

## Heat Pump Water Heaters

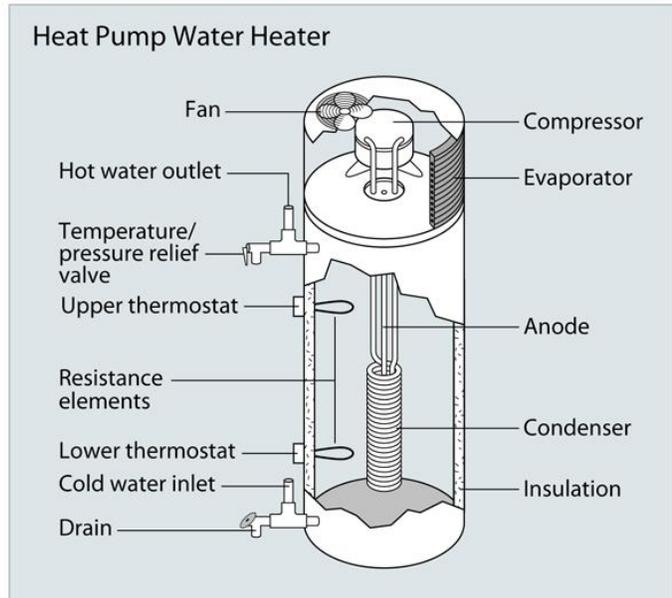
Heat pump water heaters have been around for many years, but recent innovations in product design have resulted in models with good potential for energy savings for homes in the Pacific Northwest. Homes replacing a standard electric water heater with a heat pump water heater **can save up to 50% on water heating costs.**

### How They Work<sup>1</sup>

Heat pump water heaters (HPWH) use electricity to move heat from one place to another instead of generating heat directly, making them two to three times more energy efficient than conventional electric resistance water heaters.

Essentially, heat pumps work like a refrigerator in reverse.

While a refrigerator pulls heat from inside its interior and moves it into the surrounding room, a stand-alone *air-source heat pump* water heater pulls heat from the surrounding air and moves it—at a higher temperature—into the tank to heat water.



**Heat Pump Water Heater Diagram.<sup>1</sup>**

### Installation information

A manufacturer-trained technician can help determine if a heat pump water heater is right for your home. Each manufacturer provides guidance for proper installation of their product. Generally, a heat pump water heater requires a location with about 750-1,000<sup>2</sup> cubic feet of free air circulation and temperatures normally 40°–90°F. Good locations for a heat pump water heater include utility rooms, garages, and basements. For about four hours a day, under typical operating conditions, the HPWH produces cool exhaust air and noise similar to a window air conditioner.

### Contractor information

To ensure high quality installations, most utilities require trained technicians for their sponsored programs. BPA maintains a list of manufacturer-trained technicians and links to manufacturer websites for training information on its website at [www.bpa.gov/go/hpwh](http://www.bpa.gov/go/hpwh). Links to training videos and sessions are also available on the website.

### How to Participate

Homeowners interested in a heat pump water heater should contact their electric utility for more information. Contractors interested in participating should contact the local utility and follow the manufacturer links on BPA's website for training information.

<sup>1</sup> Source: US D.O.E Energy Efficiency and Renewable Energy, "[Energy Savers: Heat Pump Water Heaters](#)". 02/09/2011.

<sup>2</sup> Always review the manufacturer's installation manual; room requirements will vary.



## Heat Pump Water Heaters: Frequently Asked Questions

**Q. What is a heat pump water heater?** It is an electric water heater that uses heat pump technology to heat water. Warmth is “collected” from the surrounding air and carried through pipes containing refrigerant to heat water in the tank. It’s like a refrigerator running in reverse.

**Q. Is a heat pump water heater right for my home?** Many homes in the Pacific Northwest can benefit from a heat pump water heater, which can be installed in garages, basements, utility rooms and similar locations. The heat pump water heater should be replacing an electric water heater and be on the [BPA Qualified Products List](#) at [www.bpa.gov/go/hpwh](http://www.bpa.gov/go/hpwh), and have a tank at least as large as the tank being replaced.

**Q. How much hot water will be available for our household?** Heat pump water heaters come in a variety of sizes, commonly between 50 and 80 gallons. Consumers replacing an electric water heater with a heat pump water heater of the same size should not notice a change in the amount of hot water available. Homes with higher hot water demands may benefit from upsizing the tank.

**Q. How much money can I save with a heat pump water heater?** Homeowners can save from 25% to 50% per year on their electric water heating costs if they replace an electric storage water heater with a heat pump water heater.

**Q. How much does a heat pump water heater cost?** The cost of a heat pump water heater depends on several factors, such as size and features. Installed costs can vary widely from \$1200 to \$3000.

**Q: Can I install it inside my home?**

BPA-approved heat pump water heaters can be installed inside the home, though interior installations are best suited to homes heated with a heat pump or gas furnace. Homes heated with zonal electric resistance heat or an electric furnace may not save as much energy, due to the lower efficiency of their home’s heating source.

**Q: Are all ENERGY STAR heat pump water heaters approved by BPA?**

BPA requires that a heat pump water heater be able to continue to operate at a minimum temperature of 45 °F. Currently, not all ENERGY STAR heat pump water heaters meet that requirement. A list of BPA-approved HPWH is available at <http://www.bpa.gov/go/HPWH>

**Q: Will my garage be warm enough?**

Studies have shown that BPA-approved heat pump water heaters installed in garages performed well in the Pacific Northwest. More information on HPWH research can be found at [http://www.bpa.gov/Energy/N/emerging\\_technology/HPWH.cfm](http://www.bpa.gov/Energy/N/emerging_technology/HPWH.cfm).

**Q. What incentives are available for heat pump water heaters?**

Please confirm the incentive amount, availability and requirements with your electric utility prior to purchase and installation. State and federal tax credits may also be available. Visit <http://www.energystar.gov> for details.

**Q. What type of maintenance does a heat pump water heater require?**

In addition to standard electric water heater maintenance, heat pump water heaters have an air filter that should be changed annually and a condensate line that must be kept free from obstruction.

