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In an effort to get you the best information on home improvement topics, I constantly talk to experts and pass on their answers to you. Sometimes expert opinion and real science differ.

In such cases, I usually opt for science. One of my favorite sources is the Department of Energy's Lawrence Berkeley National Laboratory. Here are some fascinating factoids from the Laboratory's Environmental Energy Technologies Division, [hes.lbl.gov/hes/answerdesk.htm](http://hes.lbl.gov/hes/answerdesk.htm). I have edited the answers.

**Q .** If you turn the hot water heater off, won't it actually cost more because you have to heat the whole tank before taking a shower?

**A .** Water heaters use more energy to heat water up and keep it hot than they do to heat it up once, because heat is lost through the walls of the tank in proportion to the tank temperature. The same energy is required to heat up the water regardless of whether it is heating a little bit at a time, or all at once. So, turning the water heater off for a few hours each day saves some energy.

Turning your hot water heater off during the day could be an inconvenience, but installing a timer that turns the water heater off during the night generally poses no inconvenience at all. The timer can be set to turn the heater on an hour or so before you get up in the morning.

**Q .** What's the most common mistake people make in trying to save energy?

**A .** The most common mistakes are:

1. Letting the furnace or air conditioner salesperson sell them a unit that's much bigger than they need.
2. Not getting the ducts checked for leakage when installing a new heating and cooling system.
3. Thinking that "since heat rises, we only need to insulate the attic." Floors over a basement or crawlspace, walls and windows also matter.
4. Not using ceiling and portable fans to improve comfort in the cooling season. Circulating air makes the house feel cooler. By doing this, you can raise the thermostat setting on your air conditioner and still be comfortable.

**Q .** How much does running a fan cost?

**A .** Running a fan only costs about a penny an hour. Running a fan 100 hours a month only costs \$1.

**Q .** What's the single biggest user of electricity in my house?

**A .** The air conditioner will probably be the biggest user if your house has central air conditioning. Although used only a few months of the year, the annual cost can be much greater than the annual cost of your refrigerator, the next largest user.

To get a rough idea of what your air conditioner costs, subtract the electric portion of your bill in a spring month when you aren't using your air conditioner from the electric portion of the bill in the

summer when you do use it. This represents your air conditioning cost. Multiply this by the number of months you use your air conditioner for approximate annual cost.

If your refrigerator is more than 10 years old, consider replacing it. New efficiency standards went into effect in 1992, and older refrigerators are typically two to three times more expensive to run than new units.

**Q .** If I shut off my heater or air conditioner when I'm gone from the house, doesn't it cost more to heat or cool the house back to the right temperature once I return?

**A .** More heat is transferred when the difference is greater, so it takes more energy to keep your house at 72 degrees when it is 40 degrees outside than to heat your house back to 72 degrees after you return.

Air conditioning equipment runs at peak efficiency when operating for long periods. Cooling your house back to the comfortable temperature uses less electricity than cycling on and off for short periods to maintain the temperature. Get a programmable thermostat. Set it to start heating or cooling your house an hour before you return each day.

*If you have a question, call the "Handyman Show" with Glenn Haege at (866) ASK GLENN noon- 2 p.m. Saturday and Sunday. The show can be heard locally on WJR-AM (760) and more than 160 radio stations nationwide. To suggest a question for Haege's Wednesday "Ask Glenn" column at [detnews.com](http://detnews.com), write: Ask Glenn, Master Handyman Press, P.O. Box 1498, Royal Oak, MI 48068-1498, or e-mail [askglenn@masterhandyman.com](mailto:askglenn@masterhandyman.com).*

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