



Sierra Club: Home Energy Tips

**SAVE YOUR MONEY
SAVE YOUR PLANET**

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INTRODUCTION

The Massachusetts Chapter of the Sierra Club has created this guide to give people better information on energy efficiency, rebate programs, and green power. There is a lot of information available and our hope is that this guide will help bring that information to you in a concise manner.

This guide showcases various methods and tips to help reduce energy consumption in your home, as well as providing information on rebate opportunities and green power. It contains seven sections.

ENERGY CONSUMPTION OVERVIEW
TEN NO COST WAYS TO SAVE
TEN LOW COST WAYS TO SAVE
ENERGY STAR APPLIANCES
GREEN POWER
COMMON QUESTIONS
REBATES/TAX INCENTIVES

This guide is by no means definitive. Rather, it provides basic information and first steps, as well as references for further steps.

PLEASE NOTE that rebates, tax incentives and other programs change on a regular basis. At the time of production (February 2006) all of the information contained herein is current. Prior to making large purchases you may want to speak with your energy supplier or your tax preparer to see if new incentives are available or old ones have expired.

Make sure to look for the **\$\$** symbol—that means rebates are available!

-Massachusetts Chapter of the Sierra Club

TAX INCENTIVES

REBATES AND TAX INCENTIVES CHANGE OFTEN AND VARY DEPENDING ON YOUR ENERGY SUPPLIER AND OFTEN THE EFFICIENCY OF THE ITEM YOU CHOOSE. PLEASE CHECK WITH YOUR ENERGY SUPPLIER AND/OR YOUR TAX ADVISOR BEFORE MAKING DECISIONS.

An excellent overall site for tax incentives can be found at:
www.energytaxincentives.org

State tax incentives to install renewable energy can be found at:
www.mass.gov/doer/programs/renew/renew.htm#taxcred

MA tax incentives for home energy efficiency
www.dor.state.ma.us/help/guides/abate_amend/Personal/Issues/HomeHeatingCredit.htm

Federal tax incentives

To see a chart of available federal tax credits go to:
www.energy.gov/taxbreaks.htm

For further Information on rebates and other incentives, you can visit the following websites:

MassSave	www.masssave.com
MassEnergy	www.massenergy.com
EnergyStar	www.energystar.gov
KeySpan	www.keyspanenergy.com
National Grid	www.nationalgridus.com/masselectric

REBATES

REBATES AND TAX INCENTIVES CHANGE OFTEN AND VARY DEPENDING ON YOUR ENERGY SUPPLIER AND OFTEN THE EFFICIENCY OF THE ITEM YOU CHOOSE. PLEASE CHECK WITH YOUR ENERGY SUPPLIER AND/OR YOUR TAX ADVISOR BEFORE MAKING DECISIONS.

Your one-stop rebates locator can be found at:
www.masssave.com

This includes rebates for:

Water heaters

Windows

Thermostats

Weatherization (insulation, etc.)

Heating

Cooling

Lighting

For natural gas customers a variety of rebates can be found:
www.gasnetworks.com

This includes rebates for:

Heating

Water Heaters

Windows

Thermostats

Inexpensive compact fluorescent light bulbs (CFLs) can be found:
www.estarlights.com

ENERGY CONSUMPTION OVERVIEW

The United States uses 25% of the world's energy, yet is only 4.5% of its population. Energy usage in the U.S. has continued to grow every year since World War II. As our energy use has grown, so has our reliance on oil imports from other countries.

America now imports over 50% of our energy from other countries. In the absence of significant change, this usage will continue to increase as our economy expands.

At the same time, other countries, especially in Asia, have increasing energy needs. This has led to an overall increased global demand and race for limited resources.

This increased demand, along with limited world supply, has led to price increases for oil and gas. For consumers this has meant not only an increase in gasoline costs but also an increase in home heating costs. The average American household spends \$1,400 a year on utility bills, and that figure is expected to rise in the future as demand and prices continue to increase.

As dictated by the laws of supply and demand, energy efficiency can help reduce energy needs and costs. It can also help reduce the need to build new power plants by reducing demand.

Energy efficiency also decreases demand for oil from unstable and hostile countries helping us achieve a first step toward energy independence. It can help reduce our country's overall energy needs while saving households money on their utility bills.

It is clear that America cannot drill our way to energy independence. It is also clear that the threat of global warming is real. Steps taken today at the local, state, federal and individual levels are important for a safe and healthy tomorrow.

TEN NO COST WAYS TO SAVE

HERE ARE SOME SIMPLE STEPS YOU CAN TAKE TODAY THAT WILL COST YOU ABSOLUTELY NOTHING, BUT WILL SAVE YOU MONEY ON YOUR BILLS.

1. SET YOUR HOT WATER HEATER TO 120 DEGREES

Turning your hot water tank to 120 degrees can save you \$35-\$40 a year. For every 10 degrees you lower the temperature you save 3-5% on your bill. If you replace your hot water heater with a new instantaneous or indirect type model, rebates of between \$100 and \$300 are available to defray the cost of your purchase.

2. TURN IT OFF, TURN IT ALL OFF

If nobody is in the room, turn off the lights and the TV! Leaving the lights on in empty rooms (or on the porch) is simply wasted money. Because appliances generate heat, it is especially useful to turn them off during the summer months—this will help keep your home cool during the hot days.

3. WASH ONLY FULL LOADS

Washing small loads of dishes or laundry waste not only hot water but money. You have to heat up the water to clean those dishes and clothes—so make it worthwhile by making sure you've got a full load. To save extra money, wash your clothes in cold or warm water rather than hot.

4. DUST THE HOUSE

Vacuum the coils on the back of your refrigerator and your radiators. Dust on your refrigerator coils actually heat them up, the exact opposite of what you want. Dust on your radiators prevents heat from flowing into the room.

5. TAKE A SHOWER

Baths are notorious for wasting hot water and money. Instead take a shower where you will need to heat far fewer gallons of water.

COMMON QUESTIONS

WHAT IS A TANKLESS WATER HEATER?

A tankless water heater is an “on demand” water system. Instead of storing hot water in a tank all the time, water is heated on an as-needed basis as it passes through heated coils.

SHOULD I INSULATE A NEW WATER HEATER AND HOW DO I TELL IF MINE IS ALREADY INSULATED?

You should not insulate your water heater if it is already insulated as it can be dangerous. If you are not sure if your water heater is already insulated, contact the manufacturer.

WHAT TEMPERATURE SHOULD I SET MY THERMOSTAT WHEN I GO AWAY?

Turn the thermostat down, but not below 55 degrees. Anything lower and you run the risk of your pipes freezing.

IS IT TRUE THAT BY TURNING MY THERMOSTAT UP HIGHER MY HOUSE WILL GET WARM QUICKER?

No. Water pipes can't disperse heat at a higher temperature than 180 degrees. No matter how high you set your thermostat, it will not warm your house any quicker. It will, however, waste money.

BUYING SOLAR PANELS:

Solar panels can be expensive with the typical home 2 kWh panel system costing \$20,000. A system this size generally can cover 30-40% of a home's electricity usage.



Options are available to reduce the price of solar panels. National Grid offers rebates of 50% to help defray the cost. In addition, there are many state and federal tax breaks a home can receive to help reduce the cost of installation. The money you save in reduced energy bills can also help cover the cost of the panels. Typically, costs are recovered within ten years.



WIND ENERGY: New England residents can buy Renewable Energy Certificates available from National Grid in blocks of \$25.

These certificate purchases are tax deductible and guarantee that the energy they represent will actually be dispatched into the electric grid, thereby displacing energy from polluting sources.

If you make your home efficient enough, you can sell any surplus power back to the electric grid, generating revenue and allowing you to

recover more quickly from the costs of installation. ●

6. REARRANGE THE FURNITURE

Furniture in front of your heating vents or radiators traps the heat along the wall. Move your furniture away from the vents or radiators to allow the heat to flow into the room, keeping you warmer and saving you money.

7. SET YOUR AIR CONDITIONER PROPERLY

The colder you set your air conditioner the more energy it uses. A setting of 75 degrees costs 18% more than 78, so keep it around 78 and save yourself money!

8. USE YOUR COMPUTER'S POWER SAVING PROGRAM

Computers are some of the least energy efficient pieces of equipment in most homes. Power saving programs automatically 'hibernate' your monitor and system when not in use and can save between \$50-\$100 annually.

9. LET THE SUN SHINE

You don't need solar panels to take advantage of the sun. During the winter, keep the shades open during the day to heat the room and close them at night. In the summer, do the opposite—keep the shades closed during the day.

10. BIGGEST SAVINGS —TURN DOWN THE HEAT

Turn down the thermostat every time you leave the house for two or more hours, and every night before you go to bed. If you have "zoned" heating, keep the heat low in areas you don't use. This will provide your largest energy savings and cost you absolutely nothing. For every one degree you turn your thermostat down in the winter, you save 2% on your heating costs.

A common misconception is that turning the heat down during the day, then turning it up at night uses more energy. In reality, your boiler will never go above a certain temperature. For every 1° you set your thermostat back, you can save 1-3% on your annual heating costs. ●

TEN LOW COST WAYS TO SAVE

A LITTLE MONEY CAN GO A LONG WAY AND SAVE YOU MUCH MORE IN THE LONG - OR EVEN SHORT RUN.

1. BUY ENERGY EFFICIENT BULBS \$\$

Compact fluorescent light bulbs (CFLs) use 66% less energy and last 10 times longer than regular light bulbs. One bulb used five hours a day will last 5.5 years. Replacing 25% of your light bulbs with CFLs can save you 50%. Replacing a 60-watt with a 15-watt CFL can save you \$50 over the life of the bulb!



Rebates are available for many MA customers and can be bought at any hardware store or by visiting www.estarlights.com for rebates! Bulbs cost between \$2-\$10.

2. WRAP YOUR WATER HEATER \$\$

Twenty percent of a water heater's energy is lost while on "standby." Insulate your water heater and pipes by wrapping them in insulation blankets to keep the water hot longer. This can save you \$24 per year. *NOTE: Some water heaters should not be wrapped-check your owners manual or contact the maker first.*



Water heater blankets cost \$6-\$15 and water pipe insulation costs \$5-\$15 for about six feet, depending on the type. Both of these can be purchased at any hardware store.

3. INSULATE YOUR WINDOWS

Windows are poor insulators, allowing hot or cold air to be transferred through them. Plastic liner is a cheap and effective way to help insulate your home and is available at stores for as little as \$6-\$8.

GREEN POWER

Many residents have the option to buy power that comes from clean or renewable energy sources. You also have the option to generate your own electricity, which can even generate revenue for you by selling your excess power back into the grid.

NSTAR: As of publication, Nstar does not offer any clean energy choices.

NATIONAL GRID (formerly MASS ELECTRIC): gives customers the option of switching to green energy. You can switch all or part of your energy usage to green energy.

Under a program called GreenUp, you can choose the combination of green energy used to power your home. Green energy adds .67¢ to 2.4¢ per kilowatt hour (kWh.)

In addition, the Massachusetts Technological Collaborative (MTC) will match your green energy payment with energy grants to your town.

For more information, visit National Grid at: www.nationalgridus.com/.

For information about MTC, visit www.cleanenergychoice.org.

CLOTHES WASHERS: \$\$

Energy Star clothes washers use 50% less energy and 40% less water. They have a faster spin cycle that reduces drying times, and save over 7,000 gallons of water per year. This can translate into \$100 savings per year in energy costs alone.



Energy Star clothes washers can cost between \$350 and \$1,000 depending on make and model.

REFRIGERATORS: \$\$

Energy Star refrigerators use 40% less energy than 2001 models. They reduce energy use with better insulation, more precise temperature and defrost mechanisms, and better compressors. Furthermore, they can save you \$100 per year. Energy Star refrigerator prices range from \$600 to more than \$1,000.

TANKLESS WATER HEATERS: \$\$

Tankless or instant water heaters save money by only heating water when you need it. Conventional models keep water hot all day long, meaning that energy is used all day to keep it warm. Tankless and instant hot water systems can range in price from \$200 to \$2,000.

HEATING/COOLING SYSTEMS: \$\$

Efficient heating and cooling systems can save hundreds to thousands of dollars annually. Rebates are based on the AFUE (Annual Fuel Utilization Efficiency) rating of the furnace or boiler you install and range from \$150 to \$500. ●

4. PLANT A TREE

Trees naturally shade and cool your home, reducing heating and cooling costs year-round and can be bought at any nursery.

5. USE LOW FLOW WATER PRODUCTS

Hot water is a large percentage of a home's utility bill. Reducing water usage can greatly lower your overall energy bill. For example, showers use 37% of a house's hot water. Leaky faucets also add up - one drip per second can cost \$20 per month.

Low flow showerheads and faucet aerators can reduce your hot water consumption by half and save anywhere between \$100-\$300 per year. Low flow water products can be purchased at any hardware store and cost roughly \$20.

6. SEAL THE AIR LEAKS \$\$

Sealing the leaks in your home can reduce the flow of hot or cold air in and out of the house. Energy loss from all the leaks can equal the same as leaving one window open. Sealing air leaks reduces the need to heat and cool your home. Using caulk, weather stripping and/or door sweeps are simple ways to save money.



Caulking and weather stripping can be purchased at any hardware store for between \$3-\$25 and money-saving rebates are available.

7. INSULATE YOUR HOME \$\$

Installing home insulation can save 25% off a home's heating bill by keeping warm air in during the winter and hot air out during the summer.

While insulation can be purchased at any major hardware store, some insulation jobs are best left to professionals. Prices vary depending on complexity. Rebates of 20% up to \$750 are available for qualifying measures.

8. BUY ENERGY STAR PRODUCTS \$\$

Energy Star products such as water heaters, boilers, dish and clothes washers use less energy, less water and last longer than conventional models. They also help reduce pollution and can lower your energy bill by an additional 30%. Rebates and tax credits are available too (see pages 13 & 14.)

See **ENERGY STAR APPLIANCES** on page 8 for more details.

9. INSTALL BETTER WINDOWS \$\$

Heat loss and gain through windows can account for more than 25% of a home's heating and cooling bill. Energy efficient windows decrease cold drafts in the winter and reduce excess heat from the sun. Rebates available.

There are several options to choose from that vary in price and efficiency. The more expensive and more energy efficient option: Double or Triple glazed low-e Energy Star labeled windows. The less expensive and draft reducing option; storm windows which range from inexpensive plastic sheets designed for one season of use to glass and plastic panels.

10. PURCHASE A PROGRAMMABLE THERMOSTAT \$\$

Programmable thermostats automatically adjust your temperature settings for you. It will turn the heat off when you leave your home and turn it on when you come home. In addition, they have multiple settings for all times of the day and can save \$100 a year in energy costs.



Programmable thermostats can be purchased at most hardware stores, are easy to install, and cost between \$30-\$100. ●

ENERGY STAR APPLIANCES



Energy Star appliances reduce your energy bills. While appliances require an up-front cost, there are rebate and incentives available. In addition, the money saved on your energy bills can help pay for the cost of the appliance. Below are some Energy Star appliances that can save you money. Turn to **“REBATES”** page 13 to see how to get money back!

AIR CONDITIONERS: \$\$

Energy Star air conditioners are anywhere from 10% – 28% more efficient than conventional models. They can save \$20-\$40 a year off your energy bills.

Properly sizing your air conditioner to your room can maximize efficiency without costing you more money.

DISHWASHERS: \$\$

Energy Star dishwashers use 25% less energy than conventional models. This can save you over \$300 over the lifetime of the machine (about \$25-\$50 per year) and 1,000 gallons of water per year compared with a conventional model.

An Energy Star dishwasher can cost between \$350 and \$1,000 depending on make and model.

