

competitor to the heat pump water heater (HPWH). According to figures published by the Air Conditioning and Refrigeration Business magazine, these electric resistance water heaters consume the energy equivalent of 750,000 barrels of oil a day. The heat pump water heater consumes only one-half of the energy used by the electric resistance water heater. Thus, the potential for savings in both energy and dollars is substantial.

The HPWH "pumps" heat from the air into a water tank, just as an air conditioner removes heat from buildings. Like an air conditioner, the HPWH uses a compressor, an evaporator, an expansion valve, a refrigerant, and a control system.

At the same time it heats water, a HPWH cools and dehumidifies the air in the room where it is located. This air-conditioning effect can be an added benefit in hot or humid climates. It may also be valuable in restaurant kitchens, hotel laundries, and other commercial establishments generating waste heat and requiring hot water. In a restaurant, for instance, a HPWH can be installed in a location with high ambient temperature. The efficiency of the HPWH rises, the need for space cooling is decreased, and the life expectancy of other nearby equipment may be lengthened as a result of the decreased room temperature. In northern climates the effect could be a disbenefit for use in homes.

The HPWH concept has been around for decades, but until recently, energy prices were too low to justify the higher initial cost associated with heat pump technology. Today, the HPWH has an installed cost of \$800-\$1,200 with a payback period of 2 to 3 years. This compares with an installed cost of \$300-\$500 for an electric resistance water heater. The initial costs for HPWHs may be reduced in some areas by rebate programs, which typically provide \$200-\$500 rebates for the purchase of a water heater.