

The gas is always greener

An environmental look at fuel choices for water heating



When you are deciding between a natural gas and electric water heater for your home, you may not realize how much impact your decision will have on the environment. Natural gas water heaters are well known for offering lower operating costs and fast recovery. But another important benefit that is often overlooked is this: when compared to electric water heaters, natural gas water heaters are dramatically “greener,” releasing far fewer harmful emissions into the air.

Water heater pollution: natural gas vs. electric		
In pounds per year		
Emissions	Electric water heater (.91 EF)	Natural gas water heater (.59 EF)
Carbon dioxide	7,444.54 lbs/yr	2,902.37 lbs/yr
Sulfur dioxide	19.52 lbs/yr	.01 lbs/yr
Nitrogen oxide	16.18 lbs/yr	4.76 lbs/yr
Mercury	.00013 lbs/yr	None

Based on equivalent output energy requirements for both electric and gas water heaters.

Emissions rates for electric source energy taken from EPA E-GRID database analysis: "Annual Average Emissions Rate in Minnesota as of Year 2004".

Emissions rates for gas source energy from August 2000 AGA report: "Source Energy and Emissions Factors for Residential Energy Consumption".

Natural gas is clean-burning and efficient

Natural gas water heaters recover hot water twice as fast or more than electric models and with much less harm to the environment. The chart above compares the environmental impact of a natural gas water heater versus a comparable electric water heater. The natural gas model produces:

- **Less than half the amount of greenhouse gas emissions.** Carbon dioxide (CO₂) is the principle greenhouse gas linked to global warming.
- **Almost zero sulfur dioxide emissions.** Sulfur dioxide (SO₂) emissions contribute to acid rain and the formation of fine particulates, which pose major public health problems and are the major cause of reduced visibility or “haze.”
- **Less nitrogen oxides emissions by more than three times.** Nitrogen oxides (NO_x) are linked to the formation of ozone smog. Ground level ozone can cause increased frequency and severity of asthma attacks, respiratory infections and other health problems.
- **Zero mercury emissions.** Mercury accumulates in some fish at levels exceeding current health department guidelines. Burning natural gas produces no mercury emissions. However, coal-fired electric power plants have been called the United States’ largest source of mercury air emissions.



In the 2005 Mercury Reduction Progress Report to the Minnesota Legislature, the Minnesota Pollution Control Agency called for a 93 percent reduction in mercury emissions in order to make fish safe for most people to eat. Burning natural gas produces no mercury emissions.

Natural gas water heaters and ENERGY STAR

Natural gas water heaters are an important part of the ENERGY STAR program, which was developed by the U.S. Environmental Protection Agency to help reduce greenhouse gas emissions. Powered direct-vent natural gas water heaters offer the water heating upgrade needed to help your homes earn ENERGY STAR qualification. For more information about the ENERGY STAR program, visit energystar.gov.

See other side for more benefits.

More benefits of natural gas water heaters



Go ahead. Start the laundry, run the dishwasher, and draw a hot bath...all at the same time. With efficient natural gas at work, you can count on having all the hot water you need.

Natural gas water heaters are well known for their reliability because they are able to “recover” much faster than electric water heaters. In other words, they can replenish the tank with hot water much faster than electric models. For this reason, they can have a smaller tank and take up less living space.

Additionally, natural gas water heaters save on energy costs, even though fluctuating wholesale natural gas prices in recent years have caused some to ask “Is natural gas still the best value for water heating?” Compare apples to apples, and the answer is clear.

Yes. Natural gas still heats water for less.

Natural gas is sold in therms and electricity is sold in kilowatt hours (kWh), so comparing prices can be misleading. But the job of both fuels is to produce heat, which is measured in British Thermal Units (Btu). Compare Btus and it becomes easy to see how efficient natural gas is still the best energy value.

EXAMPLE: Let’s say you need to produce 100,000 Btu for water heating. If natural gas is selling for \$1.00/therm and electricity is selling for 6 cents/kWh, it will take \$1.76 worth of electricity to produce enough heat, but only \$1.00 worth of natural gas to get the same result.

Even when natural gas reached a record high, it did the job for less. In terms of heat produced, \$1.32/therm of natural gas is equivalent to 4 1/2 cents/kWh – and that’s much lower than Minnesota’s average electric rate of 8.3 cents/kWh*. Our average price per therm of natural gas is \$1.05 cents for the three years ended 11/30/06.

Current gas pricing information is available anytime at CenterPointEnergy.com/gasprices

*Source: Department of Energy - Energy Information Administration

Recovery: natural gas works harder and faster

The faster your water heater can recover (replenish its tank with hot water) the less likely you will run out of hot water. Natural gas water heaters recover at a faster rate – 40, 50, 75 or more gallons/hour – while electric water heaters recover at only 21 gallons/hour. Typically, you can expect a natural gas water heater to fully recover in about an hour, while you may be waiting up to five hours for an electric unit to fully recover.

Natural gas water heaters save space

A natural gas water heater is significantly smaller than an electric unit with comparable output, saving valuable space in your utility room, laundry room or other area.

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