Energy-Saving Tips

Lomond Business Center
10323 Lomond Drive
Manassas, VA 20109
703-335-0500 or 1-888-335-0500
www.novec.com

NOVEC Use It Wisely®

NOVEC Use It Wisely®

Save Energy in Your Home and Reduce Its Carbon Footprint

American homes use 37 percent of U.S. electricity and produce 21 percent of the nation's carbon emissions, according to the Building Performance Institute. One-third of American homes are at least 45 years old and many need to be remodeled with new energy-saving appliances and building materials to conserve energy use and reduce the nation's carbon emissions. In addition, many homes built after 1963 were not constructed with energy-saving building technology.

The details in the following pages, plus the usage chart on the inside back cover, suggest ways to reduce electricity consumption in most homes in the U.S.

A home's "carbon footprint" is the approximate amount of greenhouse gases created directly and indirectly from the energy used. Use the following information to help reduce carbon emissions and energy consumption in your home.

Heating and Cooling

Almost half of household energy goes to heating and cooling.

- In old and new units, replace or clean the air filter monthly.
- Have systems checked by a licensed service technician yearly.
- Make sure outdoor units have at least a two-foot clearance on all sides for proper air flow.
- Set an energy-saving programmable thermostat to 78 degrees in summer and 68 degrees in winter.
- When it's time to replace an old unit, purchase a high-efficiency model with an annual Fuel Utilization Efficiency Rating of at least 90.

Water Heater

Water heating accounts for approximately 13 percent of a residential electric bill.

- Lower the thermostat to 120 degrees. Keep it at 140 degrees if your dishwasher does not have a temperature booster feature.
- Insulate hot water pipes in an unheated area, such as a crawl space, garage, or outdoor utility room.
- Purchase an energy-efficient water heater from NOVEC Energy Solutions. The Marathon water heater is warranted not to leak for as long as the buyer owns his or her home, and it will not end up in a landfill.

Insulation

The most cost-effective way to reduce energy bills, eliminate cold drafts, and avoid moisture problems is to plug air leaks and then insulate.

- Install thin foam seals under switch and outlet covers on exterior walls.
- Weather-strip or insulate the attic door or hatch.

• Install R-38 insulation between attic floor joists. If joists are visible with the existing insulation, add more. Do not block soffit vents.
• Install R-19 insulation between house walls and under the floor above a crawl space.

Windows and Doors

Heat travels through glass. Prevent losing 15 to 30 percent of heated or cooled air.
• Weather-strip and caulk around window and door frames.
• Add storm windows to single-pane windows or install double-gazed, low-emissivity coated windows. New energy-efficient windows with Low-E coatings can reduce energy loss as much as 50 percent, according to the U.S. Department of Energy.
• Apply Low-E coatings to existing windows and glass doors.
• Install storm doors to all exterior entrances.

Kitchen

Appliances account for about 20 percent of household energy consumption. Purchase models with the ENERGY STAR label to cut operating costs.

• Refrigerator – Open and close refrigerator and freezer doors quickly and infrequently. Locate the refrigerator away from the oven and stove. Keep condenser coils clean. Door gaskets should be tight enough to hold a dollar bill firmly in place. If not, replace the gaskets. Refrigerators manufactured before 1993 use more than three times the electricity modern models use. Replacing a 1992 side-by-side, 20-cubic foot model with a new ENERGY STAR model will save about $116 a year in electricity and eliminate hundreds of pounds of CO_2 from being emitted into the atmosphere. To calculate individual savings visit www.energystar.gov.
• Oven – Preheat oven for only 10 minutes for bakery-type foods. Many other dishes can be heated or baked without preheating the oven. Avoid opening the door to peek at food cooking. Use a microwave and toaster oven when practical; a microwave draws less than half the power of a conventional oven and cooks in a fraction of the time.
• Stove – Match bottoms of pots and pans to burner sizes. Cover pans when bringing water to a boil and cooking most foods.
• Dishwasher – Run the dishwasher only when full to save hot water. Letting dishes air dry saves more energy. Don't let hot water run continuously when washing dishes by hand.

Lighting

Traditional lighting consumes approximately 11 percent of home electricity. Using new energy-saving lighting can reduce this consumption significantly. Look for the ENERGY STAR label when buying light bulbs.
• Turn lights off when leaving a room, or install motion sensors in light fixtures.
• Replace incandescent indoor and outdoor bulbs with compact fluorescent bulbs. CFLs use 75 percent less electricity and last 10 times longer.
• If you have torchiere fixtures with halogen light bulbs, consider replacing them with CFL torchiere light bulbs. CFL torchiers use 60 to 80 percent less energy, can produce more light and are safer than halogen bulbs, which reach dangerously high temperatures.
• Use light-emitting diode (LED) lights where applicable.
• Use LED holiday lights. They use 90 percent less energy than incandescent holiday lights, last much longer, and are safer because they do not produce heat.
• Install task lighting under kitchen cabinets and over tool benches and desks to avoid illuminating entire spaces.
• Use light-colored paint on walls and ceilings to reflect light.

Electronics

Modern electronic devices consume electricity even when they are turned off. ENERGY STAR models consume less than non-rated devices.

• Unplug battery chargers or power adapters when devices are fully charged.
• Turn off televisions, DVD players, game consoles, computers and other electronics when not in use. Better yet, plug them into a power strip and turn off the power.
• Generally, big-screen high-definition TVs use the most electricity. Consider annual operating costs when selecting a new TV.

Bathrooms

• Use exhaust fan to remove humidity during the summer. Remember to turn the fan off to avoid venting cooled air.
• Install low-flow showerheads and shower for less than 10 minutes.
• Fix leaky faucets.
• Caulk or use spray foam around plumbing penetrations in exterior walls.

Bedrooms

• Do not block heating and cooling vents with furniture.
• Install ceiling fans, if there is enough headroom, to distribute air. Run the blades clockwise in winter to force warm air down, and counter-clockwise in summer to help make the room feel cooler.

Fireplaces

Snuggling up on the sofa before a crackling fire may sooth the soul, but not the pocketbook. The draft the fire creates sucks heated room air up the chimney. The fireplace draws cold air down into the house when the damper and glass doors are open after the fire dies.

• Close damper and tempered glass doors when a wood-burning fireplace is not in use.
• Make sure the flue damper closes completely.
• Caulk around the fireplace hearth.
• Install a metal-lined heat exchanger, which will increase the amount of heat released in the room.
• Safety Reminders: Have a chimney sweep clean the flue annually to prevent fires. Keep a fire extinguisher nearby.

Laundry Room

• Wash full loads.
• Wash dark laundry in cold water, light-colored laundry in warm water, and soiled items and bed sheets in hot water. Rinse all laundry in cold water.
• Remove lint from the dryer vent after every use to save energy and prevent fires.
• Purchase a washer with the ENERGY STAR label. High-efficiency washers use 30 percent less water and 50 percent less energy than conventional machines.

Garage

• Keep doors closed as much as possible to prevent cold or hot air from infiltrating the house.
• Turn off the lights when you leave, or install motion sensors in the fixtures.
• Install insulated doors.

Exterior

• Install light sensors or timers on outdoor lights to turn lights on and off automatically. Use energy-saving bulbs that are compatible with sensors.
• If not using sensors, use CFL bulbs where applicable.
• Use solar-powered or low-voltage lights along garden and walkway paths.
• Plant deciduous shade trees on the southern and western sides of the house to block the sun's rays in summer and allow rays to heat the house in the winter. Plant an evergreen wind-break on the northern and northwestern sides to block cold winter winds.

Pools, Ponds and Spas

• Cover heated pools and spas, if applicable, when not in use to keep heat in and children and animals out.
• Use energy-efficient pumps and low-voltage or LED lights.
• Pumps and lights do not need to run continuously; turn them off with automatic timers.

Visit www.novec.com for an online energy audit of your home. Or hire a professional energy auditor. Names of certified energy audit

professionals can be found at www.resnet.us.

Kilo-what?

A customer's electric bill is generally based on the number of kilowatt-hours used that month. A kilowatt-hour is a unit of measurement like a calorie or gallon, except that it applies to electrical energy.

To calculate a kilowatt-hour, multiply, for example, the number of watts listed on a light bulb or on the back of an appliance by the number of hours used. Then divide by 1,000.

$$\frac{\text{Watts x hours used}}{1{,}000} = \text{kilowatt-hours}$$

For instance: a 100-watt light bulb in use for 10 hours divided by 1,000 equals 1 kilowatt-hour.

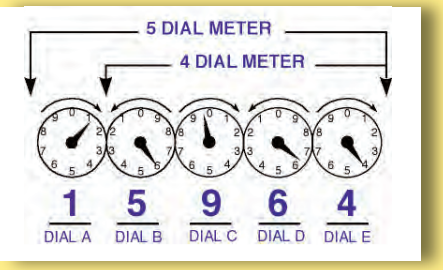
Counting Kilowatts

The electricity used in a home is measured in kilowatt-hours and recorded by a meter. Reading meters helps customers track their usage patterns daily and seasonally so that they can discover times when conserving electricity will lower their electric bills.

Spring and autumn are good times to start tracking kilowatt-hours, because most customers use very little heating or air conditioning. When the temperature drops or escalates, customers can estimate the heating or air conditioning portion of their bills by subtracting their daily totals from the averages recorded during milder months.

Most of NOVEC's residential meters have five dials. To track the number of kilowatt-hours used, record the numbers on the clock-like faces, reading them from right to left. Every other dial moves counterclockwise and the dial to the right must go all the way around before the dial on the left advances one place. When the pointer is between two numbers, record the lower of the two numbers.

Example:



For more energy-saving tips, visit the following:

- www.novec.com
- www.energystar.gov
- www.energy.gov
- www.energy.gov/energytips.htm
- http://apps3.eere.energy.gov/greenpower/markets/certificates.shtml?page=2
  List of renewable energy certificate suppliers
- www.alliantenergykids.com
  Information about renewable energy for children
- www.eere.energy.gov
  Department of Energy Web site about renewable energy
- www.nrel.gov
  A Department of Energy Web site about government renewable energy projects
- www.getenergysmart.org
  Information about appliances and energy efficiency
- www.fueleconomy.gov
  Information about fuel economy for automobiles, including a listing of the EPA mpg ratings for all cars, tips on maximizing fuel economy etc.

	Appliance	Wattage	Kwh per Month
1	Air Conditioner - Central	6,000	540
2	Air Conditioner - Window	1,100	99
3	Attic Fan	370	90
4	Blender	380	1
5	Ceiling Fan	100	30
6	Clothes Dryer	4,500	100
7	Coffee Maker	1,200	9
8	Curling Iron	350	10
-	Dehumidifier	625	225
9	Desktop Computer	500	15
10	Dishwasher	1,200	30
11	Electric Blanket	200	12
12	Fax Machine	10	7
13*	Freezer	800	576
14	Frying Pan	1,200	15
-	Garbage Disposal	450	2.5
15	Hair Dryer	1,500	1.5
16	Heat Lamp	250	2.5
-	Hot Plate	1,200	8
-	Humidifier	200	40
17	Iron	1,000	12
18	Laptop Computer	46	4.6
19	Light Bulb - CFL	18	4
20	Light Bulb - Incandescent	60	14
21	Microwave	1,500	16
-	Mixer	125	1
22	Oven	12,000	98
-	Printer	400	1
23	Radio	70	7
24	Refrigerator	300	216
25	Space Heater	1,000	150
26	Stereo	100	9
27	Television - LCD	200	36
28	Television - Plasma	350	63
29	Toaster	1,100	3
30	Vacuum Cleaner	600	4
31	Water Heater	4,500	500
32^	Washing Machine	Varies	.26 per load
33	Well Pump	1,200	60
-	Window Fan	200	14

*Depends on cubic feet.
- Not in illustration.
^ Varies depending on whether using a conventional vs. high-effective machine and number of wash loads per month.