



Summertime hot water

From time to time, we get calls at the research center asking if it makes sense to shut down one's oil-fired boiler during the summer, and provide hot water using an electric hot water heater instead. Of course, the answer is "It depends." A straightforward calculation comparing the cost to heat water using electricity versus oil shows that it is more expensive to use electricity on a cost-per-BTU basis. A BTU (British Thermal Unit) is the amount of energy needed to raise the temperature of one pound of water one degree Fahrenheit.

However, because the boiler is sized to be able to provide a lot of heat when it is really cold in the winter, it's not very efficient at heating a small quantity of water in the summer. Using my house as an example, the boiler burns about 140 gallons of fuel oil during the four months of summer. At \$4.50 per gallon of fuel oil, that's about \$630 per summer—it seems there should be some savings possible. We are talking about a conventional Weil-McClain boiler that both heats the house using baseboard hot water and heats domestic hot water in a storage tank using a coil in the boiler. It uses a total of about 1200 gallons of fuel oil per year if we don't burn any firewood in our woodstove.

The average household requires about 45 to 65 gallons of hot water per day, less in the summer. Assuming 40 gallons per day, 122 days of summer, a GVEA price of 22 cents per kilowatt-hour, and a 90% efficient hot water heater, it would cost about \$235 to provide hot water for the summer. That would suggest a savings of \$395 per summer, except that the boiler is also providing some heat on cooler days and nights even in the summer. To account for this, I assumed that one cord of wood, at a cost of about \$250, would provide necessary summer heat; then the net savings would be about \$145. A 50-gallon hot water heater would cost about \$600 to install, so it would be paid back in about 4 years if the price of fuel oil remains the same.

Therefore, if you are using a conventional oil-fired boiler and use a modest amount of hot water, it may pay to install an electric hot water heater for summertime use, allowing the boiler to be shut down for four months. If you can use a smaller tank, install it yourself, and cut your own firewood, then this is a slam dunk. However, if you already have a very efficient boiler and use a fair amount of hot water, the advantages would be marginal.

The circumstances of each household require careful and individual evaluation.