

Making Decisions: Energy and Home Appliances

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Energy-efficient appliances can save on utility bills, as may tips described in this NebGuide.

For an energy-smart deal on your next appliance:

- Look for the distinctive yellow-and-black *EnergyGuide* label.
- Compare the energy use of models.
- Estimate their differences in energy costs and water use.
- Consider both purchase price and estimated energy and water use when deciding which brand and model to buy. Consider the energy savings over the lifetime of the appliance.
- Look for the ENERGY STAR® label.

Do all appliances have to be energy efficient?

Most major home appliances must meet federal *minimum* energy efficiency standards set by the U.S. Department of Energy (DOE). However, many appliances meet or exceed the minimum standard using even less energy. Manufacturers must use standard test procedures developed by the Department of Energy to prove the energy use and efficiency of their products. Many have these tests performed by independent laboratories.

The test results are reported on the yellow *EnergyGuide* labels, which retailers are required to display. The label (*Figure 1*) shows an estimate of how much energy the appliance uses, compares energy use of similar products, and lists approximate annual operating costs. Exact costs will depend on local utility rates, the type and source of your energy, and how the appliance is used.

The *EnergyGuide* information is designed to help compare the annual energy use or efficiency of competing brands and similar models. Included are water heaters, heating and cooling equipment (window and central air conditioners, furnaces, heat pumps, boilers) refrigeration/freezers, dishwashers, and clothes washers. Televisions manufactured after May 10, 2011 have been added to the requirements and must display *EnergyGuide* labels. Appliances — like clothes dryers, kitchen ranges and ovens, microwave ovens, and dehumidifiers — are exempt from the labeling rule. If you don't see a label, ask the sales person for information.

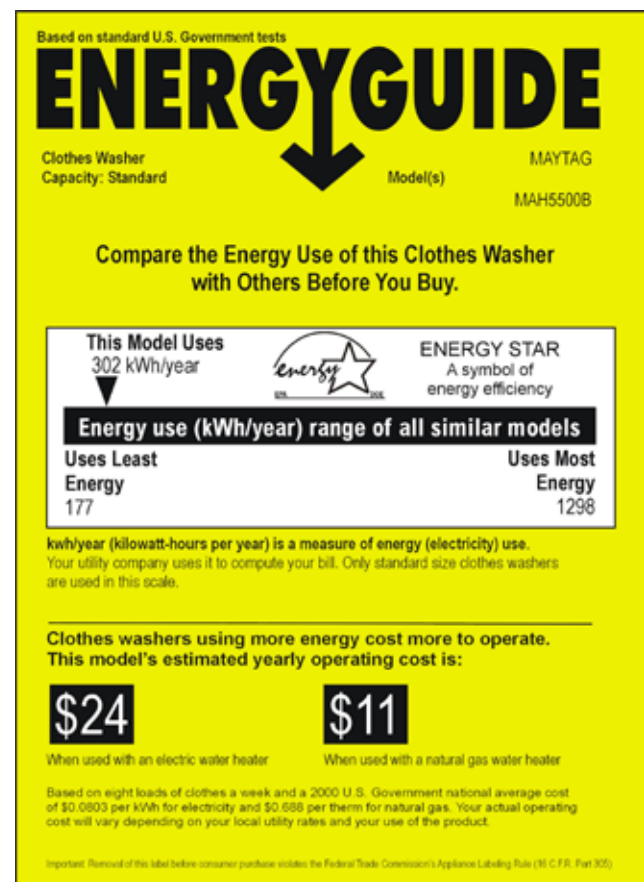


Figure 1. The *EnergyGuide* label lists approximate annual operating costs and estimate of how much energy the appliance uses.

Why is energy efficiency important?

The more energy efficient the appliance, the less it costs to run. Using less energy is also good for the environment; it can reduce air pollution, greenhouse gas emissions, help conserve natural resources, and reduce dependence on foreign oil.

What makes one appliance more efficient than another?

Most of the differences are on the inside — in the motors, compressors, pumps, valves, gaskets, seals, and insulation, plus electronic sensors that make appliances more “intelligent.”

How is the estimated operating cost developed?

The operating cost is an estimate. The cost on the label is based on a national average price for electricity. The actual cost of operation will depend on your price for electricity and water, how you use the appliance, and how well it is maintained. Consider future costs of electricity and water (which are expected to rise) in your decision-making.

What does the ENERGYSTAR® label mean on an item?

The Energy Star label means the product meets the energy efficiency guidelines set by the Environmental Protection Agency and DOE. Products can earn the Energy Star label by meeting the energy efficiency requirements indicated in the Energy Star product specifications. Energy Star is a voluntary labeling program designed to identify and promote energy-efficient products to reduce greenhouse gas emissions. The label is now on over 60 product categories including major appliances, equipment, office equipment, lighting, home electronics, and more. These products deliver the same or better performance as comparable models while using less energy and saving money. For more information, go to www.energystar.gov.

Shopping Strategy

1. *Decide on the size and style.* Measure the space the appliance will occupy to be sure your new purchase will fit. These measurements may determine the capacity and style you buy. Allow room to open the door or lid fully, enough clearance for ventilation, and for access for maintenance and cleaning to extend its years of service. The equipment needs space to ventilate and exhaust for efficient operation and to reduce heat buildup.
2. *Know where to shop.* Appliance outlets, electronic stores, and local retailers may carry different brands and models. Factors to consider in addition to energy efficiency include the selection available, price, reputation or reliability, warranties, cost of service, distances to service and repair, etc. Estate sales and stores selling reconditioned appliances are other sources.
3. *Decide on key features* — and what to spend. Generally, the larger and more deluxe the appliance, and the more special features, the higher the sticker price. Look for the best combination of performance, efficiency, convenience, and price you can afford. What features do you need? What do you use now? What will you use five years from now?
4. *Compare the performance of different brands and models (Figure 2).* Ask your salesperson for the manufacturer's product literature. Learn what each feature is designed to do and decide which are *essential* for you. Ask questions about how they operate: How much noise does it make? What safety features does it have? How energy efficient is it? How much water does it use? What is the repair history on this brand or model? Check online websites and local libraries for books and magazines such as *Consumer Reports* that may have comparison studies.

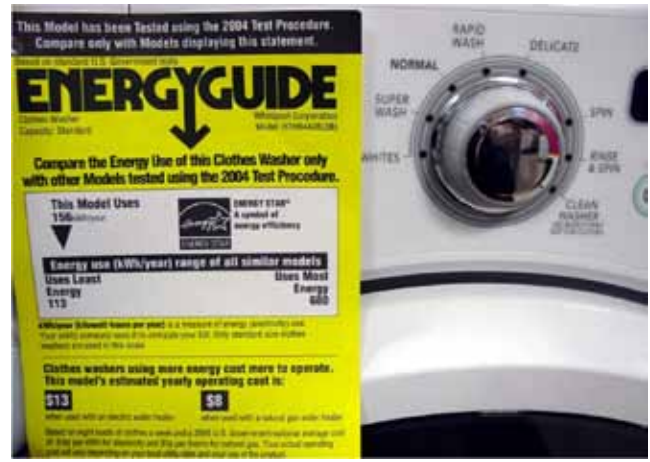


Figure 2. Compare features, models, water use, and other characteristics when shopping for an appliance such as a clothes washer.

5. *Estimate how much the energy use will cost.* Appliances that use more energy cost more to operate. Since these products are designed to last 10-20 years, the differences on your monthly energy bill can add up. Check your utility bill for energy costs in your area. Use the *EnergyGuide* to compare the energy use of similar features for different models. Think about the increases expected in energy prices and consider the future costs.
6. *Ask about special energy efficiency offers.* Ask your local utility or salesperson whether there are cash rebates, low interest loans, or other incentive programs in your area for buying energy efficient products — and how you can qualify. Additional savings could be just a few, easy steps away.
Tax incentives and rebates are available to review at the following websites:
 - http://www.energystar.gov/index.cfm?c=tax_credits.tx_index
 - Database of State Incentives for Renewable Energy. www.dsireusa.org/
 - Nebraska Energy Office <http://www.neo.ne.gov/taxincentives/incentives.htm>
7. *Resist high-pressure sales tactics.* Don't make a purchase decision until you think you understand your choices and the trade-offs being made. Avoid buying new because of the latest features, fad or update if your appliance is still working and is efficient.
8. *Find out about services for delivery and cost of pickup* of old appliances for recycling or reuse. Is it free or is there a fee? Some will not pick up old appliances and you may have to pay to have them taken away to be recycled or resold. If it is still usable, sell it, or give it to someone who needs the appliance. You're saving resources and energy for each appliance conditioned for reuse.
9. *What are the top appliance energy-users?* Generally, appliances using more energy include water heaters, refrigerators, freezers, air conditioners, clothes dryers, clothes washers, dishwashers, ranges, and portable space heaters. Space heating and cooling equipment typically are the largest energy users.

Tips for Lowering Your Monthly Energy Bill — Care and Use Make a Difference

Being an energy-smart consumer means getting the most from the energy used. Here are some ways to cut energy waste and save natural resources.

- Lower the temperature setting on your *water heater* to 120°F. Many thermostats are preset at the factory at 140°F. For each 10°F reduction in water temperature, you can save between 3 percent to 5 percent in energy. Check the water heater owner's manual for instructions on how to operate the thermostat (*Figure 3*). Typically, the thermostat dial for a gas water heater is near the bottom of the tank. Electric water heaters may have thermostats positioned behind screw-on plates or panels. Some newer water heaters have programmable thermostats to automatically adjust the temperature to your pattern of use.
- Many dishwashers have heaters to boost the water temperature to 140°F to disinfect and clean, which allows the lower water heater temperature of 120°F. If you have an illness in the family or a special need for higher temperatures for laundry, turn the water heater back up for that period. Some items such as diapers and very soiled clothing may need higher temperatures. Check the manufacturer's recommendations for adequate cleaning and temperature recommendations for washing dishes and laundry.

Touch your existing water heater. If the tank is warm to the touch, it needs additional insulation — read the owner's manual for directions.



Figure 3. Turn down water heater temperature according to manual.

When buying a water heater, look for the first-hour rating, which measures how much hot water the unit can deliver during a busy hour. Energy Star qualified gas condensing water heaters will achieve much higher first-hour ratings than conventional gas water heaters of the same capacity, which allows for a smaller capacity water heater.

- Insulate water pipes. Insulating hot water pipes reduces heat loss and can raise water temperature 2°F to 4°F hotter than uninsulated pipes at the end of the water pipe line or faucet.
- Move the *refrigerator* if it is currently located near the stove, dishwasher, heat vents or in a non conditioned space such as a porch or garage. A refrigerator in a 90°F space will use 45-50 percent more energy than one in a 70°F space. Vacuum the coils, if exposed, every three months; dirt build-up makes the machine work harder to keep contents cool. Check the door gaskets for air leaks. If ice buildup in the freezer is more than 1/4-inch thick, defrost. Avoid placing rugs or other objects in front of the ventilation system or blocking airflow. Keep the refrigerator and freezer full as that will hold temperature more constant. If a second refrigerator is used occasionally, unplug it, clean and safely secure the door — turn it back on before use or get rid of it. Some old refrigerators in garages or porches can be energy hogs — other means of cooling for occasional use can be found, such as ice coolers.

When purchasing, look for models with top-mounted freezers — they use 10-25 percent less energy than side-by-side or bottom-mount models. Automatic icemakers and through-the-door water and ice dispensers increase energy use by 14-20 percent.

- Remember to clean *clothes dryer* filters after **each** use as recommended by manufacturer. Vacuum or clean out the dryer vent to avoid clogs of lint and fires and to help the dryer operate more efficiently. Avoid overloading the dryer but do try to dry full loads. Dry loads consecutively to take advantage of the dryer's heat from one load to the next. If the dryer has a moisture sensor, use the setting to prevent over drying and using more electricity. Dry at off-peak electrical load times. Choose a dryer with a moisture sensor.
- Match the water level and temperature settings on your *clothes washer* to the size of your load. Wash full loads but do not overfill. Adjust the water level for the load sized and for the degree of soil. Wash in cold or warm water settings when possible using the correct detergent for cold water washes.

Look for a high Modified Energy Factor (MEF) and a low Water Factor (WF) when selecting a clothes washer. Both MEF and WF are listed on Energy Star qualified washers. The higher the MEF, the more energy efficient the washer. WF measures water efficiency and the lower the WF, the more water efficient the washer. Front-loader washers move (tumble) the clothes through a small amount of water. New, more advanced top loaders use systems to spin or flip clothes through a

reduced amount of water. Both reduce hot water use along with energy.

- Most dishes placed in *dishwashers* do not need to be prerinsed. If excess food, scrape it off before placing in the dishwasher. Most machines are designed to dispose of food particles. Using the “energy saver” option found on many machines can reduce the energy needed to wash a load of dishes, and saves time and water. Wash full loads whenever possible. Some washers can be adjusted for smaller or lightly soiled loads, and some dishwashers have a soil sensor to adjust for the amount of food residue present. Newer dish rack designs may place the dishes in position to maximize cleaning. Check for the Energy Star symbol.
- Generally, self-cleaning ovens use less energy due to the increased insulation within the oven.

Preheat your *oven* only when the recipe calls for it and turn off the oven shortly before the recipe suggests. The heat in the oven can finish the job. Microwaves and convection ovens typically use less energy for cooking and baking. Cook in pots that fit the size of your *stovetop* burners to cut energy waste. Using lids on your pots and pans means you can lower the temperatures and reduce the energy used.

The following sources of consumer information can help you make informed decisions about energy efficient products, appliances, and equipment.

National eXtension

www.eXtension.org. Go to Resources, then *Energy* and *Home Energy*. Search for appliances.
<http://www.extension.org/pages/25640/how-to-select-home-appliances-that-save-energy-and-money>

Federal Trade Commission

600 Pennsylvania Avenue Northwest
Washington, D.C. 20580
(202) 289-6092

Consumer information at

<http://www.ftc.gov/bcp/edu/pubs/consumer/homes/rea07.shtm>

<http://www.ftc.gov/bcp/edu/pubs/consumer/homes/rea14.shtm>

or <http://www.ftc.gov/bcp/online/edcams/eande/>

Toll-free 1-877-382-4357; TTY: 1-866-653-4261

U.S. Department of Energy

Energy Efficiency and Renewable Energy

Energy Savers

<http://www.energysavers.gov/tips/appliances.cfm>

http://www.energysavers.gov/tips/shopping_guide.cfm

<http://www.energysavers.gov/financial/70022.html>

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1111 O St. Suite 223

Lincoln, NE 68508

(402) 471-2867

<http://www.neo.ne.gov/>

Local utility company

Local Extension office

Summary

The purchase price of an appliance is only one financial consideration. Saving energy can help save resources and money. The yellow-and-black *EnergyGuide* label is a good way to comparison shop. Implementing energy-saving tips also can save on utility bills.

Resources

Federal Trade Commission, Bureau of Consumer Protection, Office of Consumer and Business Education, January 2011.

U.S. Department of Energy <http://www.energysavers.gov/tips/appliances.cfm>

U.S. Environmental Protection Agency http://www.energystar.gov/index.cfm?c=products.pr_find_es_products

This publication has been peer reviewed.

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