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DIY Home Energy Audit

The first step to saving energy and money around the house is to find out how much you are already using.

Energy costs continue to rise, placing ever-greater pressure on households. And the energy you use to heat and cool your home is a large part of your carbon footprint.

By knowing what to look for you can conduct your own home energy audit. Here's how to get started.

1. Get to Know Your Energy Bills

Bills are never fun, but don't forget that they contain valuable information along with the pain. Compare your heating and cooling costs by month for as many years past as you can, and look for trends in usage or obvious changes. Do you see any spikes? Can you remember why? Your utility can make older bills available to you by calling customer service.

Note both the kilowatt hours you are typically using as well as the amount your utility is charging per KWH. Get to know what it is that you are paying for every month.

2. Check out The Daily Green's Checklist

Download our checklist here so you'll be able to keep track of what you find, and prioritize improvements based on importance and your budget.

3. Locate Air Leaks

Simple leaks can sap home energy efficiency by 5 to 30% a year, according to the U.S. Department of Energy. So take a close look at places where two different building materials meet, such as corners, around chimneys, where pipes or wires exit and along the foundation. Make sure good seals form around doors and windows, and that no mortar is cracked. Any gaps or holes should be plugged and/or caulked.

Use the incense test: carefully (avoiding drapes and other flammables) move a lit stick along walls; where the smoke wavers, you have air sneaking in. And heating or cooling sneaking out.

Make sure the floor of your attic, including the hatch, is insulated, and that the material isn't crumbling or compacted, which means it has lost its effectiveness. Similarly, check your basement ceiling, as well as

basement walls. Hot water pipes and furnace ducts should be insulated. So should exterior walls (determine this by carefully removing the cover from a power plug, or drill a small hole in the back of a closet).

If you live in snow country, a simple test of insulation levels is to see if snow melts from your roof faster than from neighbors' roofs. If so, you are probably losing too much heat.

If you find any problems, call in a professional, or go DIY and buy some fresh insulation yourself. Learn more about insulation here.

4. Examine Heating and Cooling Equipment

Not surprisingly, heating and cooling usually account for the biggest home energy loads. To reduce waste, check to see if your furnace filters look dirty. If so, swap them out (usually needed every month or two during the heating season). Or invest in an electrostatic permanent filter, which cuts down on waste and does a much better job of cleaning the air. If you have central air conditioning, check the coils both inside (usually in the basement) and outside. If they have dirt on them, carefully vacuum it off (you may need to first remove the protective grilles).

Make sure all your vents are open in rooms you want conditioned, but close the ones in rooms you hardly use. Ensure vents are clean and unobstructed. Vacuum away any dust.

Examine ductwork for dirt streaks, which mark leaks. You can often fix problems with duct tape or insulation. If your ducts look very dirty or worn, call a professional to get an estimate on a thorough cleaning or replacement. Also put on your calendar: annual pro inspection of your entire heating and cooling system.

5. Analyze Your Appliances

Appliances are major energy users, so your task should be to identify models that may be costing you a lot, and to find ways to trim waste. Buy or borrow a Kill A Watt Electric Usage Monitor. All you do is plug it into a wall socket, and then insert the plug for the electronic device that you wish to monitor. It will give you detailed info on energy use, and even has a "money button" to show you how much the unit costs you to operate.

Begin by checking your major appliances with the Kill A Watt. If older units are found to cost you a lot, you have motivation to upgrade to a new high-efficiency model (and make sure it is Energy Star certified).

If your fridge and freezer are using too much juice, you may simply need to turn down the temperature dials, or clean or repair seals. In general the EPA recommends keeping refrigerators at 37 degrees F and freezers at 3 degrees. You may also not have realized how much certain appliances require, from hair dryers to heated water beds, so you may decide to use less important items more sparingly.

If you don't have a Kill A Watt, you can still estimate how much energy an appliance uses with the following formula: (Wattage x Hours Used Per Day ÷ 1000 = Daily Kilowatt-hour (kWh) consumption (1 kilowatt (kW) = 1,000 Watts). The wattage of an appliance will be stamped on the item. To get the annual consumption, multiply this by the number of days you use the appliance during the year (divide the time by 3 to account for the idling time of your refrigerator). Calculate the annual cost to run an appliance by multiplying the kWh per year by your local utility's rate per kWh consumed.

6. Look for Energy Vampires

Ever heard of an "energy vampire" or "phantom load"? When electronics like TVs, DVD players and cell phone chargers are plugged in but not on, they still draw power, resulting in about 8% of our annual electric bills.

It's simple to stop the drain: look around your house, and unplug any unused devices you find! To make it even easier, plug your electronics into a power strip, and switch that off when you are finished channel surfing, jamming or charging up. It will keep the energy vampires at bay.

7. See the Light

Lighting eats up about 10% of a typical electric bill. Swap out high-wattage bulbs with lower users, ideally CFLs. Start with one or two bulbs in the places where you have lights on the longest; you don't need to rush out and try to replace every bulb all at once. Also be aware that rapid on and off switching decreases

the life of CFLs, so it may not be worth it to install the pricier bulbs in places like closets, where you rarely have the lights on. In such areas, try a lower-wattage regular bulb, like a 40 W instead of a 60 W.

Consider how you use lighting in each room. Instead of always hitting the main overheads, would your lifestyle be better served by installing some low-wattage task lighting? Think desk and reading lamps or even night-lights instead. Get rid of halogen torch-style floor lamps, which use a tremendous amount of energy. Also consider installing motion detectors, which are especially good for halls and exterior lights, since you don't have to worry about people accidentally leaving them on.

8. Gauge the Results

After you have made some improvements, revisit your audit steps in a month or two. Get our your energy bills, and compare. Did your usage drop? Consider going back through the steps above, looking for any appliances or areas you missed before. Want more savings? Go deeper with a Web-based audit tool, such as this one.

It also may be time to bring in the pros for a full-service, high-tech energy audit. Call your utility to see if it subsidizes the service (some offer it free during part of the year), and ask if it can recommend local providers. Learn more about the industry here.

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