

Heat Pump Water Heaters



Hybrid heat pump water heaters are a new, highly efficient way to heat water. They typically cost half as much to operate as traditional electric resistance water heaters, and can save a homeowner as much as \$3,900 over the lifetime of the unit. While they heat water, heat pump water heaters also air condition and dehumidify the space around them.

To understand the concept of heat pumps, imagine a refrigerator working in reverse. While a refrigerator removes heat from a box and expels it into the surrounding air, a heat pump water heater takes the heat from the air and transfers it to water in an enclosed tank. They are called "hybrids" because in addition to a heat pump, they also have traditional electric resistance heating elements for times when demand exceeds what the heat pump can produce.



Typical Cost

\$1,000 heat pump water heater
+\$500 installation
-\$300 rebate from Efficiency Maine
-\$300 tax credit
\$900 net installation cost (about the same as an electric resistance water heater)

\$300/yr savings*
3 year payback (40% return on investment)

\$3,900 lifetime savings (*Actual savings may vary.*)

Advantages

- Save \$3,900 over its 13-year life compared to electric water heating.
- Reduce need for dehumidification. (Note: because they operate based on hot water demand instead of humidity levels, heat pump water heaters complement, but do not replace, dehumidifiers.)
- Reduce need for air conditioning.

Disadvantages

- They are as loud as a dehumidifier so are best installed in an unoccupied room.
- They can cool a room 3 to 5°F, reducing comfort during the heating season.
- Condensate must be pumped or drained away from unit.
- If installed in a conditioned space, the heat that is pumped into the water will have to be replaced by the space heating system. This can reduce savings during the heating season.
- Air filters must be rinsed regularly.

Take Action

- If your electric water heater is more than 10 years old, replace it now while rebates and tax credits are available. Don't wait for it to break!

*Source: energystar.gov accessed 7/29/13

Installation Considerations

- Because of their noise and cooling effect, heat pump water heaters are better suited to basements than living spaces, especially if there is extra heat available from a boiler.
- Remember that you'll need a place to drain the condensate. This can be pumped outside or passively drained to a sink or floor drain lower than the heat pump condensate port.
- For optimum efficiency, install a heat pump water heater where the temperature stays above 45°F and provide at least 1,000 cubic feet of air space around the unit. This would be for a typical 10' x 15' room.
- Be sure to give the unit the recommended clearances from walls to ensure adequate circulation. Be sure the ceiling is high enough to accommodate the unit.
- Insulate the first six feet on incoming and outgoing pipe to minimize heat loss through distribution.

