

The 10% Challenge
Save Energy, Save Money and Save the Planet
One Step at a Time

The Green Needham Collaborative is challenging Needham residents **to cut their energy use by at least 10%** as a way of reducing our dependence on fossil fuels and curbing emissions of CO₂, the most common greenhouse gas which leads to harmful global warming.

Don't know where to start? This easy-to-use checklist will give you plenty of ideas on how to do this. Simply read through the list, then check off actions on the "My Plan" section and calculate your energy savings.

Take the 10% Challenge and be eligible for a prize drawing for energy-saving products!

After making your action plan, tear off below and mail to:
Green Needham Collaborative, c/o Eleanor Rosellini, 1091 Greendale Ave., Needham,
MA 02492 Or e-mail the information to efrosell@aol.com

Name _____

Address _____

Phone number _____ e-mail _____

I have made an action plan and will cut _____ pounds of CO₂ a year from my carbon footprint.

Please include my name in the April 30 prize drawing for energy-saving products.
Yes No

_____ Yes, I would like to receive periodic "energy saving" Green Tips by e-mail.

Step one: Estimate your current energy use and set your 10% goal!

When we use energy from fossil fuels—such as gasoline, heating oil, electricity generated by burning coal, or natural gas—our personal energy use leads to CO2 being emitted into the atmosphere. Calculating your yearly CO2 emissions is a good way to estimate energy use, and to see how certain actions can reduce these emissions.

Option 1: Estimate your carbon footprint as **54,000 pounds of CO2**, which is the emission rate of the average American household.

OR

Option 2: Estimate your carbon footprint based on your actual energy use with the Household CO2 Calculator on www.empowermentinstitute.net (click on *Low Carbon Diet Climate Change Program*, then *Household CO2 Calculator*)

My household carbon footprint is: _____ x 10% = _____ my reduction goal

Consider these easy, no-cost & low-cost ways to save energy, then make your plan and start saving today!

No Cost/Low Cost Energy Saving Steps
<p>1. Important! If you are an NStar customer, either electric and/or gas, call (800) 632-8300 to schedule a free energy audit. The auditor will advise you on weatherization, equipment replacement, insulation, and tell you about rebates, plus zero and low-interest loans.</p> <p>CO2 avoided: See Actions 15, 16, and 18 below.</p>
<p>2. Turn down the thermostat in winter and turn it up in summer. NStar recommends a winter setting of no more than 68 degrees. A 7-10 degree turn back at night and while you are at work can save as much as 10% off your heating bill. For summer, NStar recommends 78 degrees for central air. To make it easy, buy a programmable thermostat (\$25 NStar rebate).</p> <p>CO2 avoided: 200-300 pounds a year for every degree you turn the heat down in winter or up in summer; 1200 pounds for turning back at night & when gone for 8 hrs.</p>
<p>3. Drive smart Drive the speed limit, avoid rapid acceleration and hard braking, and don't idle. According to the U.S. Dept. of Energy, aggressive driving can lower your gas mileage by 33 percent at highway speeds and 5 percent around town. They recommend no more than 30 seconds of idling on winter days. See www.fueleconomy.gov CO2 avoided: 1000 pounds a year per vehicle driven.</p>
<p>4. Drive less Take public transportation to work or school, car pool, consolidate errands, take fewer car trips and vacation closer to home. How many miles do you typically drive each year? Try to set a weekly or monthly mileage reduction goal!</p> <p>CO2 avoided: approximately 1 pound a year for every mile reduced (based on 20 mpg car) 100 fewer miles driven = 100 pounds of CO2 avoided.</p>
<p>5. Reduce air travel and try to fly non-stop when you do fly. Air travel is estimated to add about 1/2 to 1 pound of CO2 per mile flown. Reducing your flights can make huge cuts in your carbon footprint. Since most energy is used on take-off and landing, flying non-stop is more energy-wise</p> <p>CO2 avoided: Roughly 1 lb of CO2 for every flight mile you cut from your typical annual air travel. 1000 mile reduction = 1000 pounds CO2 reduction.</p>

<p>5a. Consider carbon offsets for flight miles you can't cut. Carbon offsets balance your own emissions by cutting them somewhere else. www.livecooler.org installs low energy light bulbs for low income Mass. residents. www.nativeenergy.com supports renewable energy projects on U.S. farms. The My Climate project of www.sustainabletravelinternational.org supports energy saving projects throughout the world. CO2 avoided: 1 pound for each mile of air travel offset.</p>
<p>6. Replace your most-used incandescent light bulbs with compact fluorescents, which use 75% less energy and last much longer. (When you do have to dispose of compact fluorescents, remember to take them to the Universal Waste Shed at the Needham Transfer Station since they contain a small amount of mercury.) CO2 avoided: 150 pounds a year for each light bulb changed.</p>
<p>7. Unplug or dispose of a little-used second refrigerator or freezer Pre-1993 refrigerators can use twice the energy as new ones and may be costing over \$150 a year to run. Call the Town at (781) 455-7568 for disposal information. (If a second fridge is a must, simply turn it off when it isn't needed or consider downsizing to a small Energy Star compact fridge.) CO2 avoided: 1700 if no longer used (based on 1990 model); 1000 if used less or downsized.</p>
<p>8. Turn off lights and electronics when no one is in the room, plug electronics into power strips with a switch that can be turned off when devices are not in use. Electronics such as TV's, stereos, computers, printers, and DVD players use power even when off. According to the U.S. Dept. of Energy, over half of the electricity used to power home electronics is consumed while the products are turned off. Turning off the power strip switch cuts off this wasted power. CO2 avoided: 600 pounds a year.</p>
<p>9. Don't leave computers on Use standby (sleep) mode on your computer if you won't use it for at least 20 minutes (or program the computer to do this automatically), and turn it off if you won't use it for at least 2 hours. Left on, a single desktop computer could cost more than \$125 a year to run. The U.S. Dept. of Energy points out that screen savers may actually use more energy and that it is a myth that you shouldn't turn off computers. CO2 avoided: 500 pounds yearly for each computer not left on.</p>
<p>10. Reduce your hot water use. Heating water takes more energy than you might think! Take showers of 5 minutes or less, don't leave water running when you do dishes, and when using the clothes washer, do some loads using cold water for wash and rinse cycles. CO2 avoided: 300 lbs a year for each person taking shorter showers, 125 lbs for not leaving water running, 125 lbs for washing some loads using cold water.</p>
<p>11. Install a low flow shower head. This can reduce shower hot water use by 30%. Early low-flow shower heads simply restricted flow and performed poorly. According to NStar, "A top-quality, low-flow showerhead will cost \$10 to \$20 and pay for itself in energy saved within 4 months." CO2 avoided: 300 pounds for each shower head installed.</p>
<p>12. Add at least one vegetarian meal each week. The United Nations Food and Agriculture Organization estimates that raising livestock causes 18% of the greenhouse gas emissions. This is due to the energy intense production of livestock feed and the methane (a powerful greenhouse gas) that is emitted from manure and animal digestion, especially cows. CO2 avoided: 700 pounds a year for each vegetarian meal consistently added to the weekly menu.</p>
<p>13. Wash full loads and use your dishwasher on the no-heat/air dry or energy saving setting. (If you don't have an automatic air-dry switch, turn off the control knob after the final rinse and prop the door open a little so the dishes will dry faster.) Much of the electricity used by the dishwasher is for heated drying. CO2 avoided: 200 pounds a year.</p>
<p>14. Plug air leaks. Air infiltration substantially raises the cost of heating and cooling. Use caulking, door sweeps, outlet insulators, foam, and weather stripping to seal drafty windows and doors. (It may help to use an incense stick to find leaks.) CO2 avoided: 800 pounds a year.</p>

Energy investments for big savings

15. Replace an old refrigerator with an Energy Star appliance. EnergyStar refrigerators are twice as efficient as ones made before 1993. (And units with top freezers use less energy than a side-by-side.) Use the NStar energy calculator to see how much you can save each year – it could be about \$150. www.nstaronline.com Check NStar rebates. **CO2 avoided:** 800 pounds a year.

16. Replace an old furnace with a high efficiency unit. Replacing an old, inefficient furnace can reduce your heating bill by hundreds of dollars a year. Ask your NStar energy auditor about rebates. **CO2 avoided:** 2400 pounds.

17. Add insulation. A priority for reducing heating bills and not as expensive as other measures. Ask your NStar auditor what is needed and about rebates that pay half the cost up to \$1500. **CO2 avoided:** up to 2000 pounds of CO2 a year, depending on extent of project.

18. Buy a car with better gas mileage. Hybrids are great, but any mile-per-gallon improvement is significant. Check on tax rebates for hybrids. **CO2 avoided:** for a 10 mpg improvement: roughly 4000 pounds a year at 12,000 miles per year.

19. If you would like more ideas. Go to wiki.greenneedham.org and click on “Resource Library,” then “10% Challenge More Ideas.”

My Plan

✓ here	Energy Saving Actions Please include only things you are <u>not</u> already doing!	Calculate yearly CO2 Avoided
	1. Energy Audit : I will call Nstar (800) 632-8300 to schedule a free energy audit. Give yourself a bonus of 200 pounds CO2 avoided.	
	2. Programmable Thermostat: I will buy a programmable thermostat. (Check NStar rebate.) Give yourself credit for lower temps (see 2a and 2b below).	
	2a. Turn Thermostat Down this Winter: I will start to set the thermostat back 7-10 degrees at night & when gone for at least 8 hrs. Give yourself 1200 pounds. I will turn down my thermostat ____degrees less than the usual setting when I am home. Give yourself 300 pounds for each thermostat degree turned down from your usual temperature setting.	
	2b. Turn A/C Up next Summer: I will turn up my thermostat ____ degrees. (NStar recommends 78 degrees.) Give yourself 200 pounds for each thermostat degree turned up from your usual temperature setting.	
	3. Drive Smart: I will change my driving habits to avoid idling, fast starts and stops, and I will drive the speed limit. Give yourself 1000 pounds per vehicle.	
	4. Drive Less: I will reduce my annual mileage by _____ Give yourself 1 pound of CO2 for each mile reduced	
	5. Reduce Air Travel: I will reduce my annual flights by _____ miles Give yourself 1 pound of CO2 for every mile not flown 1000 miles not flown = 1000 pounds of CO2 avoided.	
	5a. I will offset _____ flight miles. Give yourself 1 pound of CO2 avoided for every flight mile offset	
	6. Replace Lightbulbs: I will replace _____ lightbulbs with compact fluorescents. Give yourself 150 pounds per bulb replaced.	
	7. Eliminate or Reduce use of 2nd Fridge: I will ____no longer use or I will ____unplug a second refrigerator when not in use. Give yourself 1700 pounds if you don't use at all, 1000 for unplugging part of the time or downsizing.	
	8. Turn off Lights & Electronics: I will turn off lights and electronics when I am not using them. I will also install and use power strips. Give yourself 600 pounds.	
	9. Turn off Computer: I will use the standby feature on my computer and turn it off when not in use for several hours. Give yourself 500 pounds for each computer.	
	10b. Use less hot water for clothes and dishes: When I wash dishes by hand, I won't let the water run and I will wash some laundry loads using cold water. Give yourself 250 pounds.	

	10c. Buy a low flow shower head: I will install a low flow shower head. Give yourself 300 pounds for each one installed.	
	12. Eat Vegetarian: I will increase my vegetarian meals. Give yourself 700 pounds for each meal regularly added per week	
	13. Dishwasher on No-heat/Air Dry: I will wash full loads and start to use the air dry or energy saver setting on my dishwasher. Give yourself 200 pounds per year.	
	14. Plug Air leaks: I will plug air leaks around windows, doors, and foundation. Give yourself 800 pounds.	
	15. Replace Fridge with EnergyStar Model: In the next 6 months, I will replace my old refrigerator with an Energy Star Model. Give yourself 800 pounds. (Ask about NStar rebate.)	
	16. Replace old furnace with high efficiency unit: In the next 6 months, I will replace my old furnace with a high efficiency unit. Give yourself 2400 pounds. (Ask about NStar rebate.)	
	17. Add Insulation to my home: In the next 6 months, I will add insulation to my home. (Ask about NStar rebate.) Give yourself 1000-2000 pounds, depending on extent of project.	
	18. Buy a more fuel efficient car: In the next 6 months, I will buy a car with better gas mileage. Give yourself 4000 pounds (based on going from 20 mpg to 30 mpg and driving 12,000 miles per year).	
	Be careful not to wipe out all your energy savings: For example, some of the new televisions, especially plasma models, are huge energy users, so if you buy a new TV, find out about the energy use. NStar points out that high-definition televisions can use 6 times as much energy as a regular television.	
	MY TOTAL CARBON REDUCTION	

Congratulations! By implementing your plan you will help fight climate change and save money as well. You should see your energy bills go down.

Please let us know how you did!

This is a community project. We would like to keep track of the total pounds of CO2 residents have committed themselves to avoid. Please mail the tear-off form **or** report your results to us at efrosell@aol.com. Participating in the 10% Challenge by April 30, 2009 qualifies you to be entered in a prize drawing for energy-saving devices, such as a meter that measures how much electricity an appliance is using.

Want more energy-saving ideas, or more information? Visit www.greenneedham.org and click on Green Tips.

Sources: www.nstaronline.com, U.S. Department of Energy - Energy Efficiency and Renewable Energy, www.eere.energy.gov, *Low Carbon Diet* (David Gershon), www.stopglobalwarming.org
Carbon reductions are rough estimates and vary depending on which carbon calculator is used.