



## How to conserve both water and energy... and save money in the process!

There have been times in this land of plenty when it has been necessary to curb our voracious appetites for finite natural resources. Certainly during wartime ...when the nation's needs came first...and today, as *our growing demand for energy and water is increasingly outstripping supply*. In both cases, it is not that we're running out of energy or water -- there is a greater supply of fossil fuels (oil, natural gas and coal) available yet to be discovered and harnessed in this country than we have used up to this point in our history. And, we have the same amount of water on the planet that has been here since the dawn of time, but most if it is not drinkable... and we have drawn down the supply in our underground aquifers faster that it can be renewed.

There is an urgency to avoid wasting these valuable resources -- a growing need to steward these dwindling resources and to exercise caution about utilizing them more efficiently so that supplies can be stretched into the future. Cost is also a formidable driving force toward conservation practices. As energy costs rise, the research and development necessary to bring alternatives online increases correspondingly; witness the recent expansions in the use of wind turbines and solar power options as viable parts of the energy mix.

The more we understand about how we use energy and water in our homes, the more we realize that very often saving one resource

results in saving the other. For example, many of the things that use the most water around the house also have a high energy consumption... case in point, water heaters and the many ways hot water is used. It doesn't take a Sherlock Holmes to find the connections.

The typical U.S. family's energy bills average about \$1,600 a year and, sadly, a large amount of that energy is wasted. While the cost of water is nowhere near the same annual investment required to cool, heat, light and power our homes, water bills are rising dramatically and the days of cheap and plentiful water are history. The days of wasteful practices and habits, however, should be history, as well. Did you know, for example, that *more water is wasted in our homes each year through unrepaired leaks than the amount of water we drink?*

### **DOUBLE UP AND SAVE TWICE...**

The best place to start is the top...the worst water and energy users in the household. According to the US Department of Energy, water heating (13%) and appliances and lighting (34%) use just about half of the energy we consume at home. If we match up these same categories with water consumption, we can determine our joint conservation targets pretty quickly. Basically they are the things/activities/appliances that use hot water. While there are long lists of ways that water and energy can be conserved, we'll concentrate on the 'two-fers' here.

### **In Hot Water...**

There are four basic ways to take charge of your water heating bills: don't heat the water so hot; insulate the water heater; use less; or upgrade the equipment to a newer, more efficient model.

- Lower the temperature setting on the water heater to 120 degrees...that temperature will prevent bacteria from building up and will still be sufficient to generate enough comfortable hot water for most uses.

- Add an insulation 'jacket' to the tank and wrap any exposed pipes to knock off up to 15 percent of the hot water costs.

- About every three months, drain off a quart of water from the tank to remove any sediment that impedes heat transfer and lowers the efficiency of the hot water heater. Be sure to follow the manufacturer's instructions to accomplish this.

- Time for a new hot water heater? Don't wait until it fails before replacing it; and take time to research energy and water efficiency and performance. Look for the Energy Star and EnergyGuide labels\* which list key information you'll want to consider when making a purchase decision.

Let's start with using less. At home, hot water is generally used in three rooms -- the bathroom, laundry room and the kitchen - and there are some great conservation options in each room. Here's how hot water use breaks out: 32 percent of the heated water is used in washing

\* See page 8

clothes; 20 percent goes down the shower drain; another 20 percent is used for bathing (sink and bath tub use); and automatic dishwashing consumes 12 percent, which leaves 5 percent for preparing food and 4 percent for washing hands.



### The Bathroom...

■ Start with the obvious...fix leaky faucets and plumbing joints. Wasting water is bad enough, but if it is HOT water, the cost goes up. Fixing a leaky faucet/fixture can save 20 gallons a day for every leak stopped.

■ In the shower: install a low-flow shower head. You don't have to sacrifice pressure and 'designer' spray cycles - even the efficient new heads have them. Restricting the flow can cut shower water use in half, and save 500 to 800 gallons a month. Here's an amazing factoid: a five-minute shower with a low-flow showerhead would save enough water in a year to fill a 15-ft. aboveground pool...or about 4550 gallons. If everyone in the US did this, we'd save enough water to fill about 2,100 Giants Stadiums!

■ Install aerators on the faucets. Surprisingly, faucets account for about 15 percent of the indoor water use, and they usually flow at twice the rate necessary to get the job done. If aerators are added to both bathroom and kitchen sinks, about 1000 gallons of water a year can be saved...and much of that is energy-intensive hot water. While you're at the sink, turn off the water while brushing your teeth or shaving. It may seem like such a little amount of water (three gallons

on average for either activity), but it adds up to an annual savings of 2,880 gallons.

■ Take shorter showers -- even a one or two minute reduction can save up to 700 gallons a month. A lengthy shower will really 'fire up' a hot water heater. Consider adding a plastic container or bucket at the side of the shower to capture unused water. This can be used to flush the toilet or to water houseplants if it isn't soapy, or for household cleaning chores if it is.

### The Laundry Room...

Appliances account for about 1/5th of your household energy consumption, and two of these (washer and dryer) are usually found in the laundry room. About 90 percent of the energy used by the washing machine is to heat the water, so this provides the best conservation options: use less - or cooler - water.

■ With the many choices of cold water detergents on the market today, 'warm' or 'hot' water settings can usually be reserved for really dirty clothes or for combating stubborn stains.

■ Use your washing machine only with full loads and with the minimum water setting to get the job done.

■ Wash bulky bedding and/or towels separately from lighter-weight clothing items. This will help the dryer work more efficiently. While the dryer doesn't use water directly, maximizing its performance is key to cutting energy costs.

■ When it is time to purchase a new washing machine, there are some great high efficiency choices out there today. Always check for the Energy Star and EnergyGuide labels in making your decision. The new front-loading, horizontal-axis models generally save energy and water. The older top-loading vertical-axis models immerse the items in a full tub of water, and then agitate it through the wash cycle and spin it through the rinse cycle. The new high efficiency (He) style doesn't have to fill the tub so full, and tumbles laundry repeatedly through fast cycles, similar to the

motion in a clothes dryer, using about half the water in the process. Thanks to the fast spin cycles, the He type is also able to get more water out of the clean laundry, which reduces the time and energy needed for drying.

### The Kitchen...

There are basically two hot water consumers in the kitchen: the dishwasher and the sink. Thanks to the *National Appliance Energy Conservation Act of 1987*, manufacturers made significant water- and energy-efficiency improvements to dishwashers by reducing hot water use, which accounts for most of the energy used by the appliance.

■ Today, installing a 7.0 gallon per load (gpl) dishwasher to replace a model that used 9.5 to 12.0 gpl will save an estimated 2.6 kWh per household, per day. This adds up to a 940 kWh savings per household,



■ A dishwasher uses energy for several functions: heating water for cleaning and sanitization; to run the motor; and to operate the heater or fan to dry the dishes. Making setting adjustments offers several good options for conserving water and energy, so be sure to check the manufacturer's instructions and owner's manual to discover ways to tailor energy and water cycles needed for a particular load.

■ Since a heating element is generally used to dry the dishes at the end of the washing cycle -- and requires about 7 percent of the energy used by the machine - choose the no-heat drying option if available, or simply

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## Time to Save Energy and Water...and Money

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turn off the dishwasher, open the door, and allow the dishes to dry themselves.

■ Scrape, don't pre-wash the dishes. Studies show that most people continue to pre-wash before loading items into the dishwasher, even though models built in the last 5-10 years do a great job cleaning even heavily soiled dishes. If you feel like you simply must pre-rinse, use cold water.

■ Wash only full loads. The dishwasher uses the same amount of water whether it is full or not, and this practice really saves energy, too.

■ Select the 'light-wash' option if there is one. Experts say that it is rarely necessary to use the normal setting on a dishwasher. This light-wash option cleans just as well and can reduce the water use up to 55 percent. That could translate into an annual savings of 2,860 gallons of water.

■ At the kitchen sink - don't let the water run until it gets hot if you're using it for cooking; that's heating it

twice. Add a faucet aerator; less hot water saves both energy and water.

■ Since almost 50 percent of American households have a garbage disposal in the kitchen, here is yet another way to SAVE at the sink. Use the disposal less, and the garbage can more -- even better, COMPOST! This would save between 50 and 150 gallons a month. If you must use the disposal, run it with cold water.

There are hundreds of ways to conserve energy and water at home, and these suggestions have focused on situations when both options occur together. The more conscious we become of the way we use water and energy in and around our homes, the more ways we will find to use them efficiently. The bottom line, of course, is that saving these precious natural resources saves us money, too. And that's not such a bad deal. ■

## Did you Know?

A kilowatt-hour (kWh) measures a unit of energy; the amount of energy that would be transferred at a constant rate of one kilowatt for one hour; the amount of electricity required to burn a 100 watt light bulb for 10 hours. This is the unit used by power companies for billing purposes.

According to the US Department of Energy, an average American household uses approximately 11,000 kWh per year.

## ENERGY STAR...

In 1992, the US Environmental Protection Agency introduced Energy Star as a voluntary labeling program intended to identify and promote energy-efficient products. Computers and monitors were among the first products to be labeled. The label is now on major appliances, office equipment, lighting, home electronics, to name just a few. EPA has extended the label to cover new homes and commercial buildings. Today there are over 12,000 private and public sector 'partners' in the Energy Star program. ■

Based on the best U.S. Government tests

# ENERGYGUIDE

Refrigerator-Freezer  
With Automatic Defrost  
With Side Mounted Freezer  
With Through-the-Door Ice Service

Model ABC-45  
Capacity: 23 Cubic Feet

Compare the Energy Use of this Refrigerator with Others Before You Buy.

This Model Uses 225 kWh/year

Energy use (kWh/year) range of all similar models:

Uses Least Energy 185      Uses Most Energy 244

kWh/year (kilowatt-hours per year) is a measure of energy (electricity) use. Your utility company issues it to compute your bill. Only models with 22.5 and 24.4 cubic feet and the same features are used in this scale.

Refrigerators using more energy cost more to operate. This model's estimated yearly operating cost is:

\$65

Based on a 2003 U.S. Government national average cost of 10.5¢ per kWh for electricity. Your actual operating cost will vary depending on your local utility rates and rate class of the product.

MANUFACTURER: ABC COMPANY, MODEL: ABC-45

Information about features, capacity and size, so you can compare models.

Estimates of the appliance's annual energy use. The lower the number, the more energy-efficient the appliance, and the less it costs to run.

The range of ratings for similar models, from "uses least energy" to "uses most energy." This scale shows how a particular model measures up to the competition.

An estimate of the annual cost to run this model.

