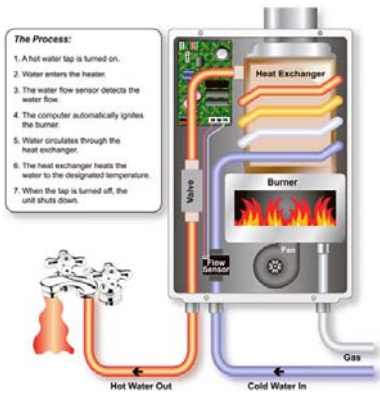


# THE GAS GUZZLER IN YOUR GARAGE ...



switching to a tankless water heater very attractive.

...and no, it's not the Hummer!! It is your tank water heater, a mainstay of our culture that has served well in providing our hot water needs so far but has come under scrutiny in recent years. The culprit is the standby nature of the traditional water heater and the large energy loss associated with it. In contrast, tankless water heaters have extremely low energy losses making them ideal candidates for increasing our sustainability. Current tax credits and incentives make

## What's wrong with the traditional water heater?

Traditional water heaters heat a tank of water using either electricity or gas and maintain this tank of water at a preset temperature at all times. The hot water line to the house runs from this tank of pre-heated water. The tank is always maintained at the preset temperature irrespective of usage. This is like running the engine in your car 24x7 so that when you do need to drive, the engine is warm. While traditional water heaters are well insulated, the water does tend to cool down over time and the burners come on just to keep the water hot all the time. It is estimated that 20% to 30% of the energy usage in a traditional water heater goes towards keep the water warm (standby losses). Another disadvantage of the traditional water heater is the limited hot water available which is usually not a problem unless you want to take a shower after your 20-minute soak in the tub. Landfill usage with discarded water heaters is also a perennial issue. The traditional water heater is widely used in the US and Canada but rarely used elsewhere. Tankless water heaters are the norm in other parts of the world.

## What is a tankless (also known as on-demand) water heater?

A tankless or on-demand water heater does not store hot water but rather heats water as it is needed. These are way more efficient than traditional water heaters.

And since they heat water as needed, they do not have a limit on the amount of hot water available. A family can all take showers one after another, and the last person will have as much hot water as the first. The picture above shows how a tankless water heater works. Tankless water heaters come in all shapes and sizes: those that can be installed for each hot water source, those that can be installed in a central location (like the traditional water heater), those that run on electricity, those that run on natural gas, etc. The widely used brands include Takagi, Noritz, Rinnai, Rheem and Bosch.



Tankless water heaters have two disadvantages: initial cost and the cold-water-sandwich. Tankless water heaters cost more initially than traditional water heaters with prices ranging from \$500 to \$2500, depending on the brand, size and efficiency. Tankless water heaters also result in cold-water-sandwiches, the term used to describe the short flow of cold water before the hot water starts flowing. Tankless water heaters detect flow of water and come on when water moves through them. This usually results in 3 to 6 seconds of cold water before the water flows at the set temperature. Assume that someone just took a hot water shower. When they shut the hot water off, the pipes

contain hot water. Now, when you start the hot water, the hot water already present in the pipes begins to flow, followed by some cold water as a result of the 3 to 6 second lag in the water heating, followed by the freshly heated water. This cold-water-sandwich may require, what some call, a "lifestyle change". You do need to get used to this change in pattern of hot water flow.

**What does it cost to switch? What is the payback?** I personally switched to a tankless water heater recently. After much research, I settled on Endeavor Plumbing (<http://www.endeavorplumbing.com>) as my contractor and went with the Noritz 0841 Condensing water heater. I also went with an external installation – the heater is installed on my exterior garage wall. The water heater is top-of-the-line with a hot-water-response under 3 seconds. The cost breakdown and the payback period are shown in the table. I am very pleased with the performance of the system. In the future, if I decide to go with a solar water heater, I can connect the solar water heater to my tankless water heater.

Tankless Water Heating - Costs, Savings and Payback	
	\$2,460.0
Contractor Total Cost	0
	<b>\$2,460.0</b>
	<b>0</b>
Federal Tax Credit (30% of total project costs up to \$1500)	\$738.00
OR State Tax Credit (25% of project materials cost up to \$340)	\$340.00
Energy Trust Incentive	\$200.00
	<b>\$1,278.0</b>
<b>Total Tax Credits &amp; Incentives</b>	<b>0</b>
	<b>\$1,182.0</b>
<b>Net Cost of Installed Water Heater</b>	<b>0</b>
<b>Average Monthly Gas Bill</b>	<b>\$100.00</b>
Average Monthly Gas Usage for Water Heating	30%
Average Monthly Cost for Water Heating	\$30.00
<b>Monthly savings with a tankless water heater</b>	<b>\$ 9.00</b>
<b>Number of years to recoup net costs</b>	<b>11</b>

This is a picture of my installed Noritz water heater. I am happy that I have increased sustainability in yet another aspect of my life on this planet.

## Where can I get more information?

The following are some websites that provide further information:

[http://www.energysavers.gov/your\\_home/water\\_heating/index.cfm/mytopic=12820](http://www.energysavers.gov/your_home/water_heating/index.cfm/mytopic=12820)  
<http://www.consumerreports.org/cro/appliances/heating-cooling-and-air/water-heaters/tankless-water-heaters/overview/tankless-water-heaters-ov.htm>  
<http://www.takagi.com/>  
<http://www.noritz.com/>

If you have a topic on sustainability that we should write about, please do let us know. You can use the Suggestions form on the HOA website at [www.fhhoa.com](http://www.fhhoa.com)