative vehicles shall meet fuel efficient requirements. Emergency response vehicles that are under 8,500 pounds and for which there are fuel efficient models available SHALL meet fuel efficiency requirements.

<sup>iii</sup> This includes allowing banks of lights nearest the windows to be turned off manually or automatically when sunlight is bright near the windows

<sup>iv</sup> For example, large windows shall be oriented south, and smaller windows shall be oriented in other directions. Roof overhang above south-facing windows should shield most summer sun, but allow for capturing winter sun.

<sup>v</sup> Meetings should be consolidated to the portion of a building on the same air handling system at the same time, as much as practically possible

<sup>vi</sup> The term "life cycle cost" refers to the cost of an item over its entire lifetime. For example, the life cycle cost of a light bulb includes not only the cost of the bulb itself, but the cost of the electricity it will use and cost of disposal. In many cases, a small upfront investment in higher efficiency appliances saves substantial money in reduced energy consumption over the lifetime of the product.