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### Shades of green

#### Easy tips (and some less so) to match environmental fervor

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Whether they go to the green extreme, or just follow the mainstream, Long Islanders are making a difference right in their own homes. And you can, too. Here are the five most popular areas for plugging energy leaks and upping efficiency in the home to reduce your carbon footprint and your bills at the same time. The list is broken down according to cost, level of commitment and ease of implementation as far as three shades of green: Mainstream, Greener and Really Green.

1 Water heating can account for 14 to 25 percent of the energy consumed in your home, according to the Department of Energy. Much of it is wasted, since the heater is constantly running.

**Mainstream:** Wrap it up. For electric water heaters more than 5 years old, purchase a pre-made jacket (\$13 to \$25) - get one with an insulating value of at least R-8 - to slip over your tank, reducing standby heat loss by 25 to 45 percent and saving you 4 to 9 percent in water- heating costs. For added efficiency, install a timer to shut if off when not needed.

**Greener:** Go tankless. Tankless water heaters (\$200 to \$1,200) operate on demand, eliminating standby heat loss. Units are smaller than storage tank heaters, so they take less material to build and less energy to transport. They've got limitations: Not every model can simultaneously provide hot water to multiple locations, and installation of a gas-powered tankless heater in an existing home can be complicated due to differing gas requirements. But for certain usage patterns, it may be a wise choice.

**Really green:** Go solar. If your building site has unshaded areas, and your house has a Southern exposure, you may be a candidate for a solar water heating system (\$1,500 to \$3,500). Since sunlight is a renewable resource, you'll reduce the depletion of the Earth's fossil fuels as well as the carbon emissions associated with burning them. Of course, you'll need a more conventional backup system for cloudy days (such systems often are packaged with solar heaters). On average, if you add a solar collector, your water heating bills should drop 50 to 80 percent. The federal government offers a tax credit up to 30 percent, and New York State offers up to 25 percent for eligible solar systems. Your system also may qualify for rebates from LIPA.

2 Upgrading your light bulbs sounds obvious - but have you done it yet? Lighting accounts for around 15 percent of a home's electricity use, according to the Long Island Power Authority.

**Mainstream:** Change one lightbulb. Compact fluorescent light (CFL) bulbs (\$4 to \$15) last 10 times longer and use 75 percent less electricity than incandescent bulbs. If every American swapped out just one bulb, it would prevent greenhouse gases equivalent to the emissions from 800,000 cars annually, according to the Environmental Protection Agency. Some CFL products qualify for a rebate from LIPA. If you consider those corkscrew-shaped bulbs an affront to your décor, relax: New designs are here. Leslie Segrete, Garden City resident and home improvement expert of HGTV and WE

TV fame, says, "What we're seeing is, there will be a whole launch of new shaped lights that fit into different fixtures, like candelabras."

**Greener:** Install timers (\$7 to \$25) or photocell controls (\$15 to \$30) for more precise command over light usage. Try light-emitting diode (LED) lights for task lighting; for instance, an LED booklight (\$8) is a better choice for reading than an overhead light.

**Really green:** Let the sun shine in. Try to implement "daylighting" techniques to take advantage of natural light. The concept can be incorporated into the design of newly constructed homes. For existing homes, consider installing a solar tube kit (\$200 to \$400) that gathers sunlight from a dome on the roof and bounces it down a reflective tube to a lens cover that diffuses the sunlight throughout the room.



3 Heating and cooling account for the largest energy expense for most U.S. homes - about 56 percent.

**Mainstream:** Local oil companies such as **Hart Petroleum** and Tragar Oil offer Bioheat - a biodegradable and renewable fuel made from vegetable oils such as soybean - blended with conventional home heating oil. A New York State tax credit of up to 20 cents a gallon makes up most of the cost difference for consumers, and the alternative fuel requires no new equipment. "The carbon footprint is reduced," says C.R. Krishna, a mechanical engineer at Brookhaven National Laboratory who researches biodiesel for heating systems.

**Greener:** Insulation doesn't sound sexy, but it pays for itself in both fuel savings and home comfort, according to LIPA. An online insulation calculator at [builditsolar.com](http://builditsolar.com) can help estimate the cost, returns and greenhouse gas reduction associated with insulation upgrades. For quick fixes, tour your house with a lighted incense stick: If the smoke curls toward a window, door or fireplace, you've got a draft to seal. Insulating foam (\$5 to \$25 a can) is good for sealing around doors or windows. For a more complete picture, visit LIPA at [lipower.org](http://lipower.org) for a list of contractors who can perform a home assessment. They can cost about \$350, but fees vary. Income-qualified homeowners can get a free assessment through LIPA. Upgrades may qualify for rebates.

**Really green:** A geothermal system uses the constant temperature beneath the Earth's surface to heat and cool your home. According to the Department of Energy, geothermal heat pumps can reduce energy consumption - and corresponding emissions - up to 44 percent compared to air-source heat pumps and up to 72 percent compared to electric resistance heating with standard air-conditioning equipment. Initially, a geothermal heat pump system costs about \$7,500 for a 3-ton unit (a typical residential size), compared with about \$4,000 for a conventional system with air-conditioning. The costs are returned in energy savings in five to 10 years, or possibly sooner with a retrofit, according to the Energy Department. Want to go the extra mile? Bay Shore resident Mark Bartosik, 39, a software engineer who has done an energy overhaul on his entire home, says, "I don't buy any oil or electricity. For heating, solar powers the heat pump, and the heat pump heats the house."

4 Water is a finite resource - there is the same amount of water now as

2 billion years ago. Although supply remains constant, population and demand are on the rise, making conservation increasingly important. Look for the EPA's WaterSense label to identify water-efficient products.

**Mainstream:** Switch to a low-flow showerhead (\$8-\$50) and add water-conserving aerators (\$2-\$10) to your faucets, and you could achieve water savings of 25 to 60 percent, according to the Energy Department. For additional savings, install water-conserving aerators (\$2 to \$10) to your faucets. If you're remodeling, look for efficiency with style. "Moen has several lines in their water-conserving shower and bath fixtures that really are attractive," Segrete says.

**Greener:** Flushing accounts for about 28 percent of daily indoor water use, according to the Suffolk County Water Authority. Consider a low-flow (\$150 and up) or even a dual-flush (\$250 and up) toilet: A button allows you to select the flow according to what you're flushing.

**ReAlly green:** Landscape sensibly. The average five-zone sprinkler system puts down about 9,000 gallons per irrigation cycle, according to the water authority. Reduce your watering needs. "Plant appropriate plants for the climate. Check with local nurseries about noninvasive, drought-tolerant plants," says New York City-based environmental scientist Lorne LaMonica, whose works extends to Long Island. There's an art and a science to resource-efficient landscaping. It goes by names like GreenScaping and Xeriscaping, and water conservation is just one of a host of its eco-friendly benefits. To see a demonstration, visit the Xeriscape garden, a joint project of the Water Authority of Great Neck North and Nassau County, in the Village of Saddle Rock.

5 Your 10-year-old refrigerator could be costing as much as \$27 a month to run; a high-efficiency model could reduce that to \$6.85. For more eye-opening facts about how much power - and money - it takes to run your appliances, download LIPA's Electric Appliance Energy Guide. (Search for the guide at [lipower.org](http://lipower.org).)

**Mainstream:** Get a "Kill A Watt" power meter (\$17 and up), a device that monitors electricity consumption and calculates expenses, and use it to minimize "vampire" energy loss - the power that plugged-in appliances suck up while not in use. These standby losses are responsible for 1 percent of carbon emissions globally, according to the International Energy Agency. They amount to about 5 percent of U.S. energy used and cost consumers more than \$3 billion a year, according to the U.S. Department of Energy.

**Greener:** Smart appliance technology (\$180 for a starter kit from HomeSeer) can minimize waste by allowing individuals to automate their appliances or control them remotely via the Web. On a larger scale, The LIPAEdge program offers homeowners a free remote-controllable thermostat in exchange for allowing the utility to adjust the home's power usage during peak demand. Watch for even greater automation in the future: In Boulder, Colo., a smart-meter system is being installed aimed at allowing household appliances to respond to pricing or demand signals directly from the grid.

**Really green:** Upgrade appliances. If you've got the budget to replace just one, get an Energy Star-qualified washer (\$325 to \$1,600). They use half the water standard models use, saving 8,000 to 14,000 gallons a year. They also use up to 50 percent less energy than standard models and may be eligible for a \$50 LIPA rebate.

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