

nhsaves@home



Practical Tips for
Saving Energy & Money
at Home

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The information in this booklet is based on information from the following sources:

United States Environmental Protection Agency (www.energystar.gov)

United States Department of Energy (www.eren.doe.gov)

**New Hampshire Governor's Office of Energy and
Community Service (ECS) (www.nhecs.org)**

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To learn more about energy efficiency and renewable energy, see the programs listed at the back of this booklet.

This information is provided by your New Hampshire electric utility.

Introduction

No one likes to spend money unnecessarily. But that's precisely what you may be doing if your home isn't energy efficient. The average New Hampshire household spends \$1,635 a year on energy bills. Poorly insulated electrically heated homes in NH waste enough energy to power the city of Concord for one year. And the electricity generated by fossil fuels for a single home adds more carbon dioxide to the atmosphere than two cars. With just a few cost-effective changes, you can reduce your energy bills by 10 to 50% while also helping the environment.

To understand how your home uses energy, you must view your home as a system of interrelated parts — the structure, the appliances, and the behavior of the people who live there. By improving one part of this system, such as insulation, lighting or your heating unit, you will affect the rest of the system. You'll also enhance your comfort, health, home durability, and energy use. You may have a top-notch energy efficient furnace, but if the ducts leak and your walls, attic, windows and doors are poorly insulated, your energy bills will remain high.

This booklet describes ways that you can improve your home's energy efficiency. Although not all methods can be used in every home, adding insulation is a reliable way to decrease your heating bill. Most homes can benefit from added insulation, even if you think you have enough already.

Keep in mind that any electrical appliance that heats, cools, dries or dehumidifies can use a lot of electricity, particularly if it's more than 15 years old. When you purchase new appliances and equipment, always look for the **ENERGY STAR**[®] label. **ENERGY STAR**[®] is a program of the U.S. Department of Energy (DOE) and the Environmental Protection Agency (EPA) that helps you identify energy efficient products.

Insulation and Air Sealing

What if you could reduce your heating and cooling needs by as much as 30% simply by investing a few hundred dollars? The fastest and least expensive way to do this is to properly insulate and seal your home.

A good insulation system not only provides excellent thermal performance; it also keeps air from entering your home and prevents moisture buildup.

Improving your home's insulation and air leakage will go a long way in reducing drafts, eliminating mold, mildew, and ice dams, and keeping you more comfortable. Best of all, you'll use less energy and see lower energy bills.

Your first step is determining how much insulation you already have and how consistently it was installed. You can determine the R-value of the insulation in your attic, ceilings, exterior and basement walls, floors and crawl spaces, and then compare it with the recommendations on the chart below.

Recommended Insulation Values		
Heat Source ▶	Gas Heat Pump Oil	Electric
Attic	R-49	R-49
Cathedral Ceiling	R-38	R-60
Wall ^(A)	R-18	R-28
Floor	R-25	R-25
Crawl Space ^(B)	R-19	R-19
Slab Edge	R-8	R-8
Basement Interior	R-11	R-19
Basement Exterior	R-10	R-15

(A) R-18 and R-28 exterior wall systems can be achieved by either cavity insulation or cavity insulation with insulating sheathing. For 2" x 4" walls, use either 3½" thick R-15 or 3½" thick R-13 fiberglass insulation with insulating sheathing. For 2" x 6" walls, use either 5½" thick R-21 or 6¼" thick R-19 fiberglass insulation.

(B) Insulate crawl space walls only if the crawl space is dry all year, the floor above is not insulated, and all ventilation to the crawl space is blocked. A vapor retarder (such as 4-mil or 6-mil polyethylene film) should be installed on the ground to reduce moisture migration into the crawl space.

Note: For more information, see: *Department of Energy Insulation Fact Sheet (D.O.E./CE-0180)*, available from: Energy Efficiency and Renewable Energy Clearinghouse, P.O. Box 3048, Merrifield, VA 22116; 800-363-3732; www.ornl.gov/roofs+walls/insulation/ins_11.html.

Improving Your Insulation

- ♦ Insulate your attic if its R-value is less than 22. That's equal to about seven inches of fiberglass or five inches of cellulose insulation.
- ♦ Insulate the walls or floor above your crawl space or basement ceilings if they are not yet insulated.
- ♦ Insulate your exterior walls if they are not insulated.
- ♦ Install rigid foam boards in cathedral ceilings and exterior walls to provide high-density insulation. Install Prop-R vents if needed.
- ♦ Follow instructions provided with insulating products when you install them. Always wear the recommended protective gear.
- ♦ Consider insulating recessed lighting fixtures, but be careful how close you place insulation next to fixtures. Only lighting fixtures marked **I.C. (Insulation Contact)** should come into direct contact with insulation. If you are replacing a fixture, consider installing an **ENERGY STAR®** compact fluorescent fixture to reduce heat buildup. When in doubt, refer to local building codes and follow directions from the lighting manufacturer.

Controlling Moisture

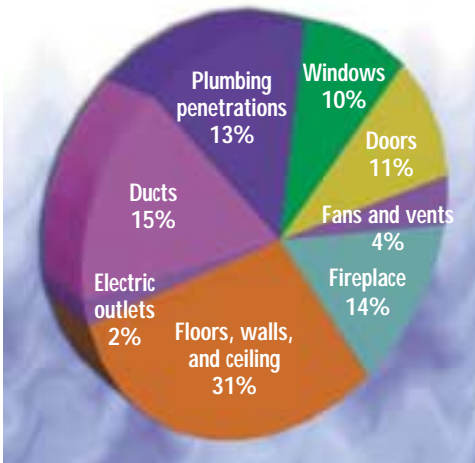
Too much moisture in the home can lead to mold, mildew, rot and structural damage to your home. Try controlling moisture with these tips:

- ♦ Make sure that your kitchen, bathrooms, laundry room, and clothes dryer are properly vented to the outside.
- ♦ Check that your humidifier is running properly to avoid adding too much moisture to indoor air. Adjust the humidifier setting when the indoor temperature changes drastically.
- ♦ Have a professional test heating, cooling and return ducts for air leakage.
- ♦ Reduce moisture migration into your home by fixing any leaks or water buildup at your home's foundation and fixing leaks from the roof, around doors and windows, and from pipes.

Air Sealing Your Home

A fast and easy way to save energy dollars is to seal air leaks in your home. Air sealing consists of caulking, sealing and weather-stripping all seams, cracks and openings to the outside of your house. Reducing the air leaks in your home can save you up to 10% on your energy bill.

To test your home for air tightness, pick a windy day and hold a lit incense stick near any place where air could leak — windows, doors, electrical boxes, plumbing fixtures, electrical outlets, ceiling fixtures and attic hatches. If the smoke moves horizontally, you've found an air leak.



You can also hire a contractor to perform this test using a blower door. Qualifying customers can request this service from their electric company through the **NHSaves@Home/Home Energy Solutions** and **Home Energy Assistance** programs.

How Does Air Escape?

Air can seep into your home through every nook and cranny. Up to one-third of this air enters

through holes and cracks in your ceilings, walls and floors.

Air Sealing Tips

- ♦ Caulk and weather-strip all doors and windows that leak air.
- ♦ Caulk and seal air leaks where plumbing, ducts or electrical wiring comes in from outside walls, floors, ceilings, and soffits over cabinets.
- ♦ Install rubber gaskets behind outlet and switch plates on outside walls.
- ♦ Keep the woodstove or fireplace flue damper tightly closed when not in use. The same flue that draws smoke up the chimney will draw warm air up and out of your house.

- ♦ Make sure gaps and leaks, especially around plumbing penetrations and chimneys, are sealed before adding insulation in your attic.
- ♦ If you have gas or oil heat, have a professional check for dangerous backdrafting and levels of CO₂ and other combustion gases before air sealing. A CO₂ detector is basic safety equipment for your home, particularly if you heat with natural gas.

Where Do Air Leaks Occur?

Air leaks in your home cost you a lot of money. Check the areas listed here for air leakage:



- | | | |
|---------------------------------------|---|------------------------------------|
| (1) Dropped Ceiling | (7) Heating, Cooling & Return Air Ducts | (12) Baseboards & Interior Trim |
| (2) Recessed Light | (8) Door Sashes & Frames | (13) Plumbing Access Panel |
| (3) Attic Entrance | (9) Chimney or Wood Stove Flue Penetrations | (14) Electrical Outlets & Switches |
| (4) Electric Wires & Box | (10) Warm Air Registers | (15) Light Fixtures |
| (5) Plumbing Utilities & Penetrations | (11) Window Sashes & Frames | (16) Sill Plates |
| (6) Plumbing & Furnace Flues | | |

Heating and Cooling Your Home

About 44% of a typical annual energy bill in New Hampshire goes toward heating the home. No matter how you heat your home, keeping your equipment up-to-date and maintained is a great way to save money and keep your house comfortable.

If you have electric heat, you may have electric baseboards, radiant heat, or a heat pump system. Your electrician can answer questions you have about this equipment.

If you have an older gas or oil furnace or boiler, consider replacing it with a new high-efficiency model. If you heat with oil, replace heating equipment with an existing **AFUE (Annual Fuel Utilization Efficiency)** of 56% with a new energy efficient unit with an AFUE of 90%. This can reduce your heating bills by up to 40% and can significantly reduce carbon dioxide emissions. Coal burners that were switched to gas or oil are prime candidates for replacement, as well as gas furnaces without electronic ignition. Consider looking into new geothermal technologies to heat and cool your home as well.

But don't forget about the other ways you can help reduce your energy bills: by insulating, air sealing, and adjusting your thermostat.

Keeping Warm, Saving Energy

- ♦ Lower your thermostat in winter. During the heating season, many families are comfortable with the thermostat set at 68° when they're awake, and lower when they're asleep or away.
- ♦ Install an **ENERGY STAR®** electronic thermostat and program it to automatically adjust when you're away from the house.
- ♦ Make sure warm air registers, baseboard heaters and radiators are clean and not blocked by furniture, carpeting or drapes.
- ♦ Use ventilating fans in your kitchen and baths to pull warm or cool air from your entire house. Turn off fans when they have done the job (usually within an hour) or install timers to shut off fans automatically.

- ♦ On winter days, open draperies and shades on south-facing windows to absorb solar heat. Close shades at night to block the chill from cold windows.
- ♦ Close isolated, unused rooms from the rest of the house and turn down the thermostat or turn off the heat for that room or zone. DO NOT turn off the heat if it might harm your system. (If you use a heat pump, don't close the vents as this may damage your heat pump.)
- ♦ If you have a forced hot-air furnace, check filters once a month and clean or replace as needed.
- ♦ Have your heating system inspected and cleaned yearly to help properly maintain it.
- ♦ Bleed trapped air from hot-water radiators once or twice a season (or contact a professional to do this).
- ♦ Buy energy-efficient **ENERGY STAR®** gas and oil heating equipment. The most energy efficient equipment has high ratings for **Annual Fuel Utilization Efficiency (AFUE)** and **Seasonal Energy Efficiency Ratio (SEER)**. National minimums are 78% AFUE and 10 SEER.

Programmable Thermostats

Contrary to what you may have heard, turning back your thermostat can reduce your energy bills — by as much as 10% — if you turn it down 10 to 15% over an eight-hour period. One of the simplest ways to do this is by installing an automatic setback or programmable thermostat.

A programmable thermostat enables you to define preset times when the heating or air-conditioning systems will turn on. They can be programmed to run less at night and when you're away from home. Programmable thermostats can store at least two settings per day, which you can manually override without affecting the other presets. Always look for the **ENERGY STAR®** label when shopping for thermostats.



Heat Pumps

Heat pumps use electricity to move heat from one place to another. They work in the same basic way as a refrigerator, using a special refrigerant fluid that changes back and forth between liquid and vapor. In the heating mode, a heat pump extracts heat from outside the house and delivers it to the inside. Heat pumps can use either forced warm air or forced hot water delivery systems.

One of the major advantages of a heat pump is that it can also be used for cooling in the summer. A heat pump in the cooling mode works in the reverse of the heating mode, extracting heat from inside the house and delivering it outside, thereby cooling the indoor living space.

Heat pumps can be an environmentally clean, safe and energy efficient way to heat and cool your home. Determining if a heat pump is an appropriate heating and cooling solution for your home depends on many variables. Your electric utility may provide technical assistance and rebates for high-efficiency heat pump systems.



Heat Pump Tips

- ◆ Check filters monthly and clean or change as needed.
- ◆ Don't set back the heat pump thermostat if doing so causes resistance heating to come on. Electric resistance heating is a commonly used backup to the heat pump. Use a setback thermostat designed to work with a heat pump to raise heat without engaging the resistance backup heat.
- ◆ Perform maintenance according to the manufacturer's instructions.

Ducts

Although you can't see it, your duct system may be costing you a lot of money. Leaks in that branching network of tubes in your walls, floors and ceilings may be wasting energy that's intended to go elsewhere in your house.

Ducts are composed of sheet metal, fiberglass and other materials, and transfer warm or cool air to different parts of your home. Ideally, ducts are insulated to save energy, but in many homes this is not the case. Leaky ducts will heat places that don't need to be heated and cool places that don't need to be cooled, adding substantially to your energy bill. If you're installing a new duct system, make sure it is properly sealed and insulated.

Sealing ducts in unconditioned spaces, such as an attic or vented crawl space, is a great way to save dollars. Your savings are twofold. First of all, leaky supply ducts lose heated or cooled air through unsealed joints, and return ducts can also draw cool or warm air into unsealed joints. This means that in the warm months, hot attic air can be drawn into the duct system, making your air conditioner work harder than necessary.

Secondly, in the winter, leaky ducts cause your furnace to remain on longer. Either way, it costs money and makes your home less comfortable. You can do minor duct repairs yourself, but ductwork in unconditioned spaces should be performed by qualified professionals.

Duct Tips

- ◆ Check ducts for air leakage. Examine sections that have separated and look for obvious holes.
- ◆ Use mastic instead of duct tape to repair and seal ducts.
- ◆ Consider insulating both ducts and the basement walls. Keep in mind that insulating ducts in the basement will make the basement colder, and could cause water pipes and drains to freeze.



- ♦ Install supply and return registers in finished basement rooms.
- ♦ Prevent moisture buildup by making sure that a well-sealed vapor barrier exists on the outside of the insulation on cooling ducts.
- ♦ Hire a professional for duct repair, duct sealing, duct insulation and duct installation.

Fireplaces and Wood-Burning Stoves

Fireplaces in general make poor heating devices. They will heat the surrounding area quickly, but much of the heat is drawn straight up the chimney. A large fire can send up to 24,000 cubic feet of air per hour outside, which is replaced by cold air coming in. Your heating system must then reheat the cold air, which is again drawn straight up the chimney.

Fireplaces also generate significant air pollution. If wood is readily available in your area, consider using a wood-burning stove to help heat your home. Modern stoves minimize smoke and pollutants and heat more efficiently than a fireplace.

Fireplace Tips

- ♦ Close the fireplace damper when the fireplace is not in use. An open damper is the same as keeping a 48-inch window wide open in the winter. When you use your fireplace, open dampers (if they exist) at the bottom of the firebox, or open a nearby window slightly. You may also want to turn your heat down to 50° or 55° and close doors leading to the room.
- ♦ Install tempered glass fireplace doors to reduce heat loss.
- ♦ Consider installing a heat-air exchange system to blow warmed air back into the house.
- ♦ Consider installing outdoor air combustion inlets to separate the air inside your house from the air used to burn wood.
- ♦ Make sure that the seal on the flue damper is tight.

- ♦ Caulk around the fireplace hearth.
- ♦ Use fireplace grates made of C-shaped metal to improve air circulation.
- ♦ Plug and seal the chimney flue if you never use your fireplace. Hang a tag to show that the flue has been sealed.

Cooling Your Home

Think bigger is better? Not when it comes to air conditioners. In fact, an oversized room air conditioner will perform less efficiently and will not dehumidify properly compared to a window unit that is properly sized for the room.

Rooms of up to about 150 square feet (a 15 x 10 foot room or smaller) will be adequately cooled by a 5,000 BTU/ hour unit. Central air conditioning systems should be sized by professionals.

Recommended Air Conditioning

Area to be Cooled (square feet)	Capacity (BTU/hour)
100 to 150	5,000
150 to 250	6,000
250 to 300	7,000
300 to 400	9,000
400 to 450	10,000
450 to 500	12,000
500 to 700	14,000
700 to 1,000	18,000

Keeping Cool, Saving Energy

- ♦ If you have a central air conditioner, set the fan to shut off at the same time as the cooling unit (compressor). Don't use the central fan for air circulation. Instead, use circulating fans in each room, as they are less expensive to run.
- ♦ Use interior fans, ceiling fans, and whole-house fans for a low-cost alternative to air conditioning. Whole-house fans are effective when temperatures dip at night to pull cool air through the house and vent hot air through the attic. Make sure your attic ventilation can accommodate the airflow from a whole-house fan. If your existing ventilation can only accommodate restricted air flow, then the effectiveness of your whole-house fan will be diminished.
- ♦ Raise the thermostat in the summer. Raising the thermostat two degrees will reduce your cooling costs about five percent. A 78° setting is acceptable for most people.
- ♦ When you turn on the air conditioner, don't set the thermostat lower than normal. It won't cool your home more quickly, and could make it too cool, wasting energy.
- ♦ Close window treatments during the warmest parts of the day.
- ♦ Position heat-producing items such as lamps and televisions away from the air-conditioning thermostat. The extra heat may cause the air conditioner to run longer than necessary.
- ♦ Turn off your air conditioner when away from home for a few days.
- ♦ Keep the outdoor unit of your air conditioner free from plants, dirt and grass clippings. Wash the coil periodically with a garden hose. Shade the outdoor unit if possible. A unit exposed to the sun uses up to 10% more electricity than a shaded one.
- ♦ Clean or replace the air conditioning filter monthly.
- ♦ Buy **ENERGY STAR®** equipment. Central systems are rated by **Seasonal Energy Efficiency Ratio (SEER)**, and window units by **Energy Efficiency Ratio (EER)**. Look for a SEER rating of 12 or higher and an EER rating of at least 10.

Water Heating

Your water heater uses a significant amount of energy. It's the third largest energy consumer in your home, and is typically responsible for 14% or more of your energy bill. The best way to save on your water heater is to use less hot water and turn down the water heater thermostat.

A family of four who showers for five minutes daily uses 700 gallons of water per week — a three-year supply of drinking water for a single person. To reduce the amount of water you use, install low-flow, non-aerating showerheads and faucet adapters, and consider insulating your electric water heater.

Water Heating Tips

- ◆ Using less water, besides conserving water, uses less energy to run the well pumps or circulating pumps used to deliver water to the faucets.
- ◆ Set the water heater thermostat to 120° (if adequate).
- ◆ Insulate the hot water tank of electric water heaters. (Contact a professional or check the manufacturer's label before doing so). Take care not to cover the bottom of the water heater or the thermostat.
- ◆ Once or twice a year, drain a bucket of water from the water heater to reduce sediment. Sediment inhibits heat transfer and makes your water heater work less efficiently. (Follow the manufacturer's recommendations for doing this.)
- ◆ Fix leaky faucets and other water leaks.
- ◆ Don't run water when shaving or washing. Fill the sink halfway instead.
- ◆ Take showers instead of baths. A bath uses up 15 to 25 gallons of hot water, as opposed to 10 gallons during a five-minute shower.



- ♦ Install low-flow showerheads and faucet control devices.
- ♦ Begin shopping for a water heater when your old one is more than seven years old. Most water heaters last 10 to 15 years, but it helps to have done your research beforehand so you'll know what to purchase when your water heater does start leaking or fails altogether.
- ♦ Consider installing a heat pump hot water heater. This equipment can dehumidify your basement as it converts waste heat into hot water. Consult a qualified professional to determine your most effective alternatives.
- ♦ Consider installing a water heat recovery system for drain water waste.

Hot Water Usage

A typical home's water consumption by place of use (based on national averages).



Everyone loves the look of an expansive window with a great view. But unless you use energy efficient windows, they're a big cause of energy loss in your home, and can account for 10 to 15% of your energy bill.

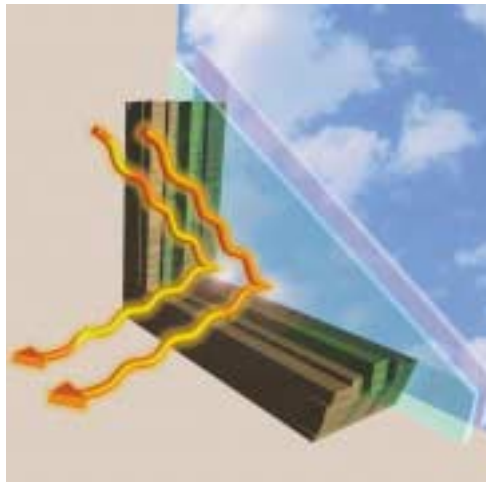
One of the best steps you can take is to replace single-pane windows with double-pane **ENERGY STAR**® models. Although they are costly to install, new windows will reduce your energy usage over the long haul.

Newer windows are framed in a variety of materials — aluminum, wood, vinyl, fiberglass — and the glass can be glazed with several types of energy efficient coatings. Choose windows that are gas filled and use glass coated with low-emissivity (“low-e”) or spectrally selective material to prevent heat loss.

If you can't afford to replace your windows, install exterior or interior storm windows. Look for storm windows made of strong, durable materials with interlocking or overlapping joints and weatherstripping. You can also use heavy-duty clear plastic sheets on window frames during the winter. Remember to seal the plastic tightly to keep the cold air out.

Cold-Climate Windows

Double-pane, low-e windows save energy by reflecting heat back into the room.



Buying New Windows

- ♦ Select **ENERGY STAR**®-rated windows. Also, look for a low **U-value**. The lower the U-value, the better the insulating power of the window. A U-value of 0.35 or lower is recommended. Such windows are typically double-glazed and use a low-e coating.
- ♦ Choose windows with an air leakage rating of 0.3 cubic feet per minute or less.

Improving Window Efficiency

- ◆ Install storm windows and lock them for a tight seal.
- ◆ Keep window coverings closed at night to conserve heat. Open them during the day to absorb solar heat.
- ◆ Repair and weatherize storm windows.
- ◆ Keep windows clean to improve solar heating.
- ◆ Use tight-fitting insulating window shades on drafty windows.

Lighting

One of the fastest ways to save on your energy bills is to make your lighting more efficient. Replacing just one quarter of your home's high-use lights with fluorescents can save about 30% of your lighting costs.



Indoor Lighting

Your best bet for energy efficient lighting is compact fluorescent lamps, commonly called **CFLs**. These bulbs provide high-quality lighting and use considerably less energy than incandescent bulbs — plus they last six to ten times longer. Compact fluorescent bulbs may be more expensive to buy, but they pay for themselves with the energy they save.

Save on Indoor Lighting

- ♦ Purchase lighting products with the **ENERGY STAR®** label.
- ♦ For everyday lighting, consider using compact fluorescent bulbs. They are four times more energy efficient than incandescent bulbs, using 70% less electricity, and provide identical lighting. They also give off less heat and last longer. When you shop, check the sizing of these bulbs carefully; the newer, smaller fluorescent bulbs now fit many more home fixtures.
- ♦ When you shop for new lighting, consider purchasing dedicated compact fluorescent fixtures with built-in ballasts that use pin-based replacement bulbs.
- ♦ Turn off lights when you leave a room or when they aren't needed. Consider using timers, photocells, or occupancy sensors to further reduce costs.
- ♦ Install light-colored, loose-weave window treatments to permit sunlight to enter during daylight hours. Light-colored curtains will also reflect heat.
- ♦ For the strongest light, clean lighting fixtures, bulbs and exterior windows.
- ♦ Use task lighting rather than overhead or general lighting. Ideal locations for task lighting are offices and under kitchen cabinets.
- ♦ For spot lighting, try using compact fluorescent bulbs with reflectors to provide directed light.
- ♦ Use three-way compact fluorescent bulbs to adjust the amount of light needed at different times.
- ♦ Install four-foot fluorescent T8 lights with reflective backing and electronic ballasts in areas such as your garage, laundry room and workroom.
- ♦ Replace incandescent night lights with 4-watt mini-fluorescent or electro-luminescent night lights to increase energy efficiency. Luminescent lights are also cool to the touch.

Outdoor Lighting

Outdoor lights provide beauty and security for your home. When shopping, you'll find all types of outdoor lights, from low-voltage pathway lights to motion-detector floodlights. You may also see lights that are powered by small photovoltaic (PV) modules. Lights so equipped convert sunlight into electricity. Try using these lights around areas not close to a power supply line.

Save on Outdoor Lighting

- ◆ Use outdoor lights that automatically turn off during the day by using a photocell unit or a timer.
- ◆ Install compact fluorescent bulbs outdoors. The long life of such bulbs make them an ideal choice. Make sure that you purchase lamps with cold-weather ballasts. Choose **ENERGY STAR**® light bulbs and fixtures.



Torchiere Lamps

Halogen bulbs, such as those commonly used in torchiere lamps, can create fire hazards due to excessive heat buildup. For a safer and more energy efficient alternative, use compact fluorescent lamps in your torchiere light fixtures.

Appliances add significantly to your energy bill — about 20%. The biggest energy consumers are refrigerators, air conditioners, clothes washers, and clothes dryers.

When you shop for appliances, remember that each appliance costs you in two ways: first, when you first buy it, and later, when you use it. Consider the purchase price the “down payment.” The energy of operating an appliance is what you’ll pay for the next 10 or 20 years, depending on the appliance. Refrigerators typically last 15 to 20 years, room air conditioners and dishwashers about 10 years and clothes washers about 14 years.

Always look for the **ENERGY STAR**® label when you shop. Such appliances have been identified by federal agencies as being the most energy efficient products in their classes. These appliances typically exceed minimum federal standards by a wide margin.

The federal government requires that most appliances display a yellow and black **ENERGYGUIDE** label to help you comparison shop. **ENERGYGUIDE** labels will not tell you which appliance is the most efficient, but they will tell you how much it costs to run the appliance per year. You can then compare operating costs among models yourself.

A simple way to save energy costs for “instant-on” appliances, such as televisions, is to unplug them when you won’t be using them for a few days. Such appliances draw small amounts of electricity even when they’re turned off.

Dishwashers

The major cost of running a dishwasher is heating the water.

ENERGYGUIDE labels show you how much power is needed to heat the water based on the annual cost of gas and electric water heating.

What’s a Kilowatt?

A kilowatt is a unit of electricity equal to 1,000 watts. A kilowatt-hour (kWh) is the measure of electricity over time. For example, cooking a pot of rice for an hour consumes 1,000 watt-hours, or 1 kWh, of electricity.

Your energy bill indicates how many kilowatt-hours you use, along with the cost per kWh. A single kWh typically costs about 12 cents. A typical New Hampshire household uses about 6,750 kWh annually, resulting in a cost of about \$810 each year.

Dishwasher Tips

- ◆ Check the manufacturer's recommendations for water temperature. Some dishwashers use internal heating elements so that you can lower the thermostat on your water heater to 120°F.
- ◆ Scrape off large food pieces and bones, rather than rinsing. Don't bother to soak or pre-wash dishes unless food is burned or dried.
- ◆ Wash dishes when your dishwasher is full but not over-loaded.
- ◆ Avoid using "rinse and hold" for just a few dishes. This feature uses three to seven gallons of hot water.
- ◆ Use the "air dry" option on your dishwasher. If your dishwasher doesn't have an automatic air-dry switch, turn off the control knob after the final rinse and prop the door open slightly.

Based on standard U.S. Government tests

ENERGYGUIDE

Refrigerator-Freezer
With Automatic Defrost
With Side-Mounted Freezer
Without Through-the-Door-Ice Service

XYZ Corporation
Model ABC-W
Capacity: 23 Cubic Feet

Compare the Energy Use of this Refrigerator with Others before You Buy.

This Model Uses 776 kWh/year	
Energy Use (kWh/year) range of all similar models	
Uses Least Energy 742	Uses Most Energy 836

kWh/year (kilowatt-hours per year) is a measure of energy (electricity) use. Your utility company uses it to compute your bill. Only models with 22.5 to 24.4 cubic feet and the above features are used in this scale.

Refrigerators using more energy cost more to operate. This model's estimated yearly operating cost is:

\$68

Based on a 1995 U.S. Government national average cost of 8.4¢ per kWh for electricity. Your actual operating cost will vary depending on your local utility rates and your use of the product.

Important: Removal of this label before consumer purchase is a violation of Federal law (42 U.S.C. 8302).

How to Read the ENERGYGUIDE Label

When shopping for a new appliance, the **ENERGYGUIDE** label gives you two important pieces of information you can use for comparison of different brands and models:

- ◆ Estimated energy consumption on a scale showing a range for similar models.
- ◆ Estimated yearly operating cost based on the national average cost of electricity.

- ♦ When shopping for a dishwasher, comparison shop by using the **ENERGYGUIDE** labels. **ENERGY STAR**® dishwashers use less energy and exceed minimum federal standards for energy consumption by at least 13%.

Refrigerators

To determine the energy efficiency of a refrigerator, check the **ENERGYGUIDE** label. The smaller the number, the less it will cost you to operate the appliance. And don't forget to shop for **ENERGY STAR**® refrigerators. You can save from \$35 to \$70 per year over models built just 15 years ago. That adds up to between \$525 and \$1,050 over a typical refrigerator's 15-year life.

Refrigerator Choices

Refrigerators with the freezer on top are more efficient than those with the freezer on the side.

Refrigerator/Freezer Tips

- ♦ Purchase a refrigerator with automatic moisture control. Such products are designed to prevent moisture from collecting on the cabinet exterior without adding a heater. (This is not the same thing as an "anti-sweat" heater. Models with such heaters consume five to ten percent more energy than models without a heater.)
- ♦ Keep your refrigerator between 37°F and 40°F, not colder. Freezers should be kept at 5°F; long-term storage freezer areas should be kept at 0°F.
- ♦ Check the temperature in your refrigerator by placing an appliance thermometer in a glass of water and leaving it in the center of your refrigerator for 24 hours. To check the freezer temperature, place a thermometer between frozen packages for 24 hours.



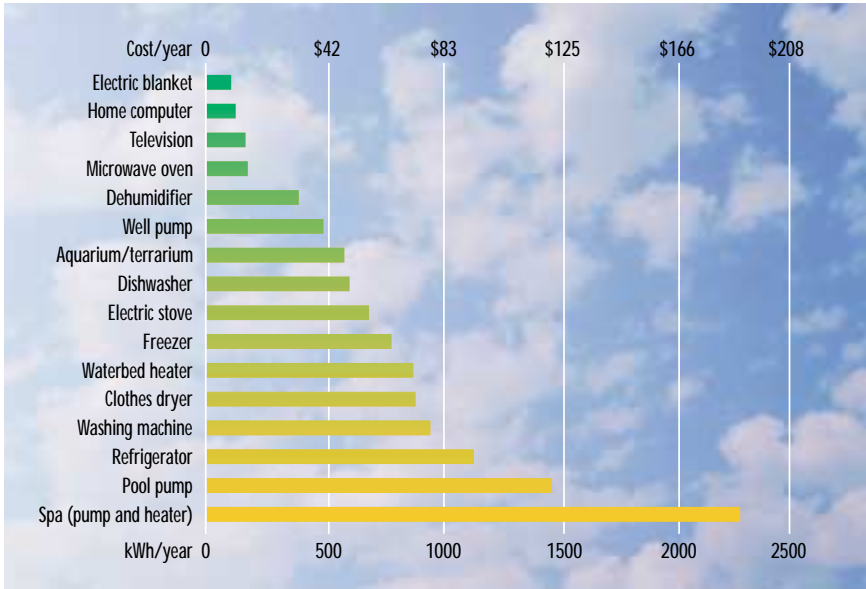
- ♦ With manual-defrost units, regularly defrost the refrigerator and freezer. Frost buildup burns energy. Keep frost to less than a quarter inch.
- ♦ Keep refrigerators and freezers full but not overcrowded. Arrange the contents in a way that allows air to circulate.
- ♦ Check that your refrigerator door is airtight. Test the door seal by closing a dollar bill halfway in the door. If you can pull out the bill easily, you may need to adjust the latch or replace the seal.
- ♦ Avoid opening the refrigerator and freezer doors unnecessarily.
- ♦ Cover foods and liquids stored in the refrigerator. Uncovered foods add moisture and make the refrigerator compressor work harder.
- ♦ If you're going to be away for more than a week, remove perishable items and turn up the thermostat a few degrees.
- ♦ Don't put foil on refrigerator shelves. It blocks airflow and makes it harder to cool food. Likewise, don't put paper bags or anything else behind the refrigerator where they can block airflow.
- ♦ Place the refrigerator and freezer away from heat-producing appliances such as stoves and ovens. Keep the refrigerator out of direct sunlight. Use your refrigerator's efficiency setting (if it has one) to reduce the number of hours it needs to run.
- ♦ Clean coils will reduce your refrigerator's run time. Vacuum condenser coils yearly (unless you have a no-clean-condenser model).
- ♦ Comparison shop with the **ENERGYGUIDE** label and buy **ENERGY STAR**® products.

Energy Saving Kitchen Tips

- ◆ Keep the kitchen faucet lever in the cold position when using small amounts of water. Keeping it in the hot position uses energy to heat the water even though it might not reach the faucet.
- ◆ Clean range-top burners and reflectors regularly. They will reflect heat better and save energy.
- ◆ Use a cover when boiling water; the water boils faster.
- ◆ Match the size of a pot or pan to the heating element.
- ◆ With electric stoves, turn off the burners a few minutes before cooking is complete. The heating element stays hot long enough to finish cooking without using extra energy. You can use this trick with electric ovens as well.
- ◆ For small meals, use electric skillets or toaster ovens rather than a full-sized oven or stove. Toaster ovens use a third of the energy used to power a full-sized oven.
- ◆ In the summer, cook outdoors or prepare cold meals to avoid heating up the kitchen and adding moisture to the air.
- ◆ Use pressure cookers and microwave ovens for even more savings. Both appliances reduce cooking times. Microwaves use less energy and cook food in about one-fourth the time of a conventional oven.
- ◆ Consider purchasing dual-purpose or convection microwave ovens (ones that both bake and microwave) or flashbake ovens.
- ◆ Look for a gas oven or range with an automatic electronic ignition system. Such systems save gas because they don't use a pilot light.
- ◆ Check for blue flames on your gas appliances. Yellow flames indicate that the gas is burning inefficiently. If you see yellow flames, contact the manufacturer or your local gas utility for assistance.

How Much Electricity Do Appliances Use?

This chart shows the amount of energy used and the amount it costs to run various appliances over the course of a year (based on national averages). As shown, a refrigerator uses nearly five times the electricity of the average television.



Laundry

Just like dishwashers, most of the energy costs of washing your clothes — at least 80% — goes to heating the water. You can reduce the cost of washing clothes by using less water and by using cooler water. The warm or cold setting on your washer will generally do a good job. Oily stains may require a hot setting. Switching from hot to warm water can cut your laundry energy use in half.

When you shop for a new clothes washer, always look for an **ENERGY STAR®** machine. These machines may be more expensive, but they use about a third of the energy and less water than typical machines. In addition, **ENERGY STAR®** washers save money when you dry because they remove more water during the spin cycle.

When shopping for a new dryer, look for one with a moisture sensor that automatically shuts off the machine when clothes are dry. This not only saves money, but also saves wear on your clothing due to over drying.

Laundry Tips

- ♦ Wash clothes in cold water using cold water detergent when possible.
- ♦ Don't use too much detergent. Too many suds require extra rinsing.
- ♦ Do two or more loads in a row.
- ♦ Consider drying clothes on an outside line.
- ♦ Fully load your washer and dryer. If you are washing a small load, set the water level appropriately.
- ♦ Dry towels and heavy items separately from lighter-weight clothing.
- ♦ Inspect your dryer vent periodically to make sure it's not blocked with lint. This saves energy and may prevent a fire. Use rigid venting material rather than plastic so that the venting material won't collapse and block airflow.
- ♦ Improve air circulation by cleaning your dryer's lint filter after every load.
- ♦ Avoid over drying clothes. Use your machine's moisture sensor (if it has one).
- ♦ Use your machine's cool-down cycle to allow clothes to dry using residual heat in the dryer.
- ♦ Comparison shop with the **ENERGYGUIDE** label and buy **ENERGY STAR®** products.



Home Office and Entertainment

With more people working and playing at home, it's no surprise that there is an increase in the energy use from home offices and entertainment systems. One of the simplest things you can do to reduce energy use is to turn off equipment when it's not in use. Most "instant-on" items such as televisions and VCRs draw power even when they're not in use.

Other helpful tips include:

- ◆ Turn off your computer and printer when they won't be used for an hour or more.
- ◆ Use the "sleep" function on computer equipment. This feature can save up to 50% of the energy used by computer CPUs and 80% used by monitors. To maximize energy savings, shorten the setting on your computer's sleep cycle and your monitor's "power down" function.
- ◆ Turn off your monitor when it won't be used for a few minutes or more. (Your monitor can be turned back on quickly, unlike your computer.)
- ◆ Don't send a fax transmission sheet with every transmission. Rather, use stick-on labels on the first page of fax messages.
- ◆ Buy a copier based on your needs. A mid-volume copier uses 70% more energy than a low-volume model.
- ◆ Run copies in batches and use duplexing when possible.
- ◆ Look for **ENERGY STAR**® products when making purchases.

Saving Energy with Other Appliances

Dehumidifiers — A dehumidifier can use as much energy as an air conditioner. To reduce your reliance on a dehumidifier, reduce moisture in other ways:

- ♦ Set the unit to its lowest possible setting.
- ♦ Use the thermostat on your dehumidifier so it will cycle on and off as needed.
- ♦ Keep the dehumidifier away from your air conditioner and moisture-producing appliances such as coffee pots, aquariums and vaporizers.
- ♦ If you need to run a dehumidifier and have an electric hot water tank, then consider installing a heat pump hot water heater.
- ♦ Comparison shop with the **ENERGYGUIDE** label and buy **ENERGY STAR**® products.

Waterbeds — An electric waterbed heater can use as much energy as a water heater or refrigerator, and typically costs from \$50 to \$240 to run per year. To save energy:

- ♦ Insulate yourself from the bed by placing thick foam padding between you and the cool surface of the bed.
- ♦ Try using a timer to turn on the heater a few hours before you retire and turn it off three or four hours before you wake up.
- ♦ Use heavy mattress covers and insulate the bottom and sides of the bed with rigid foam insulation to keep the heat in the bed, rather than in the room.
- ♦ Cover the waterbed daily with a thick comforter or quilt.

Well Pumps — Well pumps cost from \$50 to \$80 to run annually. To save energy costs, reduce your water use and have the pump checked by a professional if you suspect a leak or malfunctioning pressure switch (which can cause the pump to run too often).

Pool Pumps — A pool pump costs between \$50 and \$300 to run per year. Use a timer to limit the pump's use. Running the pump eight hours a day works well with most filtering systems. Save additional money by turning off the pool heater when you'll be away for a few days.

Spas and Hot Tubs — Spas and hot tubs use about \$150 to \$600 in energy yearly. To save energy:

- ♦ Keep the spa or tub covered with a tight fitting insulated cover when not in use.
- ♦ Insulate the sides and bottom of your unit when it's installed.
- ♦ Try lowering the water temperature to 60-80° F when you won't be using it for more than a day.
- ♦ Turn off the water heater when you're away on vacation.

Auto Block Heaters — An auto block heater can cost \$15 to \$100 to run per year. To reduce energy costs:

- ♦ Use the heater only one hour before you start the car.
- ♦ Keep antifreeze fresh to avoid engine block freezing.
- ♦ With diesel engines, try installing a heavy-duty plug-in appliance timer to run the heater for about an hour before you need to start the car.

Space Heaters — A space heater can cost you up to \$70 per month to run if it's used 12 hours a day. Your best bet is to use it only when adding heat for a special purpose. Radiant (quartz) heaters are better at heating people than space and are less expensive to operate. Keep the thermostat at the lowest setting that will keep you comfortable.

Furnace Fans — If you heat with gas or oil, a furnace fan costs \$25 to \$200 to run yearly. An improperly set fan thermostat can cause cold air to blow out of warm air registers after the furnace turns off, or it may cause the fan to turn off when the furnace is running. Switching a furnace fan from continuous circulation to thermostat-controlled could save you up to \$100 per year. Contact a professional for assistance.

For More Information

NHSaves

Your electric company is part of NHSaves, the statewide energy efficiency initiative.

NHSaves is about people in New Hampshire doing the right thing — working together to save energy, reduce costs, and protect the environment. The mission of NHSaves is to advance the efficient use of energy, while caring for the environment and promoting economic development in New Hampshire. NHSaves programs include home audits and incentives to make your home more energy efficient, rebates on **ENERGY STAR®** lighting and appliances, and assistance in building a very efficient new home.

For more information about all NHSaves programs, go to **www.nhsaves.com**, call **1-866-266-2420**, or contact your electric company directly.

Your New Hampshire Utilities

Connecticut Valley Electric Company

800-649-2877

www.cvps.com/subs/cvec/cvec.html

Granite State Electric Company

800-322-3223

www.granitestateelectric.com

New Hampshire Electric Cooperative

800-478-4328

www.nhec.com

Public Service of New Hampshire

800-662-7764

www.psnh.com

Unitil

Capital District 1-800-852-3339

www.unitil.com

Seacoast District 1-800-582-7276

The **Home Energy Solutions*** and **Home Energy Assistance*** programs provide help in implementing many of the energy saving suggestions in this booklet. As part of these programs, you may receive a **Home Energy Rating** that helps you to understand your house as a system and determine how energy efficient it is on a scale of 0 to 100.

A **Home Energy Rating** compares your home's energy efficiency to a nationally recognized baseline of energy efficiency specifications. This "miles per gallon" rating will help you make the most informed choices to improve your home's energy efficiency. The result is a comfortable, healthy, and durable home that uses less energy.

Part of your **Home Energy Rating** involves a blower door test to find where air leaks out of your home. Air leakage affects your electric heating bill more than you would think. Our technicians will seal these leaks for you and increase the overall comfort of your home.

* Connecticut Valley Electric is not offering the **Home Energy Solutions Program** at this time. The **Home Energy Assistance Program** is available to those who are income qualified.

Other Helpful Sources in New Hampshire

Government Agencies

New Hampshire Public Utilities Commission

The New Hampshire Public Utilities Commission regulates utilities, provides customer protection, and provides information on electric competition and residential building codes.

603-271-2431

www.puc.state.nh.us

Governor's Office of Energy and Community Services

The Governor's Office of Energy and Community Services promotes a sustainable, environmentally sound, and least-cost energy future for New Hampshire and administers programs for low-income households and refugees.

603-271-2611

www.nhecs.org

State & Community Programs

Weatherization Assistance Program and other energy services are provided to low-income residents statewide at no cost. Contact your local agency listed below for more information:

Belknap and Merrimack Counties

Community Action Agency, Belknap/Merrimack Counties:

Concord	603-225-6880
Franklin	603-934-3444
Laconia	603-524-5512
Meredith	603-279-4096
Suncook	603-485-7824
Warner	603-456-2207

Rockingham County

Rockingham Community Action:

Portsmouth	603-436-3896 or 800-639-3896
Salem	603-898-8435

Hillsborough County

Southern New Hampshire Services:

Manchester	603-647-4470 or 800-322-1073
Nashua	603-889-3440 or 877-211-0723
Peterborough	603-924-2243

Cheshire and Sullivan Counties

Southwestern Community Services:

Claremont	603-542-9528
Keene	603-352-7512 or 800-529-0005

Strafford County

Strafford County Community Action:

Dover	603-749-1334
Farmington	603-755-9305
Milton	603-652-9893
Rochester	603-332-3963

Coos, Carroll and Grafton Counties

Tri-County Community Action:

Berlin	603-752-3248
Carroll County	603-323-7400 or 888-842-3835
Colebrook	603-237-8168
Lancaster	603-788-4477
Lebanon	603-448-4553 (<i>Listen</i>)
Littleton	603-444-6653
Plymouth	603-536-8222
Woodsville	603-747-3013

Federal Contacts

ENERGY STAR

888-STAR YES (888-782-7937)
www.energystar.gov

U.S. Department of Energy's Energy Efficiency and Renewable Energy Clearinghouse (EREC)

800-DOE-EREC (800-363-3732)
www.eren.doe.gov

Other Contacts

Association of Home Appliance Manufacturers

202-872-5955

www.aham.org

American Council for an Energy Efficient Economy

202-429-0063

www.aceee.org

Consortium for Energy Efficiency

617-589-3949

www.ceefornt.org

Northeast Energy Efficiency Partnership

781-860-9177

www.neep.org



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