

What's a kilowatt?

When you use electricity to cook a pot of rice for 1 hour, you use 1000 watt-hours of electricity! One thousand watt-hours equals 1 kilowatt-hour, or 1 kWh. Your utility bill usually shows what you are charged for the kilowatt-hours you use. The average residential rate is 9.4 cents per kWh. A typical U.S. household consumes about 11,000 kWh per year, costing an average of \$1,034 annually.

Dishwasher Tips

- Check the manual that came with your dishwasher for the manufacturer's recommendations on water temperature; many have internal heating elements that allow you to set the water heater in your home to a lower temperature (120°F).
- Scrape, don't rinse, off large food pieces and bones. Soaking or prewashing is generally only recommended in cases of burned-on or dried-on food.
- Be sure your dishwasher is full, but not overloaded, when you run it.
- Avoid using the "rinse hold" on your machine for just a few soiled dishes. It uses 3 to 7 gallons of hot water each time you use it.

- Let your dishes air dry; if you don't have an automatic air-dry switch, turn off the control knob after the final rinse and prop the door open slightly so the dishes will dry faster.

\$ Long-Term Savings Tip

- When shopping for a new dishwasher, look for the ENERGY STAR label to find a dishwasher that uses less water and 41% less energy than required by federal standards.

Refrigerators

The EnergyGuide label on new refrigerators tells you how much electricity in kilowatt-hours (kWh) a particular model uses in one year. The smaller the number, the less energy the refrigerator uses and the less it will cost you to operate. In addition to the EnergyGuide label, don't forget to look for the ENERGY STAR label. A new refrigerator with an ENERGY STAR label uses at least 20% less energy than required by current federal standards and 40% less energy than the conventional models sold in 2001.

How to Read the EnergyGuide Label

The EnergyGuide label gives you two important pieces of information you can use to compare different brands and models when shopping for a new refrigerator:

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



Refrigerator/Freezer Energy Tips

- Look for a refrigerator with automatic moisture control. Models with this feature have been engineered to prevent moisture accumulation on the cabinet exterior without the addition of a heater. This is not the same thing as an “anti-sweat” heater. Models with an anti-sweat heater will consume 5% to 10% more energy than models without this feature.
- Don’t keep your refrigerator or freezer too cold. Recommended temperatures are 37° to 40°F for the fresh food compartment of the refrigerator and 5°F for the freezer section. If you have a separate freezer for long-term storage, it should be kept at 0°F.
- To check refrigerator temperature, place an appliance thermometer in a glass of water in the center of the refrigerator. Read it after 24 hours. To check the freezer temperature, place a thermometer between frozen packages. Read it after 24 hours.
- Regularly defrost manual-defrost refrigerators and freezers; frost buildup decreases the energy efficiency of the unit. Don’t allow frost to build up more than one-quarter of an inch.
- Make sure your refrigerator door seals are airtight. Test them by closing the door over a piece of paper or a dollar bill so it is half in and half out of the refrigerator. If you can pull the paper or bill out easily, the latch may need adjustment, the seal may need replacing, or you might consider buying a new unit.

- Cover liquids and wrap foods stored in the refrigerator. Uncovered foods release moisture and make the compressor work harder.

\$ Long-Term Savings Tip

- Look for the ENERGY STAR label when buying a new refrigerator. Select a new refrigerator that is the right size for your household. Top freezer models are more energy efficient than side-by-side models. Features like icemakers and water dispensers, while convenient, will increase energy use.



ENERGY STAR Refrigerators Are Cool!

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

Other Energy-Saving Kitchen Tips

- Be sure to place the faucet lever on the kitchen sink in the cold position when using small amounts of water; placing the lever in the hot position uses energy to heat the water even though it may never reach the faucet.
- If you need to purchase a natural gas oven or range, look for one with an automatic, electric ignition system. An electric ignition saves natural gas because a pilot light is not burning continuously.
- In natural gas appliances, look for blue flames; yellow flames indicate the gas is burning inefficiently and an adjustment may be needed. Consult the manufacturer or your local utility.
- Keep range-top burners and reflectors clean; they will reflect the heat better, and you will save energy.
- Use a covered kettle or pan to boil water; it's faster and it uses less energy.
- Match the size of the pan to the heating element.
- Use small electric pans or toaster ovens for small meals rather than your large stove or oven. A toaster oven uses a third to half as much energy as a full-sized oven.
- Use pressure cookers and microwave ovens whenever it is convenient to do so. They will save energy by significantly reducing cooking time.

Laundry

About 90% of the energy used for washing clothes in a conventional top-load washer is for heating the water. There are two ways to reduce the amount of energy used for washing clothes—use less water and use cooler water. Unless you're dealing with oily stains, the warm

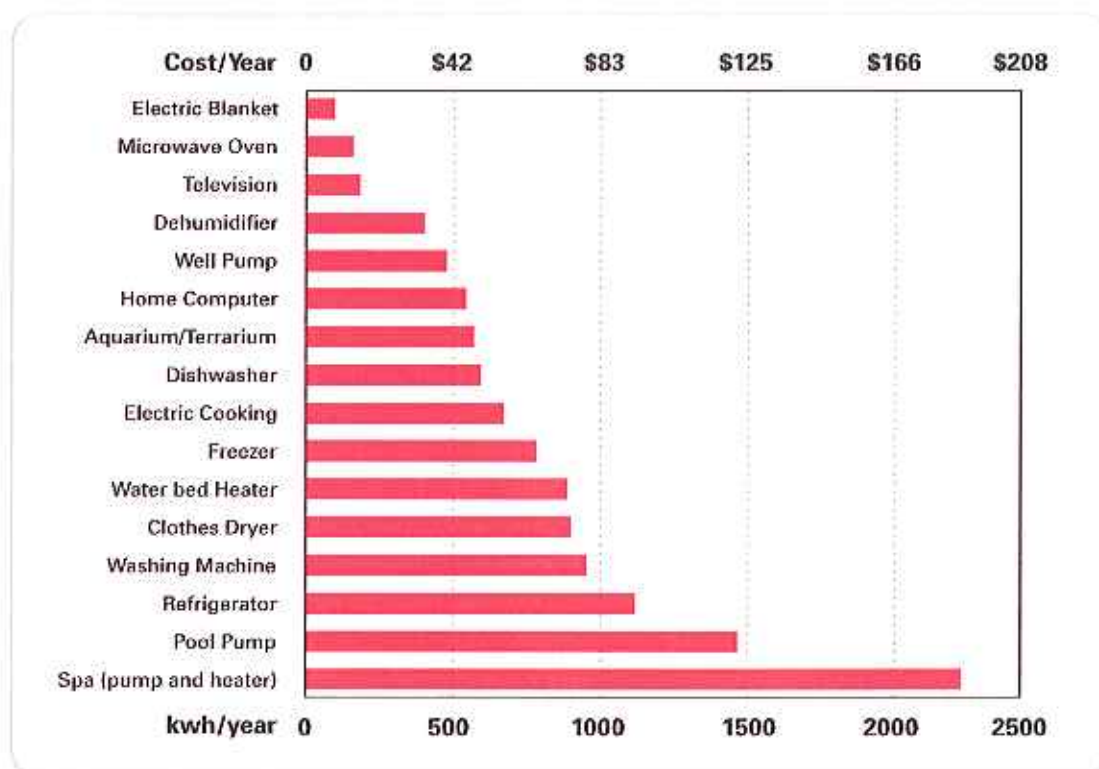
or cold water setting on your machine will generally do a good job of cleaning your clothes. Switching your temperature setting from hot to warm can cut a load's energy use in half.

Laundry Tips

- Wash your clothes in cold water using cold-water detergents whenever possible.
- Wash and dry full loads. If you are washing a small load, use the appropriate water-level setting.
- Dry towels and heavier cottons in a separate load from lighter-weight clothes.
- Don't over-dry your clothes. If your machine has a moisture sensor, use it.
- Clean the lint filter in the dryer after every load to improve air circulation.
- Use the cool-down cycle to allow the clothes to finish drying with the residual heat in the dryer.
- Periodically inspect your dryer vent to ensure it is not blocked. This will save energy and may prevent a fire. Manufacturers recommend using rigid venting material, not plastic vents that may collapse and cause blockages.
- Consider air-drying clothes on clothes lines or drying racks. Air-drying is recommended by clothing manufacturers for some fabrics.

\$ Long-Term Savings Tips

- Look for the ENERGY STAR and EnergyGuide labels. ENERGY STAR clothes washers clean clothes using 50% less energy than standard washers. Most full-sized ENERGY



How Much Electricity Do Appliances Use?

This chart shows how much energy a typical appliance uses per year and its corresponding cost based on national averages. For example, a refrigerator uses almost five times the electricity the average television uses. Visit www.energysavers.gov for instructions on calculating the electrical use of your appliances.

STAR washers use 15 gallons of water per load, compared to the 32.5 gallons used by a new standard machine. ENERGY STAR models also spin the clothes better, resulting in less drying time.

- When shopping for a new clothes dryer, look for one with a moisture sensor that automatically shuts off the machine when your clothes are dry. Not only will this save energy, it will save the wear and tear on your clothes caused by over-drying.
- ENERGY STAR does not label clothes dryers because most of them use similar amounts of energy, which means there is little difference in energy use between models.

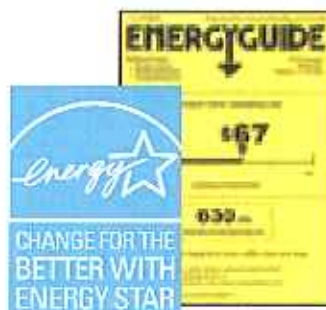


Save Energy and More with ENERGY STAR

ENERGY STAR clothes washers use 50% less energy to wash clothes than standard washing machines.

Major Appliance Shopping Guide

This easy-to-read guide may help you understand how appliances are rated for efficiency, what the ratings mean, and what to look for while shopping for new appliances.



Appliances

Rating

Special Considerations

Natural Gas and Oil Systems



Look for the FTC (Federal Trade Commission) EnergyGuide label with an AFUE (Annual Fuel Utilization Efficiency) rating for natural gas- and oil-fired furnaces and boilers. The AFUE measures the seasonal or annual efficiency. ENERGY STAR furnaces have a 90 AFUE or higher.

Bigger is not always better! Too large a system costs more and operates inefficiently. Have a professional assess your needs and recommend the type and size of system you should purchase.

Air-Source Heat Pumps



Look for the EnergyGuide label that lists the SEER (Seasonal Energy Efficiency Ratio) and HSPF (Heating Seasonal Performance Factor) for heat pumps. The SEER measures the energy efficiency during the cooling season and HSPF measures the efficiency during the heating season. The ENERGY STAR minimum efficiency level is 13 SEER or higher.

If you live in a cool climate, look for a heat pump with a high HSPF. ENERGY STAR heat pumps are about 20% more efficient than standard models. Contact a professional for advice on purchasing a heat pump.

Central Air Conditioners



Look for the EnergyGuide label with a SEER for central air conditioners. The ENERGY STAR minimum efficiency level is 13 SEER.

Air conditioners that bear the ENERGY STAR label may be 25% more efficient than standard models. Contact a professional for advice on sizing a central air system.











Room Air Conditioners



Look for the EnergyGuide label with an EER (Energy Efficiency Ratio) for room air conditioners. The higher the EER, the more efficient the unit is. ENERGY STAR units are among the most energy-efficient products.

What size to buy?

Area in square feet	Btu/hour	
100 to 150	5,000	Two major factors should guide your purchase: correct size and energy efficiency. If the room is very sunny, increase capacity by 10%. If the unit is for a kitchen, increase the capacity by 4,000 Btu per hour.
150 to 250	6,000	
250 to 350	7,000	
350 to 450	9,000	
400 to 450	10,000	
450 to 550	12,000	
550 to 700	14,000	
700 to 1,000	18,000	

Appliances	Rating	Special Considerations
Programmable Thermostats 	For minimum ENERGY STAR efficiency, thermostats should have at least two programs, four temperature settings each, a hold feature that allows users to temporarily override settings, and the ability to maintain room temperature within 2°F of desired temperature.	Look for a the ENERGY STAR label and a thermostat that allows you to easily use two separate programs, one that can be programmed to reach the desired temperature at a specific time, and a hold feature that temporarily overrides the setting without deleting the preset programs.
Water Heaters  	Look for the EnergyGuide label that tells how much energy the water heater uses in one year. Also, look for the FHR (first hour rating) of the water heater, which measures the maximum hot water the heater will deliver in the first hour of use. ENERGY STAR labeled water heaters available January 2009.	If you typically need a lot of hot water at once, the FHR will be important to you. Sizing is important—call your local utility for advice.
Windows 	Look for the NFRC (National Fenestration Rating Council) label that provides U-values and SHGC (solar heat gain coefficient) values. The lower the U-value, the better the insulation.	Look at the Climate Region Map on the ENERGY STAR label to be sure that the window, door, or skylight you have selected is appropriate for where you live.
Refrigerators and Freezers  	Look for the EnergyGuide label that tells how much electricity, in kWh, the refrigerator will use in one year. The smaller the number, the less energy it uses. ENERGY STAR refrigerators use at least 20% less energy than required by federal standards.	Look for energy-efficient refrigerators and freezers. Refrigerators with freezers on top are more efficient than those with freezers on the side. Also look for heavy door hinges that create a good door seal.
Dishwashers  	Look for the EnergyGuide label that tells how much electricity, in kWh, the dishwasher will use in one year. The smaller the number, the less energy it uses. ENERGY STAR dishwashers use at least 41% less energy than required by federal standards.	Look for features that will reduce water use, such as booster heaters and smart controls. Ask how many gallons of water the dishwasher uses during different cycles. Dishwashers that use the least amount of water will cost the least to operate.
Clothes Washers  	Look for the EnergyGuide label that tells how much electricity, in kWh, the clothes washer will use in one year. The smaller the number, the less energy is used. ENERGY STAR clothes washers use less than 50% of the energy used by standard washers.	Look for the following design features that help clothes washers cut water usage: water level controls, "suds-saver" features, spin cycle adjustments, and large capacity. For double the efficiency, buy an ENERGY STAR unit.

Home Office and Home Electronics

In the U.S., nearly 4.2 million people worked from home in 2000, up from 3.4 million in 1990. Working from home saves energy and time by cutting out the commute, but it may increase your home energy bills a lot unless you use energy-saving office equipment.

ENERGY STAR labeled office equipment is widely available: it provides users with dramatic savings, as much as 90% savings for some products. Overall, ENERGY STAR labeled office products use about half the electricity of standard equipment. Along with saving energy directly, this equipment can reduce air-conditioning loads, noise from fans and transformers, and electromagnetic field emissions from monitors.

Home Office Tips

- Selecting energy-efficient office equipment—personal computers (PCs), monitors, copiers, printers, and fax machines—and turning off

Shop for ENERGY STAR Products for Offices

- Computers
- Copiers
- Fax Machines
- Monitors
- Multifunction Devices (fax, scanner, copier)
- Printers
- Scanners

machines when they are not in use can result in enormous energy savings.

- An ENERGY STAR labeled computer uses 70% less electricity than computers without this designation. If left inactive, ENERGY STAR labeled desktop computers enter a sleep mode and use 4 watts or less.



Keep Your Home Office Efficient with ENERGY STAR

Home offices are increasingly popular. Be sure to use ENERGY STAR office equipment to save electricity.

Spending a large portion of time in low-power mode not only saves energy, but helps equipment run cooler and last longer.

- To maximize savings with a laptop, put the AC adapter on a power strip that can be turned off (or will turn off automatically); the transformer in the AC adapter draws power continuously, even when the laptop is not plugged into the adapter.
- Common misconceptions sometimes account for the failure to turn off equipment. Many people believe that equipment lasts longer if it is never turned off. This incorrect perception carries over from the days of older mainframe computers.
- ENERGY STAR labeled computers and monitors save energy only when the power management features are activated, so make sure power management is activated on your computer.
- There is a common misconception that screen savers reduce energy use by monitors; they do not. Automatic switching to sleep mode or manually turning monitors off is always the better energy-saving strategy.

\$ Long-Term Savings Tip

- Consider buying a laptop for your next computer upgrade; they use much less energy than desktop computers.

Home Electronics Tips

- Look for energy-saving ENERGY STAR labeled home electronics.
- Many appliances continue to draw a small amount of power when they are switched off. These "phantom" loads occur in most appliances that use electricity, such as VCRs, televisions, stereos, computers, and

Shop for ENERGY STAR Home Electronics

- Cordless Phones
- Televisions
- VCRs and DVD Players
- Combination Units (TV/VCR; TV/DVD)
- Home Audio
- Set-Top Boxes

kitchen appliances. These phantom loads can be avoided by unplugging the appliance or using a power strip and using the switch on the power strip to cut all power to the appliance.

- Unplug battery chargers when the batteries are fully charged or the chargers are not in use.
- Studies have shown that using rechargeable batteries for products like cordless phones and PDAs is more cost effective than throwaway batteries. If you must use throwaways, check with your trash removal company about safe disposal options.



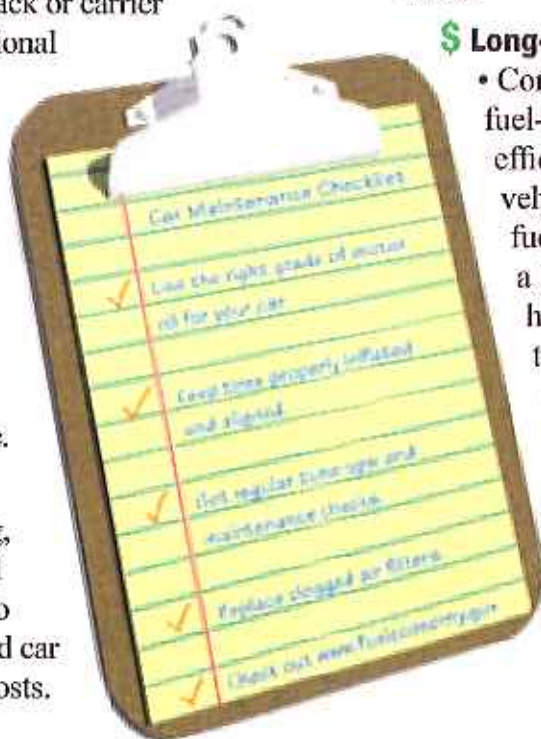
Smart power strips help save wasted energy.

Driving and Car Maintenance

Transportation accounts for 67% of U.S. oil use—mainly in the form of gasoline. Luckily, there are plenty of ways to improve gas mileage.

Driving Tips

- Idling gets you 0 miles per gallon. The best way to warm up a vehicle is to drive it. No more than 30 seconds of idling on winter days is needed. Anything more simply wastes fuel and increases emissions.
- Aggressive driving (speeding, rapid acceleration, and hard braking) wastes gas. It can lower your highway gas mileage 33% and city mileage 5%.
- Avoid high speeds. Above 60 mph, gas mileage drops rapidly.
- Clear out your car; extra weight decreases gas mileage by 1% to 2% for every 100 pounds.
- Reduce drag by placing items inside the car or trunk rather than on roof racks. A roof rack or carrier provides additional cargo space and may allow you to buy a smaller car. However, a loaded roof rack can decrease your fuel economy by 5% or more.
- Check into telecommuting, carpooling and public transit to cut mileage and car maintenance costs.



Car Maintenance Tips

- Use the grade of motor oil recommended by your car's manufacturer. Using a different motor oil can lower your gasoline mileage by 1% to 2%.
- Keep tires properly inflated and aligned to improve your gasoline mileage by around 3.3%.
- Get regular engine tune-ups and car maintenance checks to avoid fuel economy problems due to worn spark plugs, dragging brakes, low transmission fluid, or transmission problems.
- Replace clogged air filters to improve gas mileage by as much as 10% and protect your engine.
- Combine errands into one trip. Several short trips, each one taken from a cold start, can use twice as much fuel as one trip covering the same distance when the engine is warm.

\$ Long-Term Savings Tip

- Consider buying a highly fuel-efficient vehicle. A fuel-efficient vehicle, a hybrid vehicle, or an alternative fuel vehicle could save you a lot at the gas pump and help the environment. See the Fuel Economy Guide (www.fueleconomy.gov) for more on buying a new fuel-efficient car or truck.

Renewable Energy

You have many options for using renewable energy at home—from solar-powered outdoor lights to buying renewable energy from your utility to even producing solar electricity at home with photovoltaic (PV) cells.

Renewable Energy Tips

- A new home provides the best opportunity for designing and orienting the home to take advantage of the sun's rays. A well-oriented home admits low-angle winter sun to reduce heating bills and rejects overhead summer sun to reduce cooling bills. See the Heating and Cooling section for more about using passive solar energy in your home.
- Many U.S. consumers buy electricity made from renewable energy sources like the sun, wind, water, plants, and Earth's internal heat. This power is sometimes called "green power." Buying green power from the utility is one of the easiest ways to use renewable energy without having to invest in equipment or take on extra maintenance.
- Another use of solar power is for heating water. Solar water heating is covered in the Water Heating section on page 16. If you have a swimming pool or hot tub, you can use solar power to cut pool heating costs. Most solar pool heating systems are cost competitive with conventional systems. And solar pool systems have very low operating costs. It's actually the most cost-effective use of solar energy.

\$ Long-Term Savings Tip

- If you've made your home as energy efficient as possible, and you have very high electricity bills

and a good solar resource, you might want to consider generating your own electricity using PV cells. New products are available that integrate PV cells with the roof, making them much less visible than older systems.

If the following conditions apply, you might want to do more research to see if investing in PV is right for you:

- Your site has adequate solar resources.
- A grid connection is not available in your area or can be made only through an expensive power line extension.



Solar-Powered Outdoor Lighting

Installing solar lighting around your home and garden is quick and easy with an added bonus—no wires or electricity costs!

- You are willing to pay more up front to reduce the environmental impact of your electricity use.
- Your power provider will connect your system to the electricity grid and buy any excess power you produce.
- Your state, city, or utility offers rebates, tax credits, or other incentives. Visit www.dsireusa.org to find out about financial incentives in your area.

References

**American Council for an
Energy-Efficient Economy**
www.aceee.org/consumer/

**Census Bureau Press Release,
Information on Home Workers**
October 20, 2004. CB04-183.

DOE Building America
www.BuildingAmerica.gov

DOE Building Technologies Program
www.buildings.energy.gov

**DOE Building Technologies Program,
2007 Buildings Energy Databook**
buildingsdatabook.eere.energy.gov

**DOE Consumer Guide to Energy Efficiency and
Renewable Energy**
www.eere.energy.gov/consumer

DOE/EPA Fuel Economy Guide
www.fueleconomy.gov

**DOE Energy Information Administration
Residential Energy Consumption Survey 2005**
www.eia.doe.gov/emeu/recs/contents.html

ENERGY SAVERS
www.energysavers.gov

ENERGY STAR®
www.energystar.gov

Home Energy Magazine
www.homeenergy.org

**Rocky Mountain Institute
Home Energy Briefs**
www.rmi.org

Wilson, Alex; Thorne, Jennifer; Morrill, John.
*Consumer Guide to Home Energy Savings,
8th Edition.* 2003. Washington, D.C.: ACEEE

NOTICE: This booklet was prepared by an agency of the United States government. Neither the United States government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States government or any agency thereof.



U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy



Awarded by the Green REsource Council, NAR's Green Designation is the only environmental real estate designation addressing multiple specialties. This program provides real estate professionals with advanced green industry training designed specifically for residential and commercial practitioners and property managers. It is also the only green designation for agents and property managers recognized by the National Association of REALTORS®. Membership with the Green REsource Council provides ongoing information, tools, and support regarding green real estate trends and issues, thus enabling members to be leaders in their marketplace.

Visit the Green REsource Council at www.GreenREsourceCouncil.org

PRINTED ON PAPER THAT CONTAINS 80% POST CONSUMER WASTE.

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

For more information contact:

EERE Information Center

1-877-EERE-INF (1-877-337-3463)

www.eere.energy.gov

Produced in partnership with the

U.S. Department of Energy,

Office of Energy Efficiency and Renewable Energy

1000 Independence Avenue, SW, Washington, DC 20585

by the National Renewable Energy Laboratory, a DOE National Laboratory



NATIONAL ASSOCIATION
OF REALTORS®

The Voice for Real Estate®

430 North Michigan Avenue
Chicago, IL 60611-4087
1.800.874.6500
www.NARealtor.org



Mixed Sources

Product group from well-managed
forests, controlled sources and
recycled wood or fiber
www.fsc.org Cert no. SGS-COC-005684
© 1996 Forest Stewardship Council

Item # 135-60
(02/10 BFC)