

Consumer Reports®

You can save \$1,500 with these 4 strategies

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Most homes, including yours, waste energy. That inefficiency is costing you plenty, but it doesn't have to.

Even if you've already switched to compact fluorescent bulbs and retired the refrigerator in the basement, there's more you can do. Some of the simplest projects, such as adding insulation and sealing cracks and ductwork, can yield the biggest savings. And thanks to new federal tax credits, it will take less time for those projects to pay for themselves.

Yet in a recent nationally representative *Consumer Reports* survey of 2,014 Americans, only 12 percent had added or upgraded their home's insulation in the last three years. Just a paltry 5 percent had insulated their heating and cooling ductwork.

Conflicting and confusing claims can make it hard to know where the real savings are. So we've examined the claims across four key categories -- heating and cooling, water, recycling, and electricity -- and ordered them by potential money and energy savings based on national rates for electricity, gas, and water. We've also mined our survey data to figure out what consumers are doing and where there's room for improvement. The result is a road map for taking your home's energy efficiency to the next level.

1. Heating and Cooling

Annual Savings \$550

Approximately 40 percent of residential energy bills are for heating and cooling. That's also where you can reap the greatest savings. In the winter, warm air inside your home rises and escapes into the attic through holes and gaps.

It's replaced by colder exterior air that's pulled in through cracks and gaps in the lower levels. That leads to drafty, uncomfortable rooms and high

energy bills, even in newer homes. "There's a huge gap between what's in the building code and what's needed for optimal energy efficiency," says Frank O'Brien-Bernini, chief sustainability officer for Owens Corning, an insulation manufacturer.

Eliminate Leaks

Use a combination of caulk, foam board, expandable sealant, and weather stripping to fill gaps. Attics in particular are often full of holes from recessed lights, electrical wiring, chimney chases, and more. Look for dirty insulation, which is a sign of air leaks. In the basement, check for gaps around ductwork and plumbing pipes. And don't forget about window and door frames, as well as electrical outlets and switches. Cracked caulking and staining around those openings are indications of air leaks. One trick of the trade: Turn on all of the exhaust fans in the home and then use an incense stick or smoke pen to spot leaks. Or try that without the fans on a windy day.

Check Insulation Levels

If your attic has less than 11 inches of fiberglass or rock wool or 8 inches of cellulose, you would probably benefit by adding more. Also check for missing insulation, over the attic hatch, for example. Compressed insulation loses its effectiveness, so don't store things on top of it. You may also need to add insulation in the basement or crawl space. Go to www.energysavers.gov and search for "ZIP code insulation program" to find specific recommendations for your area.

Correct Ductwork

It's the last step, and the one that's the most overlooked. Spending \$500 to seal leaky or poorly insulated ducts that run through crawl spaces, attics, or other unconditioned areas can save you about \$400 per year, according to the Energy Efficient Rehab Advisor, an online calculator available at www.rehabadvisor.pathnet.org. Remediation is dirty work that requires the right

materials. Leave it to a qualified heating and cooling pro.

A buttoned-up house won't leak energy, but you should still have your heating and cooling equipment inspected annually, and change furnace and A/C filters monthly. A programmable thermostat is also worth every penny. By automatically lowering your heating-system thermostat 5 to 10 degrees at night and during the day if no one is home, the device will shave up to 20 percent off of your heating costs. It can also save on cooling costs. In our survey, roughly six in ten respondents with a programmable model have seen savings. But you need to stick to those settings to save.

Easy, Low-Cost Solutions

Lock double-hung windows to prevent air from escaping. Open curtains on south-facing windows on cold days to let in the sun.

Energy All-Stars

The Lux Smart Temp Touch Screen TX9000TS programmable thermostat, \$80, was especially easy to operate and maintains steady temperatures. The screen on the \$55 Hunter Set & Save 44360 was easier to read than most. Some tested thermostats were so difficult to use that you might end up using more energy.



2. Water Consumption

Dollar Savings \$400

If you're not already aware of your household's water use, you will be soon. Almost four in five states anticipate water shortages by 2013, which could lead to steeper rates and penalties for excessive use. When it comes to showering and washing dishes and clothes, you're also paying to heat the water.

Stop Drips

It's the fastest way to conserve, saving the average household about \$70 a year. Next, upgrade to water-efficient fixtures. Low-flow showerheads can save as much as \$265 per year on water bills. "A \$30 showerhead can save more money than \$3,000 worth of solar panels," says Charlie Szoradi, of Green and Save, a company based in

Devon, Pa., that analyzes the payback of energy-efficiency projects. Switching to a low-flow toilet, which uses 1.28 gallons per flush compared with the 3.5 to 5 gallons of a 15-year-old or older model, can save \$90. Also check for utility rebates.

Watch the Water Heater

Lower the temperature to 120° F and insulate your hot-water pipes. If your unit is more than a decade old, do your research now. That way you'll get a new unit that has a long warranty and is sized appropriately, not whatever's on the truck of the only plumber who calls you back when your old heater breaks.

Easy, Low-Cost Solutions

Insulate your water heater. Don't pre-rinse dishes before loading them into the dishwasher. Add an aerator to faucets.

3. Electricity Use

Annual Savings \$300

Between lights, electronics, and appliances, electricity accounts for almost 40 percent of the average home's energy use. But there are ways to cut back in each category without sacrificing.

By changing 10 bulbs and replacing three major appliances with energy-efficient models, you can save hundreds per year. As our survey found, many American are already taking advantage of those savings. Almost two-thirds have replaced an incandescent light bulb with a CFL. As for appliances, 34 percent of respondents told us they've upgraded to an energy-efficient model. It doesn't make sense to pitch a perfectly good appliance or electronic item, but if you're in the market for a new one, the type you choose can make a difference. For example, side-by-side refrigerators use more energy than top- or bottom-mounts, top-loading washers use more electricity and water than front-loaders, and plasma TVs use more electricity than LCD sets.

Easy, Low-Cost Solutions

Plug electronics into power strips with built-in sensors that automatically shut off devices that aren't in use. Set your computer to hibernate. Use LED holiday string lights. Turn off lights when you leave a room.



Energy All-Stars

The EcoSmart 423-599 240EDXO-14 compact fluorescent bulb was the top performer in our tests.

It replaces a 60-watt standard incandescent bulb and costs only \$1.50.

The GE WCVH6800J, an \$800 front-loading washer, scored excellent in both water and energy efficiencies, saving up to \$125 per year over a traditional top-loader.

Good News: You're Being Audited!

Unlike the IRS version, a home-energy audit can save you money. It provides a comprehensive assessment of your home's heating, cooling, and distribution systems; an insulation checkup; and a review of your energy bills. A well-trained auditor will also interview you to correct any inefficient behaviors. Audits have proven so effective at curbing energy use that Austin, Texas, requires home sellers to share their results with buyers.

Costs Vary

Certified auditors charge from \$300 to \$800. But you might not have to pay anything. Some local utilities offer free audits.

Check Credentials

Those who are certified by the Building Performance Institute (BPI) or the Residential Energy Services Network (RESNET) have undergone thorough training and will probably use a calibrated blower door and an infrared camera. Those tools enable the auditor to quantify the amount of air leakage and the probable effectiveness of any air-sealing job.

Though RESNET stops with the audit, BPI also has certified contractors who are trained to make necessary fixes, plus third-party inspectors who ensure compliance with BPI standards.

Bottom Line

Not all energy-saving projects are equal. So have the auditor prioritize any suggested work by savings and payback time.

Also remember that not everyone who hangs a green shingle has the training to identify inefficiencies. There are eco-consultants, who might charge \$99 for a 60-minute walk-through of your home, pointing out leaky faucets and inefficient lightbulbs. Then there are general contractors who see energy efficiency as the one bright spot in an otherwise shrinking industry. Last but not least are single-product salespeople. "Homeowners have been hearing forever that replacing their windows can save 40 percent," says Chandler von Schrader, head of the Environmental Protection Agency's Home Performance with Energy Star program. "These claims aren't justified and they create a false expectation."

Energy Tax Credits At a Glance

Uncle Sam wants you to save energy, and he's putting his money where his mouth is. The American Recovery and Reinvestment Act of 2009 includes tax credits for making your home more energy efficient. The credits cover 30 percent of projects finished in 2009 and 2010, up to \$1,500 per year for most projects. But they don't include installation costs for insulation, sealing air leaks, windows, doors, and roofs. Solar, wind, and geothermal projects qualify for up to 30 percent of their cost, not just \$1,500.

Unlike deductions, tax credits directly reduce the amount of tax you owe. If the project involves renewable energy, such as solar or wind, the cap is waived and the credit can be carried over to future years. If you're subject to the Alternative Minimum Tax, you might want to get your project done in 2009 because the tax credits will be limited by the AMT in 2010 unless Congress changes the law. To claim the credits, you'll need to file IRS Form 5695 with your taxes for the year in which the job was completed.

Be sure to keep a copy of the Manufacturer's Certification Statement and all receipts and itemized bills. Actual costs and savings will vary depending on the size, age, location, and condition of your home.

Federal energy tax credits don't cover appliances, programmable thermostats, and room air conditioners, but state governments and utility companies often offer rebates on energy-efficient models. For more information, go to the Database of State Incentives for Renewables & Efficiency, at www.dsireusa.org.

Item	Requirements	Typical cost, installed	Typical annual energy savings*
Central air conditioning (including split ductless systems)	Split systems: Energy-efficiency ratio (EER) of 13 or higher and seasonal energy-efficiency ratio (SEER) of 16 or higher. Package systems: EER of 12 or higher and SEER of 14 or higher.	Up to \$5,000 (not including repairs or duct-work changes)	\$10 to \$70
Furnace or boiler	Annual fuel-utilization efficiency (AFUE) of 95 or higher for natural gas and propane furnaces; AFUE of 90 or higher for boilers or oil furnaces.	\$2,000 to \$5,000	\$20 to \$210
Geothermal heat pump (includes closed loop, open loop, and direct expansion)	Closed loop: EER of 14.1 or higher. Coefficient of performance (COP) of 3.3 or higher. Open loop: EER of 16.2 or higher. COP of 3.6 or higher. Direct expansion: EER of 15 or higher. COP of 3.5 or higher.	\$7,500	\$200 to \$400
Insulate attic	Must meet 2009 International Energy Conservation Code. Primary purpose must be to insulate.	\$650 to \$1,450	\$35 to \$220
Insulate walls	Same as attic insulation.	\$700	\$45 to \$210
Seal air leaks (includes caulking, foam sealants, weather stripping, and other air-sealing materials)	Same as attic insulation.	\$600	\$40 to \$435
Water heater: gas, propane, or oil (Electric units do not qualify.)	Energy Factor of 0.82 or higher or thermal efficiency of at least 90 percent.	\$1,000 to \$1,400	\$20 to \$40
Water heater: solar	Certified by the Solar Rating and Certification Corporation (SRCC), as are all Energy Star-qualified systems.	\$4,000 to \$7,500	\$190 to \$250 (Families of 3 or larger could save more.)
Windows	U-factor and solar heat gain coefficient (SHGC) must both be 0.30 or less.	\$700 to \$1,000 per window	\$5 to \$170
Wood pellet stove	Thermal efficiency must be at least 75 percent.	\$2,300 to \$6,000	\$100 to \$470 (If you heat with natural gas, your heating bills may go up after switching to wood pellets.)

* Homes in colder regions tend to be at the higher end of the savings range, except for central air conditioning.

Sources: Department of Energy, Department of Housing and Urban Development, American Council for an Energy Efficient Economy, Alliance to Save Energy, CONSUMER REPORTS testing data.

Green Star Energy Solutions

Is a **BPI** accredited building performance contractor participating in the Connecticut “Home Energy Solutions” and New York “Home Performance with Energy Star” programs. For more information call 203-744-1144 or visit www.GoGreenStar.com