

Major Home Appliances

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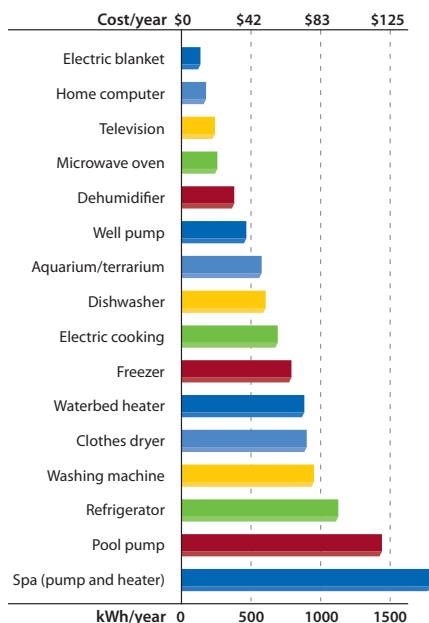
- 🏠 **Save energy** by tuning up your existing appliances
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Is it time to buy new appliances?

If you haven't been in the market for new appliances during the past several years, you're going to be surprised at how innovative and energy-efficient appliances have become. **You'll find energy-smart appliance choices in almost all price ranges.**

Before heading to the local appliance retailer or "big-box" store, measure the space the new appliance will occupy to make sure it will fit—and that there's enough room to fully open the door (or lid), as well as adequate clearances for ventilation, plumbing connections and other hookups. Then go to the appliance manufacturers' Web sites to look at product information, and make a list of questions and "must-have" and "nice-to-have-but-not-essential" features.

Energy use in an average home



Based on an electricity cost of 8.3 cents per kilowatt-hour, this chart shows how much energy individual appliances consume per year, compared to other common devices. (Substitute your utility's kilowatt-hour cost for more accurate estimates for your household.)

Added together, appliances are responsible for about 20% of a typical household's energy use. The numbers for appliances could be cut by 40%-50% if all older appliances were replaced with today's best energy-efficient models.

Source: U.S. Department of Energy Office of Energy Efficiency and Renewable Energy

Follow this shopping strategy for each appliance

With the measurements, questions and features list in hand, head for the store, and:

- ▶ Look at product brochures and the actual appliances to evaluate the features, performance capabilities and capacities of different brands and models. Ask questions about how different models operate. Are they noisy? What safety features do they have? What about repair histories? How much water do they use? How do the energy-saving cycles work?
- ▶ Check the operating manuals for the models on display. This not only will tell you how each appliance operates, but also can help you ask pertinent questions about regular maintenance and care. Also make sure the appliance's operation meets your family's needs and, for kitchen appliances, will accommodate your favorite cookware.
- ▶ Consult the yellow EnergyGuide labels to compare the annual energy costs of different models; look for ENERGY STAR® labels too. The more energy an appliance uses, the more it will cost to run; the difference on your utility bill could be significant.
- ▶ Uncover both price tags for the appliance—the one for the *purchase price* and the one for the *operating cost* (utility bills plus maintenance expenses). Consider both in evaluating the real cost of the unit.
- ▶ Read the warranty before finalizing your decision. Does the warranty cover the entire product or only certain parts? Is labor included? How long does the warranty last?
- ▶ Find out the cost of delivery, installation and removal of the appliance you're replacing.
- ▶ Make sure authorized factory service is available in your area for the unit you select.
- ▶ Finally, ask about manufacturer rebates, special local financing programs and energy-efficiency incentives from your local utility.

When your new appliance is delivered, check the exterior for dents and scratches and make sure no components such as drawers, shelves or special fittings are damaged or missing. If it's not part of your purchase agreement to have the delivery crew hook up and test the appliance, do it yourself and immediately report any problems to your salesperson.

Even if you're not ready to buy new appliances, read on

Each section in this book begins with tips for squeezing the most productivity from every unit of energy (and every gallon of water) being used by your existing appliances. Some are simple maintenance tasks the average homeowner can handle without calling a service technician. Others may suggest a change of behavior, such as running only full loads in the dishwasher or clothes washer to reduce the amount of energy used by the water heater. (By the way, almost all of these tips also apply to new appliances.)

The bottom line is a pretty simple one: **The more energy efficient an appliance is, the less it costs to run—and the lower your utility bills will be.** Using less energy is good for the environment, too, in terms of reducing air pollution and conserving natural resources.

Refrigerators

Get more from your refrigerator's energy use

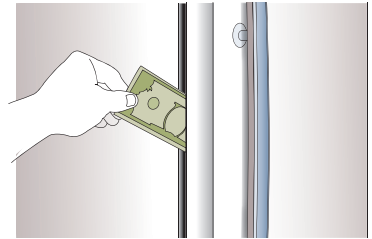
Your refrigerator (or refrigerator-freezer, since most people buy a combination unit) is the only appliance that works continuously in your home—day after day, all year long. According to ENERGY STAR®, that likely makes it the largest single user of electricity in your kitchen, accounting for up to ten percent of your monthly power bill—especially if it's an older unit using two or three times as much electricity as models available today.

So, it's **important to keep the refrigerator running at peak efficiency**—and to help everyone in your family recognize that they can have a major impact on the amount of electricity it consumes. Incidentally, most of these ideas apply to upright or chest-style freezers too.

Think efficiency

Keep the refrigerator door closed.	Every time you open the door, about 30 percent of the cool air tumbles out.
Check the temperature in the refrigerator and freezer.	Leave an appliance (or outdoor) thermometer in each compartment overnight. The refrigerator temperature should be 35-38 degrees; the freezer temperature should be 0-5 degrees.
Keep your refrigerator and freezer compartments full.	Food (and even containers filled with water or ice) will retain the cold temperatures better than empty spaces. As a result, the compressor will run less often.
When you close the door, give it a little extra push.	Make sure the door gasket seals completely by gently pushing on the door. Check the door visually too.
Clean the condenser coils once or twice a year.	After unplugging the unit, pull it away from the wall and use a vacuum cleaner or soft brush to remove dust from the condenser coils underneath (or on the back of) the appliance.
Keep the top of the refrigerator clear.	Don't use the top of the refrigerator as a storage spot. To work at peak efficiency, the refrigerator needs plenty of ventilation space around it to release the hot air produced during cooling cycles.
Let your refrigerator breathe.	Prevent heat and dust buildup that will cause your unit to run more often by leaving about three inches of open space on both sides and the top of the refrigerator's cabinet. (And don't use those spaces to store items such as step stools, flattened cardboard boxes, TV trays or brooms.)
Move your refrigerator to a cooler location.	Keep your refrigerator away from heat sources such as furnace ducts, baseboard heaters, the dishwasher and cooking appliances. Also make sure the sun doesn't shine directly on it through a window or door.
Allow cooked foods to cool before putting them in the refrigerator.	Adding hot foods to the refrigerator will make the compressor run overtime to compensate for the higher temperatures. Use shallow containers so the foods will cool more quickly.
Use lids or tops on all food-storage containers.	Moisture from foods and liquids evaporates in the refrigerator compartment, causing the compressor to run longer.
Turn off the "power saver" or "winter/summer" switch.	This switch is designed to prevent condensation from forming on the outside of the cabinet during the summer. Leave this feature off unless you discover you really need it.

Use a dollar to save a few more bucks



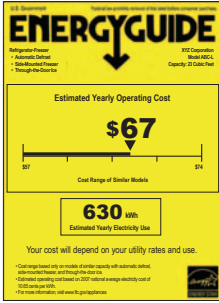
To check for air leaks in refrigerator door gaskets, close the door on a dollar bill or strip of paper in several locations around the perimeter of each door. If you easily can remove the bill (or it falls out), the gasket needs to be adjusted—or, more likely, replaced.

Also perform a visual check of the gaskets, looking for breaks or deformed areas that may not be sealing properly—or traces of mildew that indicate air leaks.

CAUTION!

Some refrigerator and freezer maintenance chores—such as defrosting the freezer, cleaning condenser coils or replacing some door gaskets—are easily handled by a competent home do-it-yourselfer. But if your refrigerator or freezer won't hold the correct temperature, is making strange noises or just isn't operating properly, call a professional service technician for help. Jobs such as recharging the coolant, replacing the compressor or repairing control units are best left to the pros.

Look for the labels



The Federal Trade Commission requires a yellow **EnergyGuide** label on most home appliances that shows an estimated yearly operating cost, along with estimated electricity and/or gas usage. The label also shows the highest and lowest cost estimates of similar appliance models.

Also look for an **ENERGY STAR** logo, which signifies that an appliance meets strict energy efficiency criteria established by the U.S. Department of Energy and the U.S. Environmental Protection Agency. The ENERGY STAR standards significantly exceed the minimums required by federal energy-efficiency standards.

For the latest information on ENERGY STAR qualified appliances (including updates in qualification standards and a list of products by manufacturer), go to www.energystar.gov.

How does a refrigerator earn its ENERGY STAR?

It really doesn't make sense to purchase a refrigerator or freezer that isn't ENERGY STAR qualified.

They use high-efficiency compressors, state-of-the-art insulation and precise temperature control systems to improve energy efficiency without sacrificing the features you want.

To qualify for the ENERGY STAR as of April 29, 2008, conventional refrigerators and refrigerator/freezers larger than 7.75 cubic feet must be 20% more energy efficient than required by the current federally mandated standards.



Cut your power bill with a new refrigerator

New refrigerators are much more energy-efficient than older models. On average, the latest ENERGY STAR® qualified refrigerators use 65 percent less electricity than pre-1980 models.

The bottom line is pretty simple: Investing in a high-efficiency refrigerator now could have such a significant effect on reducing your monthly power bills that **you'll be able to recover the purchase price of the new unit long before it has outlived its usefulness.**

There are many energy-saving and convenience features

When you go shopping for a refrigerator, you're going to be confronted with a lot of information about energy-saving technologies—some worthwhile and some not—as well as a seemingly unending list of convenience and “nice-to-have” features.

Look for the ENERGY STAR label on the yellow-and-black EnergyGuide on every refrigerator you're considering; they're the best indicators of the appliance's predicted energy use. But watch out for refrigerators with names or features that sound as if they may be “energy savers”—especially if their EnergyGuide labels reveal them to be among the highest energy consumers of comparably sized units.

Generally speaking, the operating cost for one large refrigerator always should be less than that of two smaller units totaling the capacity of the bigger one. That's an important consideration if you're building a home or remodeling your kitchen and considering a small built-in refrigerator in the kitchen for daily use—and a second refrigerator (or freezer) in the pantry for longer-term storage.

Before you hit the stores, **make a list of things you liked about the refrigerator you're replacing, as well as features you'd like to have in a new one.** For example, most consumers gladly will pay for the convenience of an automatic-defrosting refrigerator, even though it will use a little more energy than one that needs to be defrosted manually every month or so. Was your old refrigerator large enough for your family, or do you need a bigger one? If you're empty nesters, is it time to downsize to a smaller unit? Consider accessibility, too, for people with special needs or limited reach; a side-by-side refrigerator/freezer may use up to ten percent more energy than other styles, but it could be a necessity for someone in a wheelchair—or the most practical choice for a family with kids who are old enough to grab a juice box or a snack without assistance.

Focus on capacity, style, features and real cost

Besides measuring the size of the available space—height, width and depth—for the refrigerator, consider the **capacity** (in cubic feet) you need. Around 20 cubic feet is a good starting point for an average family of four; if you do a lot of entertaining or freeze large quantities of food, add a few more cubic feet.

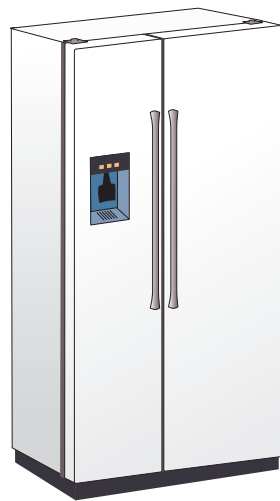
Note that the advertised size of most refrigerators is for the empty refrigerator and freezer compartments—without shelves, hardware or spaces behind drawers or in corners you can't use. Also keep in mind the special space needs for things such as your favorite beverage containers, serving trays and boxes for leftover pizzas.

When considering **style**, you have three basic choices. A *top-mount* refrigerator (with the freezer on top) will be a little more energy-efficient than a *side-by-side* unit, but you may give up convenience; the side-by-side configuration works better in small kitchens and offers better accessibility to both the refrigerated and freezer compartments. A *bottom-mount* refrigerator puts the freezer under the refrigerated section; some models use a pullout drawer, which prevents food from tumbling out when you open the door.

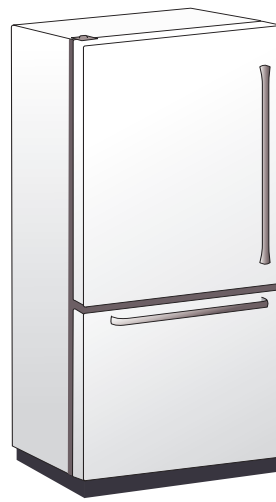
You'll also find variations of these styles, including units with bottom freezers and side-by-side doors for the refrigerator above—sometimes called “French door” refrigerators—and even four-door models that let you determine the use and temperature of the compartments. If you're remodeling your kitchen or building a new home, you might want to consider refrigerators



Top-mount



Side-by-side



Bottom-mount

erator drawers that fit into standard cabinet spaces and eliminate the need for a conventional refrigerator. And if you're considering a cabinet-depth, built-in model or a large "commercial" unit, make sure you have enough space around it for adequate ventilation; otherwise, the compressor will work overtime (and waste energy) during the cooling cycle.

Some **features** can help reduce energy usage, while others simply make a refrigerator easier to use. For example, a unit with side-by-side doors may include an ice and cold-water dispenser in one of the doors, which eliminates the need to open the freezer door (and let the cold air inside escape)—but it uses a little more energy than a refrigerator without a dispenser. Special drawer systems with separate temperature and/or humidity settings can help you keep different types of food fresher for longer periods. And an automatic moisture control can help prevent moisture from building up on the exterior of the cabinet on high-humidity days without using an energy-wasting heater.

Like other appliances, every refrigerator has two prices that make up its **real cost** of ownership: one for *purchase price* and the other for *operating cost*. The purchase price is a onetime expense, but the operating cost runs for the lifetime of the refrigerator—an average of 13 years.

For a refrigerator, the operating cost includes monthly electricity charges and maintenance. To estimate power costs, use the EnergyGuide label that's required by law to be posted on every new refrigerator. Maintenance costs are a little harder to estimate; check with the appliance store's service department, talk with friends who have appliances from the same manufacturer or take a look at annual consumer guides or magazines.

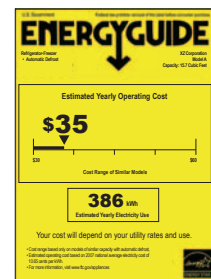
Your old refrigerator isn't doing you any favors

Keeping your 15- or 20-year-old refrigerator in operation after you buy a new one may seem like a good idea—especially if it's paid for and still seems to be working fine. However, the reality is that **the old appliance may be costing you a lot more than it's worth**; in fact, if you really need the cold-storage capacity of a second refrigerator (or freezer), you'll likely be better off buying a new, low-cost, ENERGY STAR qualified unit.

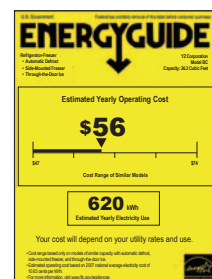
To check the predicted operating costs of your present older refrigerator (especially if you're thinking about replacing it and keeping it for use in the garage or basement), check the *Refrigerator Retirement Savings Calculator* in the Appliances section at the ENERGY STAR Web site (www.energystar.gov). All you have to do is enter your refrigerator's model number and the amount you pay per kilowatt-hour of electricity.

Save energy without spending a lot—or buy an energy-wise top-of-the-line model

When you compare the retail prices and EnergyGuide labels on several refrigerators, you'll soon discover that *affordable* doesn't necessarily mean *featureless*. For example, the EnergyGuide labels shown here are for ENERGY STAR qualified refrigerators at opposite ends of the price scale.



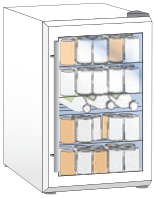
This label—for a basic, 15.7-cubic-foot, all-white unit that retails for around \$600—shows an estimated yearly operating cost of \$35. This automatic-defrost refrigerator includes a top-mount freezer and desirable features such as door storage for milk, encased condenser coils that don't require cleaning and a quiet design that significantly reduces operating noise.



At the other end of the spectrum, the significantly larger, 26.2-cubic-foot, side-by-side stainless-steel model sells for about \$3,000 more—and costs an estimated \$56 to run for a year. It includes a full range of convenience features, including a door-mounted icemaker that saves valuable storage space; an indirect cooling system that prevents dehydration, freezing or frosting of produce; and an antibacterial door gasket.

Freezers, compacts and coolers

What about wine coolers and beverage chillers?



Unlike conventional and compact refrigerators, countertop, under-counter and freestanding wine- and beverage-cooling appliances aren't

required to show an EnergyGuide label—and none have been qualified by ENERGY STAR. Depending on what they'll be storing, these coolers include an adjustable thermostat and generally operate within a narrow temperature range of about 38-65 degrees.

However, you still can make an energy-smart choice when buying one of these units. Look for a cooler that uses a thermoelectric or Peltier cooling system—a small, solid-state heat pump that is much more efficient than a conventional compressor. In addition, choose a unit with an external temperature control and digital display—and LED interior lighting instead of a heat-producing incandescent lightbulb.

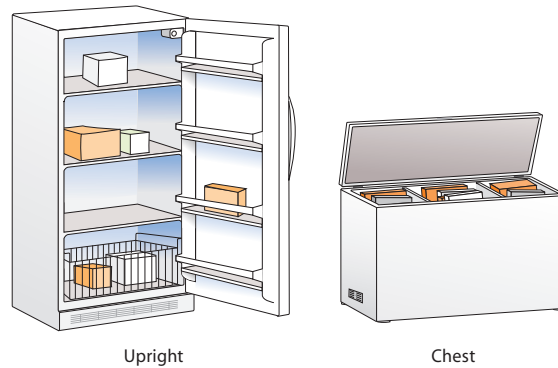
CAUTION!

Make sure you have a **dedicated electrical outlet** of adequate capacity where you'll be installing your refrigerator or freezer. Most manufacturers of these appliances prohibit the use of extension cords, which easily can overheat and cause a fire hazard.

Is a separate freezer a good choice?

Before you go shopping, **realistically evaluate your family's need for a separate freezer for year-round use.** Many people buy a freezer for stocking up on bulk foods or game once or twice a year, and then let the appliance run half-full or mostly empty the rest of the time.

If you decide that a new freezer does make sense for your situation, make energy efficiency a top priority by looking for units that carry the ENERGY STAR® sticker and by comparing the EnergyGuide labels on the ones you're seriously considering. Also note that many of the energy-saving and maintenance tips for refrigerators on page 3 apply to freezers.



Upright

Chest

From a **style** standpoint, you have two choices. An *upright* freezer looks like a single-door refrigerator and is available in both manual- and automatic-defrosting versions. A manual-defrost freezer uses a little less energy, but most or all of its shelves will not be adjustable because they contain the tubes that carry the coolant throughout the unit. A self-defrosting upright costs a little more to operate, but many people think the added convenience is worth the extra expenditure—especially considering that you have to remove the food from a manual defrost unit and shut it down for up to 24 hours, unless it has a “quick-defrost” mode that heats the coolant tubes to melt accumulated ice.

On the other hand, a *chest* freezer of similar capacity will cost a little less to operate than either type of upright freezer. Most chest freezers require manual defrosting, which means removing all of the food inside, turning off the power and draining the water that accumulates in the bottom; only a few self-defrosting units are available.

No matter which style you prefer, even the most basic freezer should include an adjustable temperature control, an interior light to make it quicker to find foods, an exterior “power on” light, an alarm that sounds if the temperature gets too high and a door lock to keep kids out of the unit. For an upright freezer, also look for adjustable shelves, bins and door storage, which maximize convenience but reduce the usable capacity of the appliance. And for a chest freezer, check for a counterbalanced lid (so you won't have to hold it open with one hand while you're searching for a particular food item) and hanging or stacking baskets that make what's inside easier to organize.

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You can save energy with compact refrigerators and freezers too

Looking for a compact refrigerator, freezer or combination unit to fit under a countertop in your family room or to send to a dorm room with a college student? Many of these compact appliances—ones less than 7.75 cubic feet in capacity and under 36 inches in height—are ENERGY STAR qualified and are at least 20 percent more efficient than required by federal standards. For more details on ENERGY STAR qualified compact units (including updates in standards and a list of products by manufacturer), go to the Appliances section at the ENERGY STAR Web site (www.energystar.gov).

Before you go shopping, make a list of the features you really need. For example, less-expensive refrigerator-freezers may have a tiny freezer shelf for storing a couple of ice trays, but higher-priced units may have a separate, zero-degree freezer. Some mini-fridges and freezers don't have adjustable shelves, so they won't hold two-liter or gallon bottles. Finally, look for a unit with automatic-defrost, adjustable thermostat and an easy-to-clean interior.

Dishwashers

Dishwashers: Push the right buttons to save

About 80 percent of the energy used to run a dishwasher isn't for powering the appliance; instead, it's for heating the water used by the dishwasher. So, if a new dishwasher isn't in the budget, **focus on making the most of your current machine's water consumption, in addition to reducing its energy use.** Also keep in mind that washing dishes by hand is not an energy-wise choice: According to ENERGY STAR®, in a year you'll save about 5,000 gallons of water and \$40 in utility costs by letting a dishwasher do the work.

Help your dishwasher do its job efficiently

Scrape (don't rinse) large pieces of food and bones.	Rinse, soak or pre-wash dishes only if food is dried-on, burned-on or extremely greasy.
Match the cycle selection to the load.	The normal setting will work best for most loads (even pots and pans).
Run only full loads.	A dishwasher can't vary the amount of water it uses based on load size.
Avoid using the rinse-and-hold cycle.	Depending on the age of your dishwasher, just rinsing the dishes could use several gallons of water.
Let the dishes air-dry.	If there's no air-dry button, stop the cycle after the final rinse and prop open the door. (Watch for escaping steam when you first open the door!)
Find the filter and clean it.	If your dishwasher doesn't have a self-cleaning filter, regularly remove it and clean out trapped food particles.
Clean the spray-arm nozzles and water jets.	Use a toothbrush to remove hard water deposits that can reduce the powerful flow of water necessary to clean dishes.
Use the delay-start setting.	Run the dishwasher late at night when some utilities offer reduced rates. Also avoid times when hot water demand is high, such as during morning showers or when preparing meals.

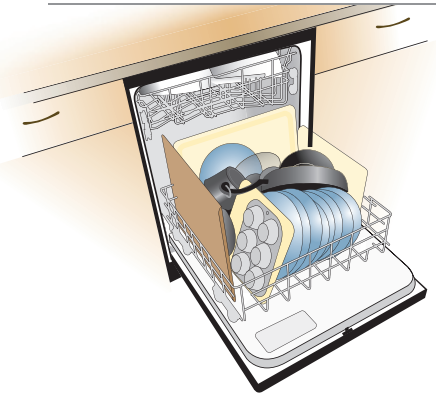
Buy a new one and save

About three out of four people buying a new dishwasher choose an ENERGY STAR qualified model. Compared to a unit available 10 years ago, today's version includes technology that helps it use three to five gallons of water—instead of 10 to fifteen—and:

- ▶ *Innovative dish rack designs* that maximize cleaning by strategically positioning dishes.
- ▶ *More efficient water jets* that use less energy during the cleaning and rinse cycles.
- ▶ *A soil sensor* that judges how dirty dishes are and adjusts cycles for optimal cleaning and the most favorable energy and water use.

When you go shopping, you'll find standard-sized (24-inch-wide) and compact (18-inch-wide) under-counter models and portable units. In addition, you may see drawer-style units that let you run a small load in one drawer or a full load in both. **Besides comparing EnergyGuide labels for the units you're considering, look for dishwashers with a high Energy Factor (EF),** which measures electricity used to run the dishwasher and energy consumed to heat the water. The ENERGY STAR criterion is an EF of 0.65, which is 41 percent more energy efficient than the government's minimum standard of 0.46. Finally, consider features such as easy-to-set energy-saving and other cycle selections that match your family's lifestyle (like a gentle wash if you own a lot of glassware) and a tall tub for extra capacity if you have a large family.

Don't overload your dishwasher!



Everything in a dishwasher load must be exposed to the water spray and not interfere with the spray arms or water jets. Dishes, bowls and silverware that touch or “nest”—and cookie sheets or other large items that rest against the interior walls of the tub—won't get thoroughly washed or rinsed.

Did you know?

Almost all new dishwashers (and front-load clothes washers) include a booster heater that raises the temperature of the water from your water heater to the higher temperature needed for cleaning. As a result, you can lower your water heater's thermostat to an energy-saving 120 degrees, which is adequate for the needs of most families.

To check the temperature of the water coming from your water heater:

- Run hot water into a bowl from the faucet closest to your dishwasher for a minute or two.
- Check the temperature of the water with a candy or meat thermometer.
- Adjust the thermostat (or both thermostats, on many electric water heaters) as necessary.

Cooktops, ovens and ranges

CAUTION!

Freestanding ranges and improperly installed built-in ranges can tip forward if you put too much pressure on an open oven door. To prevent an accident, make sure no one in your family climbs or sits on the open door or uses it for support. In addition, make sure the proper anti-tipping device has been installed to secure the range to the floor or wall.

Cook up some energy savings in your kitchen

Whether you prefer gas or electric cooking appliances, make sure you're getting your money's worth from every energy dollar you spend in the kitchen. Besides the gains you'll see from properly maintaining your cooktop, oven and/or range, **you'll see the greatest savings on your monthly utility bills from modifying your cooking methods a little bit**—and getting rid of the bad cooking habits that waste more energy than they effectively use.

Don't let high energy bills for cooking appliances burn you up!

Add only as much water as necessary for cooking.	The more water you use, the longer it will take to heat. On the other hand, adding less water will allow you to use lower temperatures and shorten cooking times.
Choose pots and pans that fit the size of cooktop burners.	A 6-inch pot on an 8-inch burner loses about 40 percent of the burner's heat to the surrounding air. Conversely, oversized pots and pans won't heat efficiently, extending cooking times.
Downsize cookware whenever possible.	Use the smallest pot, pan or baking dish for the portion you're cooking.
Use flat-bottom cookware.	For the greatest heat transfer from an electric cooktop, cookware should rest flat on coil-style, solid, ceramic, halogen and induction elements.
Put lids on your pots and pans.	Lids help retain heat, allowing foods to cook faster and more efficiently. Your kitchen will stay cooler too.
Keep gas burners clean and adjusted.	A blue flame means proper combustion, but a yellow flame indicates service is needed to ensure that the gas is burning efficiently.
Wipe off the cooktop.	Baked-on spills can inhibit the heating of the burners, as well as reduce their lifespan. Also polish dirty burner pans under the burners so they reflect the heat, rather than absorb it.
Limit oven preheating.	Unless your oven automatically handles the preheating function, restrict preheating time to a maximum of 10 minutes.
Covering oven racks with foil is a no-no.	An oven works most efficiently when air can circulate within it. Stagger multiple pans to maximize air circulation too.
Check the oven with a thermometer.	Also monitor whatever you're cooking with the appropriate thermometer to make sure your oven's controls aren't wasting energy.
Watch cooking progress through the oven window.	Every time you open the oven door, the interior cooking temperature goes down by 25 to 30 degrees.
Make multiple meals in the oven.	It takes less energy to reheat meals than it does to cook them.
Use the microwave, instead of the oven.	You'll save up to 80 percent on energy costs and decrease the heat load in the kitchen too.
Cook or reheat small portions in a specialty appliance.	Lower energy consumption by using a toaster oven, mini-grill, pressure cooker, steamer or slow cooker. You'll reduce heat in the kitchen, too, which helps cut air-conditioning costs.
Inspect the oven door gasket.	If you find burned, crushed or damaged spots, replace the gasket to prevent heated air from escaping into the kitchen.

You don't have to be a pro to cook like one

Several years ago, the choices for cooking appliances were pretty simple. Did you want a separate cooktop and wall oven, or did you like the idea of a space-saving all-in-one range? Which of the four standard appliance colors was your favorite? And what style did you prefer, gas or electric?

Today, things have changed. Beyond making the decision on what cooking appliances you want (or need) to buy, you'll discover new cooking methods, a large palette of colors and a long list of options for all but the most basic models. So, plan on spending some quality time reading the manufacturers' brochures and visiting their Web sites.

However, beyond the claims the manufacturers make for the cooking methods of their products, **you won't see much information on the energy efficiency of these appliances.** Although the federal government has established minimum energy consumption standards for most major appliances, you won't find yellow EnergyGuide labels or ENERGY STAR® stickers on any cooktops, ovens or ranges. The reason? There are only small differences between the energy consumption levels of the top-performing cooking appliances and the least-expensive ones. As a result, it's up to you to determine which models will match your cooking style best and operate in the most efficient manner in your kitchen.

Cooktops: How many burners do you need?

Some people prefer **gas cooktops** because they believe gas burners offer more control over cooking times. If you fit into this category, some new styles offer five or six burners—or a continuous grate or “bridge” over the burners—making it easier to move pots and pans around the cooktop.

If you fall into the **electric cooktop** camp, you have a few choices beyond a standard unit with four *coil elements*. *Solid disks* take longer than coils to heat, but they're easier to keep clean. A heat-resistant ceramic glass cooktop with either *radiant elements* (a form of electric coils) or *halogen elements* (halogen lamps) under the glass offers a smooth, easy-to-clean cooking surface and is a little more energy-efficient than the first two types. And *induction elements* use electromagnetic energy to heat the cookware, not the cooktop. They're the most energy-efficient of all, but cost considerably more and require that you use iron or steel cookware.

By the way, if you can't decide between a gas and an electric cooktop, you can have both types of burners in a single cooktop: Ask for a **dual-fuel** model.

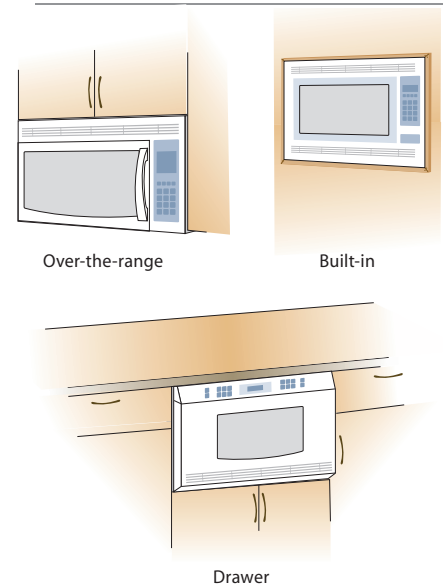
Ovens: Look for the right combination

While you still can buy a basic, single *built-in oven* (gas or electric), other choices might make cooking (and saving energy) more interesting for you. For example, you can specify a *convection oven*, which uses a fan to continuously circulate the heated air inside, cutting cooking times (and energy consumption). This method helps food cook more quickly and evenly; some models include an extra element for more-consistent heating. You also can add a high-capacity *microwave oven* to the mix, as an energy-saving alternative to the heat-producing ovens. And the best news is that you can mix and match one, two or all three of these technologies in a double-oven unit to meet your cooking needs.

Ranges: Choose a standard or high-tech version

If budget or saving space is a major consideration, look for a *freestanding range* or a *built-in range* that combines a cooktop and an oven. You can choose from gas, electric or dual-fuel models in a variety of cooktop and oven configurations. (Some premium 48-inch-wide models—a 30-inch width is standard—even include two ovens, one large and one small for baking.) For more cooking versatility without sacrificing too much space, consider adding a microwave oven with a built-in exhaust fan above the range.

Family meals require a full-sized microwave



A small, 500-watt countertop microwave is fine for making popcorn or boiling water for tea, but if you're going to use the appliance for cooking complete meals, you need a model with a capacity of at least 1.5 to 2 cubic feet and 1,000 watts of power. You can choose from a variety of styles, including countertop, over-the-range with an exhaust fan, wall (cabinet) built-in or drawer.

Some types also are available as a combination microwave-convection oven, which includes a heating element and fan to circulate heated air throughout the oven and allows cooking options that closely match the results of a traditional oven.

Clothes washers and dryers

Did you know?

Iowa law requires that all “retired” appliances must be **demanufactured** to remove hazardous components before the metal parts can be recycled and the other components can be disposed of in an environmentally sound manner. There are numerous places in the state where you can recycle appliances; go to the Recycling and Composting page in the Waste Management section of the Iowa Department of Natural Resources Web site at www.iowadnr.gov, or call 515-281-5918 for more details.

As an alternative, many appliance dealers will handle the removal and disposal of an old appliance when they deliver a new one to a home. Be sure to ask if this service is available—and if there’s an additional charge.

CAUTION!

If you have a gas dryer, frequently check the exhaust vent to make sure it operates properly to prevent the buildup of dangerous (and potentially fatal) carbon monoxide (CO) fumes in your home. To be safe, install a CO detector in your laundry area.

Control your clothes washer’s appetite for water

Up to 90 percent of the energy consumed by a conventional top-load clothes washer is for heating the water for its wash and rinse cycles. So, **you can significantly reduce the amount of energy used** by choosing the cold-water setting and adjusting the water level to the lowest amount necessary for each load. In addition, carefully sort loads and pretreat tough or greasy stains so you won’t have to wash items twice. For more tips, check the owner’s manual.

Adjust the settings for each load

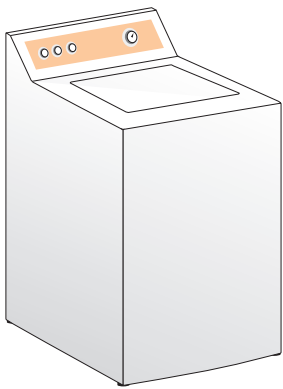
Wash full loads.	Combine half loads into full loads whenever possible; if you can’t set the load size, wait until you have a full load. (Check the owner’s manual for guidance on what constitutes a full load; you might even want to weigh a couple of loads to make sure.)
Don’t overload the washer.	If packed together too tightly, clothes and other items won’t get clean, because the water won’t be able to circulate properly.
Use cold water with a cold-water detergent.	In most cases, washing clothes and other items in cold water will get them clean. Cold water prolongs the life of most fabrics too.
If a cold-water wash doesn’t work, try warm—not hot.	Choose the warm-water cycle when necessary for extra-dirty clothes. Save the hot-water cycle for diapers or severely stained loads.
Use the right amount of detergent.	Using too much detergent can cause color fading and create excess suds, which the washer may not be able to rinse away during a normal cycle.
Choose a cold-water rinse.	Warm or hot water doesn’t rinse more effectively than cold.
Select an extended spin cycle.	This option will force the greatest amount of water from clothes, reducing drying time. (Note: This setting may not be appropriate for delicate and specialty fabrics.)

Buying a new clothes washer: You have more choices than ever

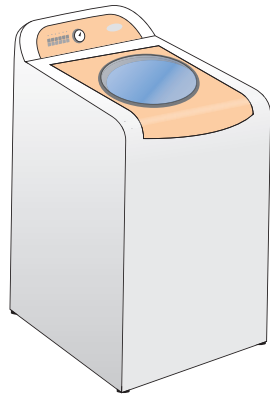
For many years, washers came in one style: a top-loading unit with a few knobs and buttons on the control panel. But today, you have a wide variety of choices in three categories:

- ▶ *Conventional top-loaders* have a traditional agitator and deliver solid washing abilities at a low initial purchase price—but, on average, have the highest energy and water costs.
- ▶ *High-efficiency top-loaders* don’t use an agitator, but consume less energy and water than conventional machines. However, top-loaders often have premium prices—but not the energy efficiency and water savings of front-loaders.
- ▶ *High-efficiency front-loaders* are the best choice for low energy use and reduced water consumption, but they cost more than the other types. However, your utility bill savings should more than make up the difference in initial purchase price during the first five or six years of ownership. In addition, front loaders use a high spin speed that effectively starts the clothes-drying process—so you can choose shorter, energy-saving cycles for the dryer.

When you’re comparing the specifications and prices of various washers, look for the capacity and features you really need; it’s possible to spend nearly twice as much for a machine with lots of bells and whistles (and indicator lights!) that performs essentially the same functions as a less-expensive machine. Be sure to evaluate whether a unit with extra sound insulation makes sense for your laundry setup too.



Conventional top-loader



High-efficiency top-loader



High-efficiency front-loader

Then check the yellow EnergyGuide labels, along with each one's Modified Energy Factor (MEF), which takes into account energy used during the washing process—including water heating. (A higher MEF is better.) Most full-sized ENERGY STAR® qualified washers consume 40 percent less energy than standard washers—and use about half the water per load too.

Use the dryer less, without sacrificing function

No matter if it's a gas or electric unit, **you can control your dryer's energy consumption.** Think about what you're including in each load. For example, the lightweight clothes will dry more quickly than the heavier ones, and the extra time the dry ones spend riding along with the heavier, still-wet ones may damage them—or at least cause extra wear and tear.

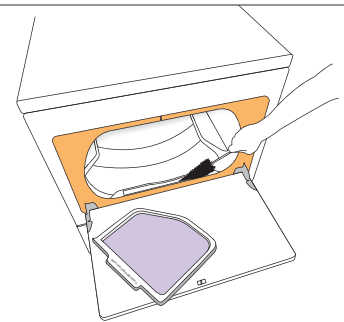
Adjust the settings for each load

Dry full loads.	Running a full cycle for a half load wastes energy.
Don't overload the dryer.	The dryer needs space for air circulation to efficiently evaporate the water caught in the fabrics.
Fluff bulky items as you load them.	Towels, sheets, jeans and other heavy clothing will dry faster if you separate and shake them before tossing them in the dryer.
Never overdry your clothes.	Overdrying can weaken fabrics and wastes energy. If your machine is equipped with a moisture sensor, use it.
Use the cool-down cycle.	This setting takes advantage of the residual heat left in the dryer at the end of the cycle and can substantially cut down on clothes wrinkling.
Clean the lint screen before every load.	Your clothes won't dry if the heated air in the machine can't circulate and vent properly.
Check the outside exhaust vent monthly.	If the vent is stuck shut, moist air can't escape and your dryer will run longer than normal to dry clothes. If the vent is stuck open, cold air can enter your home during winter months.
Regularly clean the moisture sensor near the drum.	Buildup from chemicals in fabrics and fabric softeners can limit the sensor's effectiveness, so gently clean it with a little rubbing alcohol on a cotton swab or rag.

? Did you know?

Flexible plastic and metal foil vent hoses can collapse and allow lint to accumulate, posing a serious fire risk. That's why dryer manufacturers recommend using rigid metal or flexible metal vents.

Thoroughly clean the dryer's vent system



Every couple of months, remove the dryer's lint filter and use a skinny brush with a long handle to remove lint from inside the dryer's vent system. Brushes made for this purpose are available at hardware and discount stores for less than \$10.

Also clean the vent on the outside of your home, and make sure it opens and closes properly. Finally, clean the entire vent duct once a year or as needed—or call a professional to handle the job.

Alliance to Save Energy

1850 M Street, NW, Suite 600
Washington, DC 20036
Phone: 202-857-0666
Web site: <http://www.ase.org/>

Alliant Energy

4902 North Biltmore Lane
P.O. Box 77007
Madison, WI 53707-1007
Phone: 800-255-4268
Web site: <http://www.alliantenergy.com/>

**American Council for an
Energy-Efficient Economy**

1001 Connecticut Avenue, NW, Suite 801
Washington, DC 20036
Phone: 202-429-8873
Fax: 202-429-2248
Web site: <http://www.aceee.org/>

Aquila, Inc.

1701 48th Street, Suite 260
West Des Moines, IA 50266
Phone: 816-421-6600
Web site: <http://www.aquila.com/>

**Association of Home
Appliance Manufacturers**

1111 19th Street, NW, Suite 402
Washington, DC 20036
Phone: 202-872-5955
Web site: <http://www.aham.org/>

Atmos Energy Corporation

24 South 10th Street
Keokuk, IA 52632
Phone: 888-286-6700
Web site: <http://www.atmosenergy.com/>

Energy Efficient Rehab Advisor

Web site: <http://rehabadvisor.pathnet.org/>

ENERGY STAR®

1200 Pennsylvania Avenue, NW
Washington, DC 20460
Phone: 888-782-7937
Web site: <http://www.energystar.gov/>

Federal Trade Commission (FTC)

Consumer Response Center
600 Pennsylvania Avenue, NW
Washington, DC 20580
Phone: 877-382-4357
Web site: <http://www.ftc.gov/appliances/>

**Gas Appliance Manufacturers
Association (GAMA)**

2107 Wilson Boulevard, Suite 600
Arlington, VA 22201
Phone: 703-525-7060
Web site: <http://www.gamanet.org/>

Home Energy Saver

Environmental Energy Technologies Division
at the Lawrence Berkeley National Laboratory
Web site: <http://hes.lbl.gov/>

IowaENERGY.org

Web site: <http://www.iowaenergy.org/>

Iowa Association of Electric Cooperatives

8525 Douglas, Suite 48
Des Moines, IA 50322-2992
Phone: 515-276-5350
Fax: 515-276-7946
Web site: <http://www.iowarec.org/>

Iowa Association of Municipal Utilities

1735 NE 70th Avenue
Ankeny, IA 50021-9353
Phone: 515-289-1999
Fax: 515-289-2499
Web site: <http://www.iamu.org/>

Iowa Department of Natural Resources

502 E. 9th Street
Des Moines, IA 50319-0034
Phone: 515-281-5918
Web site: <http://www.iowadnr.gov/>

Iowa Renewable Energy Association

P.O. Box 3405
Iowa City, IA 52244-3405
Phone: 319-643-3160
Web site: <http://www.irenew.org/>

Iowa State University Extension

Answer Line Phone: 800-262-3804
Web site: <http://www.extension.iastate.edu/answerline/>
or <http://www.extension.iastate.edu/housing/>

MidAmerican Energy

666 Grand Avenue, Suite 500
Des Moines, IA 50309-2580
Phone: 888-427-5632
Web site: <http://www.midamericanenergy.com/>

**U.S. Department of Energy Office of
Energy Efficiency and Renewable Energy**

Forrestal Building
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
Phone: 877-337-3463
Web site: <http://www.eere.energy.gov/>

U.S. Environmental Protection Agency

Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Phone: 202-272-0167
Web site: <http://www.epa.gov/>



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Iowa Energy Center

2521 University Boulevard, Suite 124, Ames, IA 50010-8229
Phone: 515-294-8819 | Fax: 515-294-9912 | E-mail: iec@energy.iastate.edu
Web site: <http://www.energy.iastate.edu/>

