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### Energy Sense: Water Heating

Cooperative Extension South Dakota State University

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ENERGY SENSE:

# water heating



Cooperative Extension Service  
South Dakota State University  
U.S. Department of Agriculture

# water heating

Hot water is taken for granted and looked upon as an integral part of most American households. Little thought is given to the cost of heating water because its use is constant rather than seasonal, as with a central heating system.

The heating of water accounts for a whopping 15 percent of your total energy bill. You can't do without hot water, but there are several ways to conserve it so that energy requirements and costs will be less.

## Equipment

Hot water usage depends on the number of people in a household, the number of bathrooms, and on the presence and regular use of a clothes washer and/or automatic dishwasher. Water heating units, usually using gas, electricity, or oil, are specified in terms of tank size, rate of heat input, maximum estimated hot water usage per hour, and recovery or reheating capacity,

rated in gallons per hour. An oversized unit uses energy to keep unneeded water hot; an undersized unit cannot supply a sufficient amount of hot water. A reliable heating and plumbing contractor can determine the size tank needed in your household.

If you must replace a water heater, make energy efficiency your main criterion. Look for information indicating how efficiently the unit uses the energy required for operating it. Also look for a thickly insulated outer shell. When replacing a gas-fired unit, select one with an electric ignition system. These units eliminate pilot lights—energy wasters.

Relocate the unit, if necessary, as close as possible to areas of major hot water use. Use small diameter pipes for hot water supply lines to minimize heat loss and to reduce the volume of trapped water.

## Thermostat Setting

A thermostat setting of 110°-120°F on a water heater is sufficient if you do not have an automatic dishwasher. A setting of 140°F is recommended if you do have one. Temperatures over 140°F shorten the life of a glass-lined tank.

## Maintenance

Twice a year (monthly if you live in an area with heavy mineral deposits in the water) empty a bucket of water from your hot water storage unit. This will help remove sediment which insulates the tank from the source of heat and wastes energy.

## Stand-by Losses

Heat losses from a hot water storage tank and supply lines can be significant. You can reduce losses by wrapping unfaced batt or blanket insulation around and over the shell of the tank.



Pipe insulation is needed especially where pipes run through unheated areas such as basements and crawl spaces. Several types of insulation for wrapping or covering pipes are available at hardware and building supply stores. Insulate cold-water pipes as well in these areas to reduce the chance of winter freeze-up.

A leaking hot-water faucet is an enormous waster of energy and should be repaired immediately. The replacement of washers is a simple operation described in every basic homeowner's maintenance and repair guide. A faucet that leaks one drop per second wastes 2,400 gallons of hot water each year. That's enough to run 160 full cycles on an automatic dishwasher!

#### "Off-Peak" Water Heating

Some utility companies offer a special or "off-peak" rate to customers in an attempt to reduce electric demands, thus avoiding the need to put into use back-up generating equipment which is usually less energy efficient. Such rates, if available, apply during evening hours and are lower than rates for peak use. They require special equipment and a separate meter. By gearing hot-water use to off-peak hours, it is possible to reduce the amount of

money you spend for water heating.

Even if your utility company does not presently offer an "off-peak" rate, try to reduce your peak hour hot-water demands. Take showers, do laundry, and run the dishwasher before 7:00 A.M. or after 8:00 P.M. or on weekends when there is less generating demand on utilities. Such practices will not lower your utility bill, but they will help conserve energy and will reduce the need for building additional generating capacity which is very costly.

#### Hot Water Conservation Tips

A simple rule of thumb applies to energy conservation and hot water: every time you use cold water instead of hot you save energy and dollars. The following tips will help remind you of ways to reduce hot water consumption.

- Wash only full loads of laundry. Use water level or load size devices on your clothes washer.
- Use as low a water temperature as possible for the wash cycle of your clothes washer. Use cold water for all rinse cycles. Presoak heavily soiled clothes before washing.

- Scrape dishes before placing them in a dishwasher. If rinsing is necessary, use cold water.
- Try to run your dishwasher no more than once a day or only when fully loaded. Between meals, store soiled dishes in the unit.
- When washing dishes by hand, fill a pan with hot water for rinsing. Don't let hot water run continuously.
- A flow restrictor can be purchased for as little as \$1.50. Easily installed in a shower head, this device reduces the amount of water flowing from the pipe (but not the pressure) from 5 gallons per minute to 3.
- Take quick showers instead of baths; they use up to 50 percent less hot water.
- Don't let hot water run continuously when you shave. Close the drain and fill the basin with water instead.
- Turn down your water heater thermostat to a minimum setting if you plan to be away from home for an extended period of time.

One in a series of home energy conservation fact sheets. Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the USDA. Hollis D. Hall, Director of CES, SDSU, Brookings. Educational programs offered without regard to age, race, color, religion, sex, handicap, or national origin. An Equal Opportunity Employer.

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