GEOSPRING™ Hybrid Water Heater

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What is a GeoSpring hybrid water heater?

A Hybrid water heater combines two technologies

Conventional electric tank water heaters use electric elements to heat the water

1. Heat pump – primary heating method, uses energy from the environment to heat water (reverse refrigeration cycle)
2. Conventional electric elements – secondary heating method, uses standard electric elements to heat water. Less efficient, but quicker recovery when needed

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How does the GeoSpring™work?

Heat Pump

- Evaporator draws in ambient heat using 2 variable speed fans
- Evaporator absorbs the heat and the compressor increases the temperature and pressure of the refrigerant

External condenser coils

- Heated refrigerant flows through the coils to heat water in the tank
- Coils are external and surround the porcelain lined tank to prevent corrosion and calcium build-up

Tank and electric elements

Inside the tank is just like a standard water heater. Two electric heating elements alternate to aid in heating water when faster water recovery is needed. So you never run out of hot water!

This innovative process reduces water heating expenses up to 62%!

Operating modes to fit your lifestyle

eHeat™ mode

- Maximize your savings. The most energy efficient mode as it only utilizes the heat pump

Hybrid mode

- Save while experiencing fast recovery. Hybrid mode is your factory setting combining eHeat, with the recovery of Standard Electric Mode

High Demand mode

- Guest coming for the weekend? Designed for higher than average usage so you don't worry about running out of hot water

Standard Electric mode

- Operates like a standard electric water heater fast recovery, but least energy efficient

Vacation setting

- Why pay to heat your water when you're not home?
- Adjusts the temperature setpoint down to 50F for the duration of your vacation

GeoSpring™ hybrid water heater specs

Backlit LCD control panel

Temp setting
100-140F in 1F increments

Energy factor of 2.35 in Hybrid mode

Similar electrical and plumbing connections for easy installation

Saves up to 62% on water heating costs

Height = 60.5"
Diameter = 21.75“
Weight = 190 lbs
Similar footprint as standard electric 50 gallon water heater

Uses electric-240V, 30AMP

50-gallon capacity

Same performance and recovery as traditional electric water heater

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Savings

ENERGY STAR® began rating heat pump electric water heaters for the first time in the fall of 2009

To qualify a heat pump water heater must:	**GeoSpring™ exceeds with:**
• Have an EF of at least 2.0	2.35 EF (hybrid mode)
• Have a manufactures warranty of at least 6 years	10 year limited*
• Have a minimum 50 gallon first hour recovery rate	63 gallon FHR
• Must meet specific UL requirements per DOE	YES

*See Use & Care manual for limited warranty details

Source: DOE ENERGY STAR

Savings

ENERGY STAR® Partner of the Year

- ENERGY STAR is a government-backed program helping people protect the environment through greater energy efficiency.
- GE creates products that help consumers use less energy, save money and protect the environment.
- Many of our products have earned the esteemed ENERGY STAR label from the U.S. Department of Energy and the Environmental Protection Agency.

GE won the ENERGY STAR Partner of the Year award in household appliances for 2004, 2005, 2006, 2007 and 2008.

Energy Star

- New Category for 2009
- GE worked closely with DOE to establish new category.
- GE received first listing 8/24/09.
- Requirements for Energy Star certification
  - 2.0 EF or better
  - 6 yr sealed system warranty
  - 50 gal FHD

New Energy Star category for 2009

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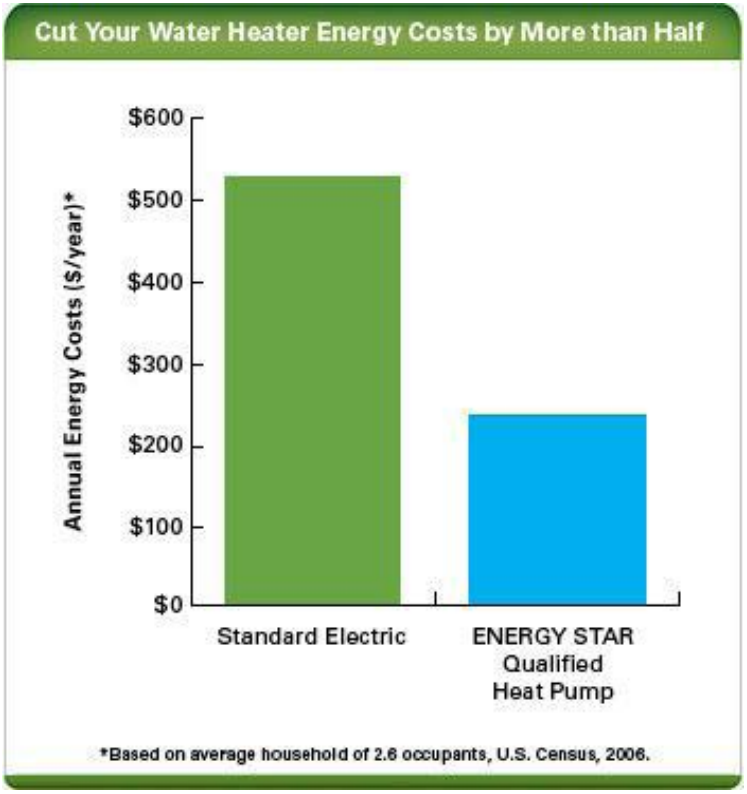
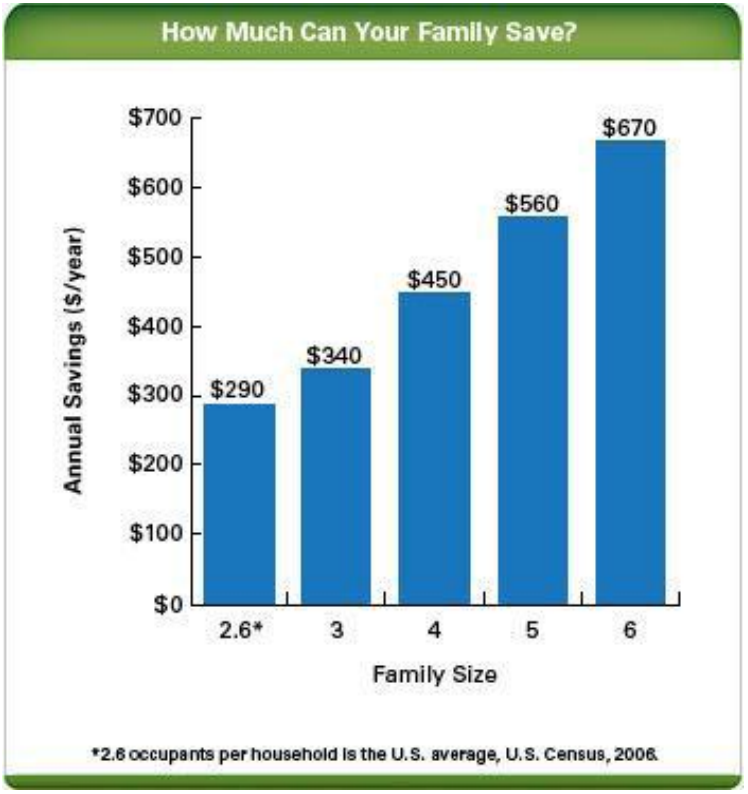
Annual savings – heat pump water heater





Savings Related to Household Size…Larger Families Save Even More

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Source: DOE website http://www.energystar.gov/index.cfm?c=heat_pump.pr_savings_benefits

Savings

Energy Comparison

Comparison of ENERGY STAR® average savings between gas storage, gas tank less and solar.

Water Heater Technology	Average Annual Savings*
High-Efficiency Gas Storage	$30
Whole-Home Gas Tankless	$115
Solar	$220
Integrated Heat Pump	$290

*Based on average household of 2.6 occupants, U.S. Census, 2006
Source: DOE website www.energystar.gov/index.cfm?c_water_heat.pr_water_heater

Annual cost to operate comparison

50-gal electric tank water htr

EF=0.90
9-yr warranty

GeoSpring™

EF=2.35
10-yr warranty

50-gal gas tank water htr

EF=0.58
9-yr warranty

6.4 gpm tankless

EF=0.83

12-yr HX, 2yr parts warranty

GeoSpring has the lowest cost to operate

National Average: 10 cents/kwh*

Annual savings based on National Average:

$302.50

*http://oee.nrcan.gc.ca/residential/personal/tools/calculators/heatingcalc/compare-current-heating.cfm#step1

Total life cycle cost comparison

Table 1
ACEEE Comparison of installed costs and energy costs for various water heating technologies. [20]

Note: There have been recent changes in energy costs which are not reflected here. As of publication, costs of 11 cents per kwh for electric, $2.80 per gallon for fuel oil may be more representative. However, the relative cost advantage of HPWH remains.

Water Heater Type	Efficiency (EF/COP)	Installed Cost [1]	Yearly Energy Cost [2]	Life (years)	Total Cost (Over 13 Years) [3]
Conventional gas storage	0.60	$850	$350	13	**$5,394**
High-efficiency gas storage	0.65	$1,025	$323	13	**$5,220**
Condensing gas storage	0.86	$2,000	$244	13	**$5,170**
Conventional oil-fired storage	0.55	$1,400	$654	8	**$11,299**
Minimum Efficiency electric storage	0.90	$750	$463	13	**$6,769**
High-eff. electric storage	0.95	$820	$439	13	**$6,528**
Demand gas (no pilot)	0.80	$1,600	$262	13	**$5,008**
Electric heat pump water heater	2.20	$1,660	$190	13	**$4,125**
Solar with electric back-up	1.20	$4,800	$175	13	**$7,072**

1. Purchase costs include our best estimates of installation labor and do not include financial incentives.
2. Operating cost based on hot water needs for typical family of four and energy costs of 9.5¢/kWh for electricity, $1.40/therm for gas, $2.40/gallon for oil.
3. Future operating costs are neither discounted nor adjusted for inflation.

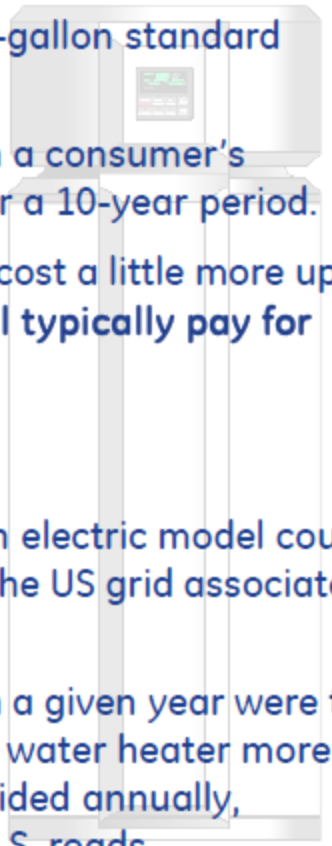
20. ACEEE, "Water Heating," *Consumer Guide to Home Energy Savings: Condensed Online Version*, website, last updated August 2007, ACEEE, http://www.aceee.org/consumerguide/waterheating.htm.

Heat pump water heaters have the lowest life cycle Cost of any water heater category

Savings and Ecomagination Claims

Energy/Cost Savings and Financial Payback

- The GE Hybrid Water Heater uses up to **62% less energy** than a 50-gallon standard electric tank water heater.*
- The GE Hybrid Water Heater saves approximately **$320 per year** on a consumer's electric utility bill.* That's a savings of **$3,200** in operating cost over a 10-year period.
- While the GE Hybrid water heater with heat pump technology may cost a little more up front, the tax incentives, ENERGY STAR rebates and cost savings **will typically pay for itself in approximately 3-4 years.****



Ecomagination

- Operating a GE Hybrid water heater instead of a standard 50-gallon electric model could help a U.S. household **avoid up to 62% of its CO2 emissions** from the US grid associated with water heating.
- If 25% of U.S. households purchasing a new electric water heater in a given year were to choose GE's Hybrid water heater over a standard 50-gallon electric water heater more than **4 billion lbs. of CO2 emissions** from the U.S. grid could be avoided annually, equivalent to the annual emissions of more than **360,000 cars** on U.S. roads.

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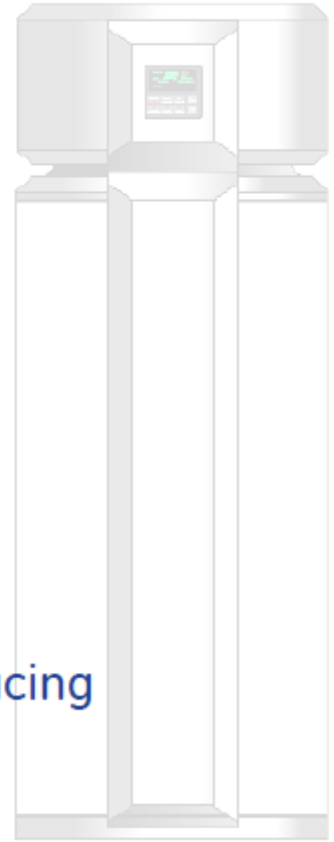
* Based on DOE test procedure and comparison of a 50-gallon standard electric tank water heater using 4,881 kWh per year versus the GE heat pump water heater using 1,856 kWh per year

** Depends on electricity cost in your area.

Installation

- ELECTRIC - Product is designed to be an easy replacement for an existing standard electric water heater
  - Similar footprint as a standard 50 gallon heater
  - Uses same 220v electrical connections
  - Uses same water connections
  - Slightly taller (~5") due to heat pump
  - Requires condensate drain
- GAS - Can also be used to replace a gas water heater
  - Similar footprint
  - Same water line connections
  - Installation may be more complicated when replacing gas due to need for 220v electrical power
  - Similar height as measured to the gas vent (62")



Electric switch-out very easy...Gas a little more complicated