

Buying and Using Home Appliances

Home appliances account for one-third to one-half of your total energy costs. In fact, their energy costs usually are much higher than their purchase price over their lifetime.

This publication will help you:

- Use your appliances efficiently to substantially reduce your utility bills
- Maintain your appliances to keep them operating longer and with fewer repairs
- Look for energy-saving features on new appliances

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Utility bills are like shopping in a grocery store where the prices aren't marked. When you get the bill, you're not sure what made it so high.

With the variety of appliances in most homes today—refrigerators, water heaters, dishwashers, ranges, TVs, clothes washers, dryers and many others—understanding their relative energy costs and possible savings can help you prioritize ways to cut utility bills.

During the past few years, new standards have significantly improved the energy efficiency of most home appliances. In some cases, new appliances use only half as much energy as appliances built 5 years earlier. Still, the energy costs for most home appliances over their life exceed the purchase price, and the operating costs of different models can vary widely.

How Much Do Appliances Cost to Use?

The cost of using an appliance depends on its rated energy consumption and your usage habits. The more an appliance is switched on, the more it costs to use. Thermostatically controlled appliances, such as refrigerators and water heaters, operate as needed to maintain the desired temperature. For these appliances, calculations based on rated power consumption do not give an accurate idea of operating cost.

Some appliances, such as clothes washers and dishwashers, use hot water in addition to the electricity needed to run the motor. The cost of hot water for these appliances is far greater than the cost of the electricity to run the motor. Efficient clothes washers and dishwashers have lower water heating costs. If you're on a municipal system, you'll also save on water and sewer costs.

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Electric utilities charge for power in units of kilowatt-hours (kWh). A kilowatt-hour is 1,000 watts used for 1 hour or 100 watts used for 10 hours. Natural gas is billed in therms equal to 100,000 British Thermal Units (Btu). Your most recent utility bills show your rates. To determine the cost of using an appliance, multiply its energy consumption by your utility rate.

You can calculate monthly costs for your use of appliances with a fill-in-the-blanks worksheet. See the OSU Extension Energy Note *How Much Does Energy for Hot Water, Appliances and Lighting Cost Each Month?* available through Oregon Energy Line (see "For More Information," page 10).

Buying New Appliances

Because the energy to operate home appliances usually costs more than the equipment, spending extra for more efficient appliances can be a very good investment.

Several programs have been developed to help you identify more efficient appliance models. The Oregon Office of Energy publishes monthly a list of high efficiency appliances—by model number—that qualify for the Oregon Residential Energy Tax Credit (see "For More Information," page 10). The tax credit is available to homeowners and renters for qualifying appliances installed in their principal residence or vacation home in Oregon. You take the credit on your state income tax. Your dealer can provide you with the paperwork. Submit your completed application to the Office of Energy well before tax time, as confirmation may take several weeks.

Although the efficiency standards are not as high as standards for the Oregon tax credit, the U.S. Environmental Protection Agency and U.S. Department of Energy have been working with manufacturers for several years to put Energy Star™ labels on efficient heating equipment, water heaters, computers, and office equipment.

The yellow EnergyGuide sticker on most major home appliances in the dealer's showroom makes it easy to compare energy efficiency of different models. (There's little difference in the efficiency of kitchen ranges and ovens, so they don't have EnergyGuide labels.)

The heart of the EnergyGuide label is the annual energy consumption, in therms or kilo-

How Efficient Are New Appliances?

At typical Oregon energy costs: 5¢ per kWh and 60¢ per therm

	1990 average	1999 average
Refrigerator-freezer	1,220 kWh	485 kWh
Freezer	1,010 kWh	450 kWh
Clothes washer*	890 kWh	270 kWh
Clothes dryer (electric)	930 kWh	770 kWh
Dishwasher	620 kWh	500 kWh
Room air conditioner	970 kWh	730 kWh
Gas water heater	300 therms	220 therms
Total annual energy use:	5,640 kWh	3,425 kWh
	300 therms	800 therms
Total annual cost:	\$462	\$303

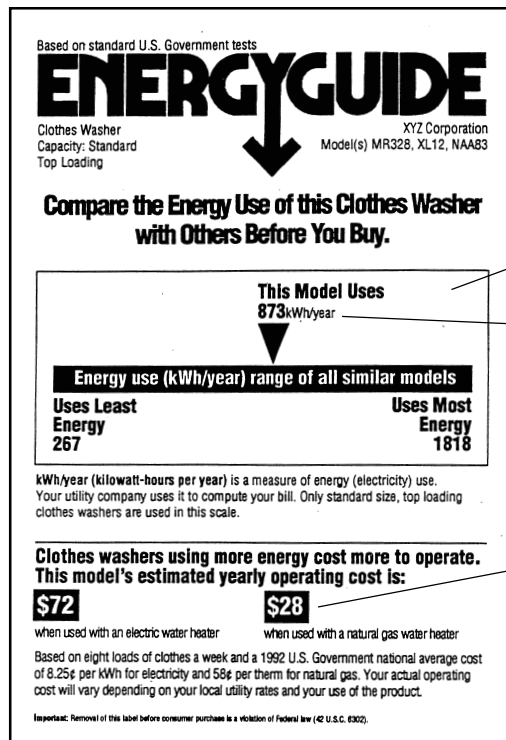
*Includes electricity for heating water

Source: Oregon Office of Energy

watt hours, that the appliance uses under typical operating conditions. Usage is based on standardized tests for typical household size and usage.

For appliances that use hot water, such as clothes washers and dishwashers, the EnergyGuide label shows estimated consumption and operating costs for use with an electric or natural gas water heater.

Efficient appliances usually cost more than regular models. How can you calculate whether spending extra money for a more efficient appliance is worth it? Use a "life cycle cost comparison."



Scale shows efficiency compared to similar-sized models.

For approximate cost in your home, multiply this number by the local utility rate.

Operating cost with electric or gas water heater (at national average utility cost).

Sample EnergyGuide label for a clothes washer.

Life Cycle Cost Comparison: Appliance Example

	Standard	Energy-efficient
Annual energy cost (from EnergyGuide label)	\$97.00	\$67.00
Fuel cost escalation multiplier for 10-year life ¹	<u>X 11.07</u>	<u>X 11.07</u>
Total energy cost over 10 years	= \$1,073.79	= \$741.69
Purchase price	+ \$500.00	+ \$600.00
Life cycle cost of appliance	\$1,573.79	\$1,341.69

The appliance with the lowest life cycle cost is the best investment.

¹Assumes you'll keep the appliance for 10 years, with a 5% annual inflation rate and 2% increase in energy costs per year.

In addition to the purchase price, the calculation includes the energy bills you'll pay to operate the appliance over its life. The appliance with the lowest life cycle cost is the best investment.

Refrigerators and Freezers

Each refrigerator and freezer you own adds \$7 to \$15 per month to your electric bill.

Efficient Use

- If you have a second refrigerator or freezer, you can save \$7 to \$15 per month when it's unplugged. Plugging it in for occasional use does not harm the compressor.
- Use a thermometer to set refrigerator temperature to 40°F. Each degree colder increases energy costs 2.5%. Freezers should be set to 0°F.
- Set the "Power Saver" or "Winter/Summer" switch to ENERGY SAVER or WINTER. If you see condensation around the door gasket in the summer, set the switch to OFF or SUMMER. (The switch operates a heater in the door gasket to reduce condensation.)

Maintenance

- Vacuum the coils on the back or underneath the refrigerator and freezer every 6 months for good air circulation (more frequently if you have pets).
- If possible, locate refrigerators and freezers away from heat sources such as the oven, dishwasher, heating registers, and direct sunlight.

- Provide 1 to 2 inches of clearance around top and sides for good airflow around the coils.
- Adjust the front legs so the refrigerator or freezer is level and the door closes by itself if left open. Rotate the adjuster wheel on the front legs to raise or lower the unit as needed.
- Repair door gasket seals if damaged. As a temporary measure, use self-stick foam weather-strip tape. (The commonly recommended "dollar bill" test is not necessarily a good indicator that the gasket needs replacing.)

Buying New

- Should you replace your refrigerator? If it's more than 15 years old, it's probably worth it. New models use less than half the electricity that older models use. High efficiency refrigerators that qualify for the Oregon Residential Energy Tax Credit use 25% to 30% less energy on average than standard new models.
- Side-by-side models are usually less efficient.
- Don't buy a larger refrigerator than you need. (But one large unit is better than two small ones.)
- Features like automatic ice-maker and through-the-door water and ice service add 10% to 25% to the cost of operation. Models with these features also have higher repair rates.

Super Efficient Refrigerators Are Available Now

The state of Oregon has compiled a list of the most efficient refrigerators in each size. These units cost substantially less to operate, and they qualify for the Oregon Residential Energy Tax Credit. That effectively lowers your cost about \$50 to \$150. See "For More Information," page 10.



- If you're shopping for a stand-alone freezer, choose a manual-defrost chest model. They use 10% to 25% less energy than upright models.
- Consult *Consumer Reports* for information about other features and brand name reliability.

About CFCs

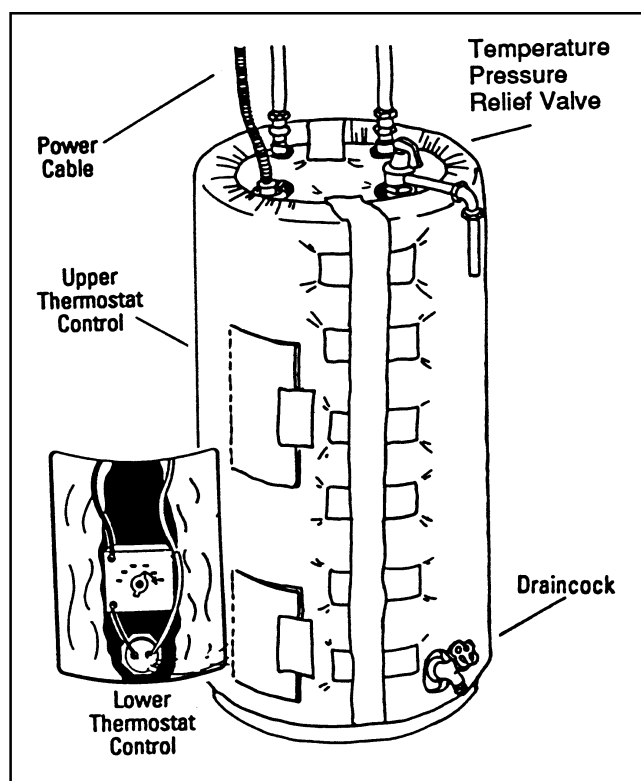
The refrigerant used in most older refrigerators and freezers (CFC-11) contributes to ozone depletion when it escapes into the atmosphere. Most manufacturers have started using a new refrigerant, HCFC-134a, which is less harmful to the environment but is still not completely benign. If you're junking your old refrigerator, be sure the scrap dealer will recover the CFCs before recycling the metal.

Water Heaters

In older homes, water heating is second only to space heating for energy use. In newer homes, water heating may be the biggest use of energy.

Efficient Use

- Set your water heater to 120°F. Temperature stratification in the tank typically results in 130°F water at the nearest faucet. Use a meat or candy thermometer to verify the hot water temperature. If it exceeds 130°F, lower the thermostat(s) on the water heater. For an electric water heater, turn off the power before adjusting the upper and lower thermostats. Gas water heaters have a colored knob on the gas valve to adjust the temperature. Wait a few hours and retest the temperature.
- Add an extra insulation blanket to older (pre-1989) electric or gas water heaters in garages or unheated basements. Look on the specification label for the date of manufacture. Retape or replace the insulation blanket if it's loose. For gas water heaters, be sure the insulation blanket does not block venting or air inlets near the burner area at the bottom. Follow the instructions that come with the insulation kit.
- Insulate the first 3 to 6 feet of both the cold and hot water pipes near your water heater. Use tubular foam insulation. At pipe elbows, cut the insulation at a 45-degree angle for a tight fit. (By the way, insulating all your hot water pipes probably won't save much energy. However, pipes located in the crawl space or attic should be insulated to avoid freezing.)

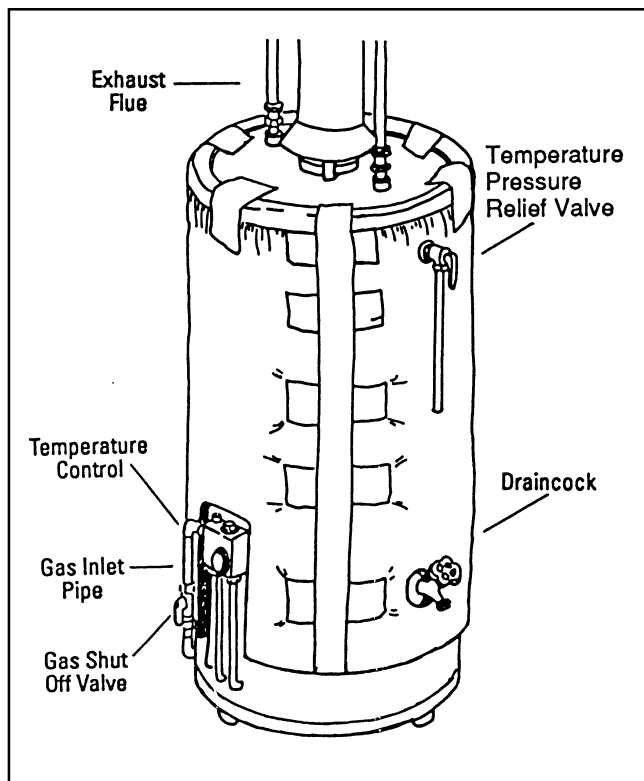


Temperature controls for an electric water heater.

- Install a timer to control when the water heater operates.
- See page 8 for information about setting the water heater temperature for dishwashers.

Proper Maintenance

- Check and drain sediment from the tank as needed—once or twice a year, depending on your water source. A rumbling or crackling sound is a sure sign of sediment buildup. If it hasn't been done regularly, you may need to flush the tank. Turn off the water heater circuit breaker or gas valve, shut off incoming water, and drain water from the tank. Then allow a few gallons of cold water to refill the tank and drain again. Repeat until drain water is clean. Turn the circuit breaker back on (for a gas water heater, turn the gas valve on and relight the pilot light) and allow the water to reheat.
- You can prolong the life of a water heater by checking the sacrificial anode every 3 to 5 years. This magnesium or aluminum rod reduces corrosion, extending the life of the tank. Read the manufacturer's instructions for your model.
- Check annually the operation of the temperature/pressure relief ("pop off") safety valve. The valve prevents buildup of dangerous pressures



Temperature control for a gas water heater.

or very hot water in the tank. Place a pan underneath the water outlet and lift the lever to verify good flow. Be careful—the water is very hot. If water drips from the pipe after operating the valve, trip it several times to get a better seal. If the pipe continues to drip, the valve might need to be replaced.

- If you run out of hot water regularly, here's what to check: For electric water heaters, use an electrical multimeter to verify operation of both top and bottom thermostats and heating elements when you turn the thermostat(s) higher. Replace as needed. With gas water heaters, be sure the gas flame comes on when hot water is being used. If not, call for service. If you have a gas water heater and you find many tiny metal flakes at the bottom of the tank, the heater may be near the end of its life. (The flakes are oxidized pieces of the metal heat exchanger inside the flue.)

Buying New

- Consider water heaters that qualify for the Oregon Residential Energy Tax Credit. They use at least 20% less energy than other models. Electric heat pump water heaters and certain gas and electric "tankless" or instantaneous models are eligible for the tax credit. If you're replacing

your furnace at the same time, consider new water heaters that can supply both heat and hot water. The tax credit for qualifying water heating systems ranges from about \$200 to \$550.

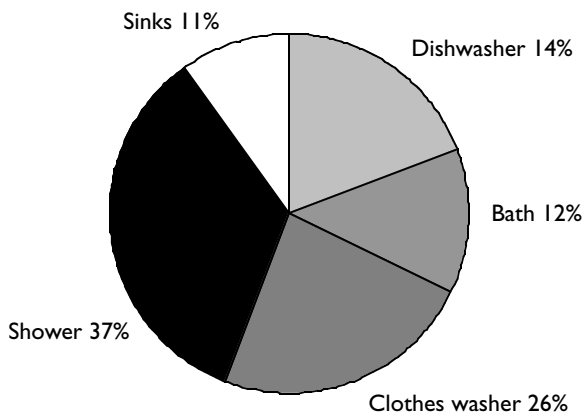
- If you're shopping for a traditional storage tank water heater, buy a model with an Energy Factor (EF) equal to or better than:
 - .93 EF (4,720 kWh/year)—50-gallon electric
 - .60 EF (250 therms/year)—40- to 60-gallon gas
- Consider locating your new water heater closer to your most frequent hot water uses. You'll get hot water faster and waste less water.
- Don't buy a water heater bigger than you need. Your dealer or contractor can help you determine the model with the appropriate First Hour Rating based on your household's water use. If you already use water-saving showerheads and efficient dishwashers and clothes washers, a 40-gallon unit may be quite satisfactory.
- For households that use a lot of hot water, natural gas and oil water heaters may cost less to operate than electric models. Use the life cycle cost comparison on page 3 to determine whether switching fuels is a good investment. Be sure to include in the comparison costs for venting and piping. One- and two-person households won't use as much hot water as assumed in the EnergyGuide comparisons, so the savings for gas water heaters may be substantially less.
- If you are installing a gas (or oil) water heater in a manufactured home, the unit should be listed and labeled for that application.
- For a half-bathroom (no shower or bath) located at the opposite end of the house from the water heater, consider a 2- to 10-gallon "under counter" electric water heater. It provides hot water faster and is available in 110-volt models to simplify installation.

Showers, Bathtubs and Sinks

Bathing is usually the biggest hot water expense.

Efficient Use

- Measure the flow rate of your showerheads to be sure they're "water saver" type: Set the water at normal temperature and volume. Hold a pan or bucket under the showerhead for 15 seconds. The number of quarts collected in 15 seconds is equal to the gallons per minute (gpm) flow rate. Flows greater than 3 gpm are wasteful.



From *Homemade Money*, by Richard Heede, Rocky Mountain Institute, 1995.

Where Does the Hot Water Go?

The major uses of hot water in your home are among the major opportunities to save energy in your home. You can get an idea of how much money you're spending on hot water by looking at utility bills for the months when neither heating nor air conditioning are used much.

- When you take a shower, try a lower water pressure setting.
- If you live in an area with high water pressure (above 60 PSI), consider installing a pressure regulator to maintain 40 to 60 PSI on incoming water lines to reduce water flow.
- Don't fill the bathtub deeper than needed. Every inch deep you fill the tub uses 5 gallons of water.

Proper Maintenance

- Clean particles from aerator screens and showerhead nozzles at least once a year. Unscrew from faucet or shower arm and hold upside down under flowing water. If possible, disassemble to clean. Soak in bleach solution if needed.
- Fix drips. Replacing washers (or cartridges for single-lever faucets) takes less than 30 minutes. Hardware and home supply stores sell plumbing repair kits and replacement cartridges.

Buying New

- Save about \$10 a month by installing water-saving showerheads and faucet aerators. They're designed to give a powerful spray using as little as 1 gallon per minute.

Shower or Bath—Which Uses Less Water?

It depends on how long you stand in the shower and how deep you fill the tub. The best way to answer the question is to take a shower with the drain plugged. When you're done with your shower, compare how deep the water is with how deep you would fill the tub for a bath.

- Single-lever faucets in showers/tubs and sinks can reduce water waste. They allow you to retain your preferred hot-cold setting without having to adjust separate valves each time. Avoid tub/shower valves that have only a temperature adjustment, not a pressure adjustment.

Clothes Washers

Efficient washing practices reduce energy bills and water use. If you're buying a new clothes washer, consider high-efficiency "horizontal axis" washers.

Efficient Use

- Wash full loads whenever possible. When washing partial loads, use the appropriate water-level setting if your machine has that adjustment.
- Sort large loads of laundry based on the fabric care instruction labels on the clothing. Set the washer accordingly.
- Don't pack or overload the tub if you have a top-loading washer. Having to wash clothes a second time wastes time, water, and energy. Clothes should not be loaded higher than the top of the agitator blades and should be able to move freely during wash and rinse cycles.
- Always use the cold rinse setting if the washer has that option.
- Use the WARM or COLD wash setting for most fabrics. HOT wash is needed only for a few items, such as diapers or greasy work clothes, and to kill dust mites in bedding.
- If you use a cold water wash, use liquid detergents or dissolve powder detergent in warm water first to prevent caking, which may stain clothing. Check *Consumer Reports* for comparisons of laundry detergent.

Proper Maintenance

- If clothes are still wet after the spin cycle, the belt may be slipping off and the washer may not be

extracting as much water as possible, making your dryer work harder and longer. As a temporary measure, run the clothes through the spin cycle again. It costs less than a penny and reduces drying time considerably. You may be able to adjust the belt tension yourself. An appliance service call may cost \$35 to \$50 plus any repairs.

Buying New

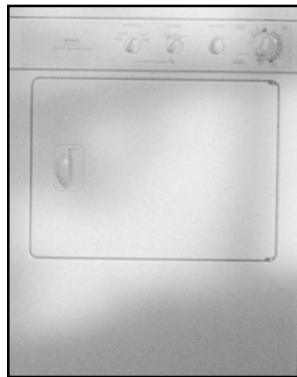
- Consider a horizontal-axis washer (typically front-loading). They use 60% less energy and 40% less water—and less detergent—than other new models. And they qualify for an Oregon Residential Energy Tax Credit of about \$100 to \$200. All Energy Star™ models qualify for the state tax credit. One manufacturer now offers a top-loader with an Energy Star™ rating. Look for models with the lowest EnergyGuide cost for the size you need.
- Select a model with a water level adjustment.
- Look for a model with a spin cycle speed of 850 rpm or greater. They extract more water from the clothes before you dry them. Most front-loaders have higher spin rates.
- Consult *Consumer Reports* for information about other features and brand name reliability.

Clothes Dryers

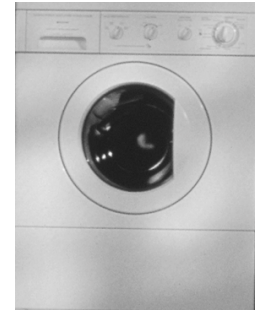
Drying costs 20¢ to 30¢ a load for electric models, 15¢ to 20¢ a load for natural gas models.

Efficient Use

- In dry weather, hang clothes on an outside clothesline. Don't hang wet clothes indoors or in basements. The moisture may cause condensation and mold problems all over the house.
- Clean the lint screen after each load. If the air can't flow, your clothes will take longer to dry.
- Dry full loads, but don't overload. One washer load is one dryer load. Clothes should tumble freely.
- Sort clothes by drying time. It doesn't pay to run the dryer longer for a few heavy items such as jeans or towels.



Horizontal-Axis Washing Machines Save Energy, Water and the Environment



They've been standard in Europe for years and now they're making a splash in the U.S. They're "tumble-action," "front-loading," or "horizontal-axis" washers.

How can they do the job with less water? The drum fills only part way but clothes are fully immersed every time they spin. Clothes last longer because the washer uses gentle tumble action instead of an agitator. Because the washers use less water, you need less detergent. And a full-size clothes dryer can easily be stacked on top of most horizontal-axis machines (those that load from the front), saving floor space.

You can calculate the advantage of investing in a horizontal-axis washer by using the life cycle cost comparison on page 3 of this publication. Horizontal-axis washers qualify for the Oregon Residential Energy Tax Credit. You can get a list of qualifying washers—and their estimated energy savings—from the Oregon Office of Energy (see page 10).

- Use the MOISTURE or HUMIDITY setting, if your dryer has it, rather than the timer. Don't over-dry. It wastes energy, causes shrinkage, and shortens the life of the clothes.
- Take clothes out of the dryer while they're warm and you may not have to iron them.

Proper Maintenance

- Check for lint clogs in venting once a year or if clothes begin to scorch in the dryer. Vacuum lint from behind the lint screen. Support flexible dryer duct to minimize bends and avoid sags. If you're replacing a dryer duct, smooth metal duct is best because it allows higher airflow.
- Do not vent a clothes dryer into your house or basement to save the heat. The high moisture content of the exhaust can cause condensation and mold problems.

Buying New

- Buy a clothes dryer with a HUMIDITY or MOISTURE drying control. If used properly, the

How Much Does Energy Cost for a Load of Laundry?

(Top-loading washer with electric or gas water heater)

Wash/Rinse Setting	Electric	Gas
Hot/Hot	52¢	29¢
Hot/Cold	25¢	14¢
Warm/Warm	30¢	18¢
Warm/Cold	15¢	9¢
Cold/Cold	3¢	3¢
Drying	25¢	20¢

Costs estimated at 5¢/kWh and 60¢/therm

control can reduce drying costs by 10% to 15% compared to drying a load using the timer.

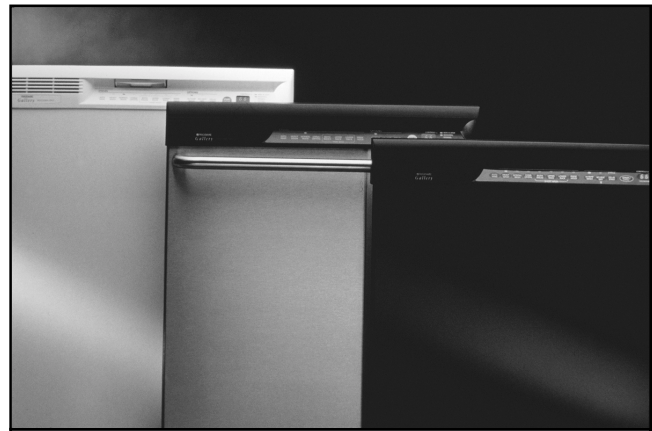
- Some new models feature “tumble action,” which reverses the direction the dryer spins several times during the cycle, reducing knotting of clothes and drying them about 10% faster.
- Gas clothes dryers are somewhat less expensive to operate. If you’re considering converting fuels, use the life cycle cost comparison on page 3. Be sure to include the full cost of installing gas piping.
- COOL DOWN or FLUFF settings available on some models can reduce ironing needed for some fabrics.

Dishwashers

Automatic dishwashers may not be more water- and energy-efficient than careful handwashing.

Efficient Use

- Wash full loads of dishes whenever possible. Most of the energy used in dishwashing is for heating water. You’ll use the same amount no matter how full the dishwasher is.
- Scrape food scraps before loading, but don’t pre-wash dishes. If you don’t think your dishwasher will get unrinsed dishes clean, try an experiment. You might be surprised how clean they get.
- Use the AIR DRY or ENERGY SAVER drying option. It saves about 10% of the total energy used for dishwashing.
- Use the NORMAL cycle for most loads; the POT setting uses more water. The RINSE & HOLD setting also wastes water because the dishes will be rinsed again when they’re washed.



Water Temperature for Dishwashers

Most dishwasher manufacturers recommend 140° to 150°F water to minimize glassware spotting. Most newer dishwashers have a built-in pre-heater to compensate for lower water heater settings. If you’ve set your water heater to 120°F, you probably won’t have a problem. Even without a pre-heater, your dishwasher may clean dishes adequately—unless your water is very hard. Try this test: Set the water heater to 120°F, run a load of dishes, and check the results.

- Measure dish soap. Too much detergent can “cloud” glassware and probably won’t get things any cleaner.

Proper Maintenance

- If your dishwasher isn’t cleaning as well as it used to, check that top and bottom wash arms spin freely. Clean the filter in the bottom of the compartment.

Buying New

- Compare EnergyGuide labels. (Look at the gas or electricity cost for the dishwasher, depending on what type of water heater you have.) Consider dishwashers that qualify for the Oregon Residential Energy Tax Credit. They use 20% to 25% less energy and water than other new models and are eligible for a tax credit of \$50 to \$70. Although they don’t qualify for the Oregon tax credit, Energy Star™ models (those with a listed consumption of 575 kWh or less on the EnergyGuide label) are more efficient than most others.

Kitchen Ranges and Ovens

Cooking is generally a small part of the utility bill.

Efficient Use

- Cook larger portions. Save leftovers for reheating.
- Covered pots and pans heat up faster and hold heat better.
- Match the pan to the burner size for best heat transfer. Use smooth-bottom pans on electric burners. They make good contact with the electric element.
- Always use the ventilation fan if you have a gas stove. Start the fan before cooking and let it run 10 to 20 minutes longer. This helps reduce humidity levels in your house and exhausts cooking grease outside.
- Use a microwave or toaster oven for heating or baking small quantities of food. For safety, don't microwave leftovers in plastic containers, and be sure the food is fully heated throughout.
- Don't use an oven as a room heater. They aren't designed for this purpose. Operating a gas oven with the door open may produce high levels of carbon monoxide.

Proper Maintenance

- Install a carbon monoxide alarm if you have a gas range. Follow instructions for placement of the unit.

Buying New

- Self-cleaning ovens have more insulation. They hold heat better and cost less to use. The self-clean feature costs about 25¢ per use—about the same cost as using oven-cleaning chemicals.
- Convection ovens cook many foods about 25% faster than standard radiant ovens, but tests haven't found reduced energy use. Because the amount of money spent on energy for cooking usually is quite small, the decision to buy a convection oven is more a cook's decision.
- Solid-disk electric elements use slightly more energy than standard "Calrod" burners. Halogen burners offer better temperature control as well as energy savings.
- Gas ranges cost somewhat less to operate than electric but usually cost more to buy. Because energy use for cooking in most homes is small,

Dishwasher or Hand Wash?

Studies showing an advantage to one method usually assume less-efficient practices for the other—such as leaving rinse water flowing continuously when washing by hand.

Because there's no clear advantage of one method over the other, the main benefit of automatic dishwashers is convenience, not energy savings. Many people find dishwashers are a great place to store dirty dishes out of sight before washing them.

energy savings are a minor consideration when deciding which fuel to use.

- If you're installing a gas range, be sure to provide and use a ducted exhaust fan to remove combustion byproducts from the house. Fans rated over 150 CFM, including downdraft range fans and most "designer" range hoods, usually require special provisions for makeup air to ensure effective ventilation and avoid back-drafting of fireplaces, wood stoves, gas or oil furnaces or water heaters.

Other Energy Uses

TVs and VCRs—Cost \$7.50 per month if used 7 hours per day

- Turn off the TV when not watching it. The TV set does not have to be on when taping programs.
- Choose an Energy Star™ model if you're shopping for a new TV or VCR. Look for models with standby power consumption less than 5 watts.

Waterbed—Heater costs between \$6 and \$8 per month

- Pull the covers up when the bed is not in use.
- Insulate the bottom and sides with rigid foam.
- Replace the waterbed with an unheated "soft side" water-filled mattress or coil mattress.

Aquarium—Costs \$1 per month

- Cover the top to reduce the amount of water you have to add (and heat to warm it up) because of evaporation.
- Don't leave the heater running if there are no fish in the tank.

Well pump—Costs \$3 per month

- If the pressure pump cycles on when water is not being used, check pressure settings. Set pressure for 40 and 60 PSI low-high range. Replace the pressure tank if it cannot hold pressure.

Computer—Costs vary with model and use

- Turn off the computer if it's not needed for a couple of hours. Turn the monitor off when leaving even for a short time. New computer components are rated for many more cycles of reliable operation than early models, where the advice to leave them running originated.
- Unless part of the startup sequence, don't turn on the printer and other peripherals until you need them. Turn them off when you power down the computer.
- When you buy new computer equipment, look for the Energy Star™ label. When not used for a period of time, Energy Star™ equipment "goes to sleep," using a fraction of the power. A tap of the keyboard or mouse wakes up the monitor and hard-drive and resumes the program where you left off.

Window air conditioner—Costs \$5 to \$20 per month during summer

- Clean filters every 2 weeks when using the air conditioner. This allows more air to circulate. Remove the front panel to access filter. Rinse and reinstall. Clean coils behind the filter with a vacuum brush if dirty.
- Set the temperature to 78°F or as *high* as comfortable. Place a thermometer on a nearby wall. When the thermometer stays at your target temperature (78°F), you've found the right setting for the air conditioner.
- Use ceiling and window fans whenever possible—even with air conditioning. Fans create breezes that allow a higher temperature setting.
- When the outside temperature drops below 75°F, use the "vent" or "economy" setting or turn off the air conditioner and open the windows.

- If you're buying a new window air conditioner, look for the Energy Star™ label or a low energy use rating on the EnergyGuide label.

For More Information

Oregon Energy Line

Publications about home energy efficiency are available at no charge from Oregon Energy Line (sponsored by the OSU Extension Energy Program and the Oregon Office of Energy). Call **1-800-457-9394** and request a list of publications or state the topics you're interested in. Leave your name and mailing address on the message machine. Publications will be sent to you within 3 days.

Oregon Residential Energy Tax Credit

Major household appliances certified energy-efficient by the Oregon Office of Energy are eligible for a tax credit. The list of eligible models changes monthly. Tax credits are available for high-efficiency refrigerators, dishwashers, clothes washers, and water heaters, solar and geothermal heating equipment, photovoltaic systems, alternative fuel vehicles, sealing heating and cooling ducts, and beginning in 2000, fuel cells and wind systems. Contact the Office of Energy: **1-800-221-8035** or www.energy.state.or.us

Other Resources

Consult back issues of *Consumer Reports* and *Consumer Digest*. Two books that include more complete discussions about appliances are:

Consumer Guide to Home Energy Savings, by Alex Wilson and John Morrill; Sixth edition, 1998; 274 pp.; American Council for an Energy Efficient Economy, 2140 Shattuck Ave., Suite 202, Berkeley, CA 94704; (510) 549-9914; ISBN 0-918249-31-7; \$7.95.

Home Made Money: How to Save Energy and Dollars in Your Home, by Richard Heede and Staff of Rocky Mountain Institute, 1995; 258 pp.; Brick House Publishing Co., Box 266, Amherst, N.H. 03031-0266; (800) 466-8642; ISBN 1-883178-07-X, \$14.95.



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