

# E-Conservation Home Energy Management Series

## WATER HEATING OPTIONS

### New Water Heaters

**If you're in the market for a new water heater or are doing homework to know what's available once the old one quits working, you will have a variety of choices to consider and discuss with your heating contractor or plumber.**

#### **HIGH EFFICIENCY GAS STORAGE WATER HEATERS**

A High-Efficiency Gas Water Heater is an upgraded version of the conventional gas water heater. It has better insulation and heat traps and more efficient burners. Look for storage tanks with a high thermal resistance (R-value) of around R-25 to reduce standby heat losses.

#### **GAS-CONDENSING WATER HEATERS**

Regular gas water heaters vent combustion gases to the outdoors at a high temperature. A gas-condensing water heater is more efficient because it uses/captures more of the combustion gas's high temperature to heat the water.

#### **HEAT PUMP WATER HEATERS**

Instead of generating heat-to-heat water, a heat pump uses heat from the surrounding air to heat water. It's similar to how a refrigerator works, only in reverse. A refrigerator takes warm air from inside the unit and transfers it outside. A heat pump water heater takes the heat from the room and transfers it to the tank of water, basically cooling the room. Heat pump water heaters may not work as efficiently in colder climates during winter if a living space's heated air is pulled/pumped to heat the water.



**E-Conservation**  
power to control what you spend

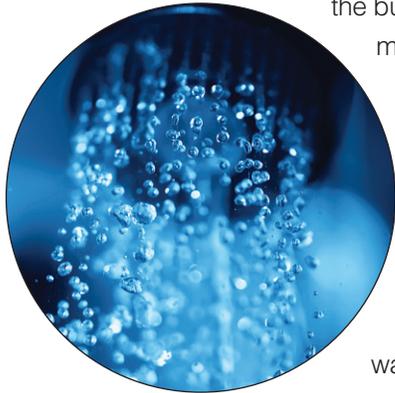
**NC** State University  
A&T State University  
**COOPERATIVE  
EXTENSION**  
Empowering People · Providing Solutions

**NC STATE UNIVERSITY**

## TANKLESS (ON-DEMAND) WATER HEATERS

Most water heaters keep water heated at all times—whether needed or not. Tankless water heaters save energy by heating water only when it is needed. A flow sensor detects when the hot water faucet is turned on or the warm/hot water selection is made for an appliance.

For a gas-powered heater, the gas valve opens and the burner fires-up. The system measures the incoming water temperature and calculates how quickly the water should flow past the burner through to the faucet or appliance. The burner's heat is transferred to the water. While these systems can supply a limitless amount of heated water, they must be sized for your hot water needs. Electric tankless heaters are available, but are most appropriate for low demand.



## SOLAR WATER HEATING SYSTEM

Solar water heaters allow you to take advantage of heat from the sun. With solar water heating, the sun's energy is absorbed by a south-facing "collector" that heats a fluid (water or antifreeze). The fluid transfers its heat to potable water stored in a tank. A back up system is required for those days when there is higher than usual demand or that are cloudy. The back-up can be a tankless water heater.

**BEFORE PURCHASING:** Before you buy a new water heater, consider both the purchase costs and the operating costs. Water heaters with the lowest price tags are often the most expensive to operate. Look for the Energy Star label for energy efficient water heaters that will save you money. Also look for and compare the bright yellow EnergyGuide labels. These labels provide information on energy efficiency and estimated annual operating costs.

**SOURCE:** Adapted from Water Heater Energy Saving, E3A: Energy Management for the Home, Montana State University Extension, 2013

October, 2013



E-Conservation



Empowering People · Providing Solutions

NC STATE UNIVERSITY