

Do-It-Yourself Home Energy Audit Tips

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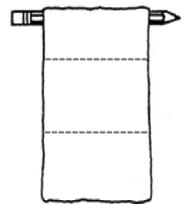
What is an “Energy Audit”? It’s an evaluation of your energy usage to reveal where, and more importantly, how efficiently you’re using energy. You can conduct a very simple energy audit around your home, and do it with no formal training! Some items you can correct on your own. Some will require a professional. Either way, a simple “DIY” home energy audit will help you discover what needs attention.

You’ll Need the Following Basic Tools:

- 1) Indoor-outdoor thermometer with a “wired” outdoor sensor (not wireless). One is ok, two are better.
- 2) Incense sticks (Option: Tissue paper, tape, and pencil, ruler, or other straight object.)
- 3) Kill-A-Watt Meter (approximately \$30.00).
- 4) Yardstick, flashlight.

#1: Find and Fix Air Leaks – Often the Worst Cause of Energy Loss in a Home

Check windows and doors for air leaks. On a windy day, turn off your AC and all ceiling fans. Hold lit incense (option thin tissue paper or plastic wrap taped to a pencil) near gaps in windows, doors, fireplace dampers, light switches, and wall outlets. Incense smoke should rise vertically (or the tissue or plastic shouldn’t move). If you see any movement, you’ve found an air leak that needs to be fixed. Use caulk or gaskets as appropriate.



“Air Leak Detector”

#2: Check Your Air Conditioner – Typically the Largest Electric Load in Your Home



Tape the “outdoor” sensor of a thermometer to the air intake of your air conditioner (where the filter is located). Set the thermostat several degrees cooler than normal (in summer) or several degrees warmer for winter. After 5 minutes, note the “outdoor” temperature. Next, move the thermometer to any outlet vent and tape the sensor to the vent. Wait 10 minutes and note the temperature. The air coming from the vent conditioner should be 20-24 degrees cooler (summer) or warmer (winter) than the intake temperature. If not, is the air filter clean? What about the coils behind the filter? Are they dirty? The outdoor unit coils must also be clean and free of debris. If these are all ok, you’ll need to contact an air conditioning service specialist. If you’re using two thermometers, tape one to the air intake, the other to an outlet vent and follow the procedure as outlined.

#3: Evaluate Your Appliances

Your refrigerator is often the largest energy consuming appliance. Properly setting its internal temperatures can help reduce power consumption. Put the “outdoor” sensor of the thermometer in the center of the freezer compartment and close the door. Wait 30 minutes. You should read 0-5°F. If not, adjust the freezer thermostat accordingly. You may need to make an adjustment, wait a day, then recheck and readjust the temperature. When finished, repeat this procedure for the refrigerator, with 35-40°F as your target. While you’re at it, check the door gaskets with a dollar bill. Open the refrigerator door, insert the bill between the door gasket and the refrigerator body, then close the door. Pull on the bill. The bill should require considerable tugging to get it out. If it’s easy to remove, the gasket isn’t sealing adequately, and either the door needs adjusting, or the gasket may need replacement. Do the same test for the freezer door gasket. **Tip:** EnergyStar® appliances use at least 15% less energy than equivalently-sized non-EnergyStar models!

#4: Eliminate “Phantom Loads” - Devices That Consume Power Even When “off”.

Disconnect an appliance from its outlet. Plug in the Kill-A-Watt™ meter. Set the meter to read “Watts” (it’s easy!). Turn the appliance “off”, and plug it into the meter. If you read any watts, the appliance uses power all the time. Use a power strip with an on/off switch to truly turn these appliances off. Unused electrical devices that consume power when “off” can account for as much as 8% of your home’s annual energy bill! Do this for all plug-in items around your home.



Kill-A-Watt™

#5: Water heater.

Use the “outdoor” thermometer sensor to test the hot water temperature at the kitchen faucet. Hold the sensor in the flow of water. Allow the water to run until it’s hot. You should read approximately 120°F. If it’s much hotter, adjust the water heater thermostat accordingly. An electric hot water heater has an upper and lower thermostat to control the upper and lower heating elements. After making adjustments, wait a day, then retest. If you’re not sure how to adjust the thermostat, contact a plumber (for gas heaters), or electrician (for electric heaters). After you set the water temperature to 120°F, wrap the water heater in an insulating jacket to help conserve the heat. **Tip:** Solar hot water systems can provide a return on investment in 4-7 years, depending on your usage habits!

#6: Install a Programmable thermostat.

Buy and learn how to use a programmable thermostat. Each degree you raise the thermostat above 72°F system saves 2-3% on your summer electric bill. For approximately 5% savings, set the air conditioner thermostat at 75°F. For up to 10% savings, set it at 78°F. Use ceiling fans for additional comfort. **Tip:** Turn off ceiling fans when you leave the room!

#7: Lighting

Install EnergyStar® rated compact fluorescent lamps. The lights in a typical home can account for up to 10% or more of your home's annual energy use. If you're using incandescent lights, it's time to change them out. Compact fluorescent lamps (“CFLs”) use 75% less electricity than incandescent lamps and last up to 10 times longer! LED lamps are almost as good, last longer, and may provide even better illumination in some applications!

#8: Check the Attic Insulation

How do I know if I have enough attic insulation? Take a moment and look into the attic. Use a flashlight if necessary. Ideally, you should have at least 12-15” of insulation lining your attic floor. You should not be able to see the ceiling joists (joists are the wood holding up the ceiling of the room below). Measure the depth with a yardstick or tape measure. If you don't have at least 12”, you've just discovered a major source of energy loss in your home. Upgrade the insulation throughout your attic to 18” or more. **Tip:** Insulate the attic hatch while you’re at it. It’s a source of energy loss overlooked by most homeowners!

#9: Attic Temperature

Carefully attach the “outdoor” sensor of a thermometer in an attic area above your attic access stairs. Use thermometer #2 to measure the temperature outside your home. Measure the daily maximum temperatures with each thermometer’s “memory” function. Record these values. Reset the thermometers’ memory daily. Track these temperatures for a month. If your attic is more than 20-25 degrees hotter than the outside air in the summer, you need to have work performed to reduce the attic temperature.

#10: Review Your Utility Bills (Before & After!)

Before you perform your home energy audit, take your old energy bills out of the filing cabinet and review them carefully. Sudden large jumps in energy usage in summer and winter may indicate your home's insulation isn't adequate, and your air conditioning and heater are working overtime to compensate. Also, by comparing pre-audit energy use to your utility bills received after you've made some home energy efficiency improvements, you'll be able to get an idea how much your home energy audit steps are saving you.

Utility bills aren’t fun, but they contain important details. Compare your utility costs month-by-month for as many past years as possible. Look for trends in usage or obvious changes. Do you see any spikes? Can you remember why? Your utility company can provide past bills. Contact their Customer Service Department.

Note the “kilowatt-hours” you’re typically using each month, as well as the amount your utility company charges per kilowatt-hour. Get to know what you’re paying every month!

After you’ve made improvements, revisit your audit steps in a month or two. Get out your energy bills and compare. Did your usage decrease? Consider going back through the audit and look for appliances or areas you may have missed. Keep in mind weather changes can cause bills to increase or decrease as well.

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 • www.txses.org • www.texasishot.org • www.saveonenergy.com