

January - Energy Conservation Corner

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Tip of the Month: Install and Use a Programmable Thermostat

A programmable thermostat (\$40.00, or \$150.00 installed) allows a property owner to adjust the heat automatically based on time of the day and days of the week (e.g., weekends). Studies have shown that significant energy savings occur from lowering the heat setting several degrees at night and when you are not at home. With a programmable thermostat, you can lower the temperature at night, bring it back up before you wake, lower it again when you leave for work, and then bring it back up before your normal return from work. Another feature of a programmable thermostat is that it allows an occupant to temporarily increase the temperature and the new setting will remain in effect until the next programmed change, which will occur automatically so that no one has to remember to re-set the thermostat. These thermostats are also much more accurate than older models and can be used with air conditioning in the summer months. Businesses, churches, and any other public buildings should also be equipped with programmable thermostats as the energy savings in those buildings will likely be multiples of what the average homeowner saves.

You can lower your energy usage even further if you put on your favorite sweater and lower the normal temperature at which you start feeling "chilly" when you are at home. You will lower your carbon imprint and save money as you do.

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Tip of the Month: Ice Dams and GHGs

When you stop ice dams from forming on your roof, you will save your house, save your money, and cut greenhouse gases (GHGs). Ice dams are caused by heat escaping into your attic through bypasses or inadequate insulation. Obviously, this escaping heat is a waste of energy and the GHGs emitted from generation of the excess heat needlessly contribute to global warming. To stop ice dams, either you or a professional need to locate the bypasses where air is escaping to the attic. If there are no bypasses, check the insulation R-value to ensure it is at the R-49 to 60 recommended for Minnesota. Finally, ensure that you have sufficient ventilation. Ventilation should include vents under your eaves and vents across the top of your roof. These vents help any heat that gets to your attic to escape.

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The True “Cost of Gas” in Minnesota: GHGs, Destroyed Forests, and Toxic Waste – A Whole New Reason to Bus, Bike, Walk, or Telecommute.

The recent unrest in the Middle East has pushed up the price at the pump, but what is the real “Cost of Gas” in Minnesota? The answer is that the true cost to us all of gasoline use in terms of environmental harm is not fully reflected in the price at the pump. This is especially true in Minnesota, because a substantial portion of our gasoline originates from the Canadian tar sands. As a recent article in the Economist noted, the oil in the tar sands come from “bitumen – an extremely dense and thick form of petroleum, which usually must be melted before it can be extracted and refined.” According to the Economist, fully twenty percent of Canada’s natural gas is burned to produce refineable oil from the bitumen. As a result, the EPA has estimated that production of oil from tar sands generates 82% more green house gas (“GHG”) emissions than does the average barrel refined in the U.S. In addition, because the tar sands are located under the northern boreal forest, hundreds of square miles of that forest in Alberta are being stripped away to expose the tar sands. As if all this is not bad enough, the process also requires four gallons of water for every gallon of oil produced, ultimately resulting in “vast ponds of toxic byproducts.” The Economist, August 12, 2010.

The bottom line, Minnesotans, is think twice about the true “Cost of Gas” in deciding whether and when you need to get in your car.

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Add Ceiling Fans in Your House or Business to Lower GHG Emissions

Yes, I know it is still close to freezing outside, but it is time to plan ahead for the summer heat and humidity. An easy way to cut back your carbon footprint is to add ceiling fans. Moving air allows you to feel cooler by speeding the evaporation of moisture from your skin. Ceiling fans use relatively little energy, but provide a big GHG benefit in several ways. First, use of the fans may allow you to avoid turning on your air conditioner at all as the outside temperature rises. Second, when the humidity level and temperature outside climb to where you start thinking about turning on the air conditioner, ceiling fans permit you to raise the temperature setting on your air conditioner by five or more degrees and still be comfortable in the middle of summer. Finally, unlike your air conditioner, ceiling fans are room specific, so you can turn them on and off as needed by the room's occupants. Central air conditioners, on the other hand, waste significant energy simply because they cool down your entire house or building, even when you, for example, are spending several hours in one room (e.g. the bedroom). Think of air conditioners as turning your house or building into a giant refrigerator (i.e. power hog). Ceiling fans are inexpensive to buy at stores like Home Depot. Installation can be done on your own or can be handled quickly by any electrician.

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Be a Wise User of Gasoline to Limit GHG Emissions

There are all sorts of reasons to leave your car in the garage and use the bus, your bicycle or your feet, not the least of which is the high cost of gasoline. That high cost is not going away—global demand pressures (like millions of Chinese and Indians driving cars for the first time) guarantee that high prices will remain with us regardless of whether the U.S. increases its drilling in environmentally-sensitive areas.

But, when you have to drive, how can you cut your gas usage? The easiest answer is to drive a vehicle that gets thirty or more miles per gallon, or better yet, an electric car. It may be smaller than what you are used to, but do it for the planet. Regardless of what car you have, there are also several minor changes you can make that will add up to real savings over time. First, stop and start gradually. Anticipate red lights and coast up to them. Second, have the vehicle serviced regularly (wise advice for many reasons). Third, limit how often you drive by thinking ahead to combine trips. Cars are notorious wasters of gasoline when the engine is cold (even my Prius registers a 20-30% drop in MPG for the first mile or two). Fourth, keep your tires properly inflated. Fifth, lower your average speed. A car is at least 10% more efficient at 55 mph than at 70 mph. Above 70, each additional mph is likely stealing another percentage point from your fuel efficiency. Finally, remove excess weight from your trunk. Collectively, if we as a nation took all of these steps, our dependence on foreign oil and our greenhouse gas (“GHG”) emissions would decrease significantly. With respect to GHGs, each additional mile per gallon you get from your car matters, as burning just one gallon of gas creates 19.4 pounds of CO₂. (2005 EPA Bulletin “Emission Facts: Average Carbon Dioxide Emissions Resulting from Gasoline and Diesel Fuel”).

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Cutting the GHGs Out of Cutting Your Lawn

Gas-powered lawn mowers emit a surprising amount of greenhouse gases (“GHGs”) and other pollutants. The EPA estimates that gas-powered lawn mowers produce one hundred pounds of GHGs per year. In addition, due to the absence of a catalytic converter (like automobiles have), gas powered lawnmowers emit high levels of pollutants inherent in gasoline combustion such as nitrogen oxides, volatile organic compounds, and carbon monoxide.

Alternatives exist. The simplest is an old-fashioned human powered reel mower. The reel mower has a great side benefit of providing a great exercise workout without sucking in all those pollutants from a gas-powered motor. A second alternative that would cut GHGs emissions about 40% is an electric or rechargeable lawnmower. A third alternative that has become increasingly popular is re-landscaping the yard to replace areas of lawn with other plants and landscaping materials. This alternative can improve the appearance of your yard while reducing GHGs emissions. So grab one of these alternatives and put that old gas mower out to pasture.

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Set-Top Boxes are Energy Vampires Wasting Electricity

Electricity generation is one of the main contributors to greenhouse gases (GHGs). When we waste electricity, everyone is harmed, both by the GHGs produced and the many other pollutants emitted by electricity production.

One ubiquitous energy waster is the set-top used by cable companies to connect their offerings to your television. According to a recent article in the New York Times, there are 160 million of these boxes in the United States alone, and most of them are running at “full tilt, or nearly so, 24 hours a day.” “Atop TV Sets, a Power Drain that Runs Nonstop,” New York Times, June 25, 2011. Cable and internet providers and electronics manufacturers are to blame for designing the boxes in this fashion. In a recent study by the Natural Resources Defense Council, it was estimated that these boxes are actually becoming the biggest energy user among home appliances, with some of the boxes using more energy than new refrigerators.

Europe has adopted a different standard for these boxes. Through use of hardware and software, European set-top boxes go into deep sleep mode when the television is turned off. The price for this significant energy savings is a wait of one to two minutes when the television is turned on. Although Americans are used to waiting for their computers to boot up, they expect “instant on” from their televisions. Meeting this expectation led to the creation of this energy hog.

What can you do about this? Complain to the EPA and your local cable or internet provider. One reason this vampire has found a place in your home is the alleged lack of public concern on this issue.

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Leaf Blowers—Noise, Pollution and GHGs

Leaf blowers are not neighbor-friendly. They produce noise, air pollution and greenhouse gases (“GHGs”). Typically, they are used to perform chores that could readily be done by hand using rakes or brooms, which would also provide the user with the benefits of exercise. Remember how all of those chores got done before the home appliance industry created the “necessity” of having a leaf blower? In recognition of the noise and other drawbacks of leaf blowers, many cities have banned them. What you can do:

1. Don't buy a leaf blower.
2. If you own one, don't use it (and enjoy your exercise).
3. Encourage your family, friends, and neighbors to respect those who live around them (and the Earth) by stopping, or at least limiting, their use of leaf blowers.
4. Encourage your city council to pass ordinances banning the use of leaf blowers.

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Lessen Your Guilt from Flying with Carbon Offsets

Air travel produces significant levels of greenhouse gases (GHGs). According to the EPA, aircraft cause 9% of transportation related GHGs and aircraft emissions “are the largest source of non-road transportation emissions.” Each flight that takes off and travels any distance generates significant GHGs. You can obviously lower your contribution to this source of GHGs by not flying. But when you have to fly--for work, family, or vacation--you can offset your GHG contribution by donating to groups that create or preserve carbon offsets. For example, Carbonfund.com is involved in a project in the Amazon to protect millions of acres of trees from the “slash and burn” logging that has deforested large sections of the Amazon Basin. Closer to home, the Nature Conservancy is reforesting land in the Mississippi Delta region of Louisiana. Contributions to these organizations work to both offset GHGs and provide you with the added bonus of a tax deduction.

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Lower Your Carbon Footprint by Eating Healthier

Americans' love affair with meat has negative consequences. We readily see the impacts in waistlines, heart disease, and other health issues, but a less obvious consequence of overconsumption of meat is the production of huge volumes of greenhouse gases ("GHG").

Protein for human consumption can be produced efficiently by many varieties of plants. Relying on animals for food is significantly less efficient. According to a recent article in Nutrition Action titled "Fewer Cows, More Vegetables" (October 2011), it takes seven pounds of grain to produce one pound of meat. All of that extra production relies on fossil fuel inputs ranging from petroleum for production and transportation, to petroleum-based fertilizers and pesticides, to coal-based electricity. The end result is significant use of fossil fuels in exchange for which we get much less food than could be obtained from instead focusing on a variety of plant-based foods. The huge numbers of animals involved then compound the GHG problem by emitting tremendous volumes of methane gas.

What can you do? Cut back your consumption of meat, especially red meat (which takes a greater volume of inputs to produce meat per pound than chicken). There is a movement afoot called "Meatless Mondays." According to the Environmental Working Group, if all Americans stopped eating meat on just one day per week, the impact on GHGs would be the equivalent of taking 7.6 million cars off the road. See the Meat Eater's Guide to Climate Change and Health (October 2011).

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Global Warming Is Real—Skeptic Funded by Koch Admits

Richard Muller, a prominent physicist who previously had identified himself as a global warming skeptic, has now admitted that the earth is warming. Muller conducted a two year study of world temperatures and found that the main line scientists who are claiming that global temperatures are warming rapidly are indeed correct. According to a report in the StarTribune on October 31, 2011, Muller's study was funded in part by a grant from none other than the Charles Koch Foundation, which is funded by the notorious Koch Brothers, who are heavily involved in fossil fuel production and are notorious for bankrolling anti-environmental efforts.

The bottom line is that the world needs to end its wasteful ways. In that regard, we all need to remember to “Think globally, and act locally,” by encouraging energy efficiency and energy conservation at every opportunity. Right now, there is an opportunity to act by making public comments to the Minnesota Public Utilities Commission on the plans of Xcel now being considered by the PUC. Ask the PUC to require Xcel to do more to make energy efficiency and conservation occur. Contact Jessica Tatro at the Sierra Club office and she will send you a sample comment and the address to which the comment should be sent.

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Lower Your Carbon Footprint and Save Money By Adding More Insulation

You may have read about the couple in South Minneapolis who are remodeling their home to make it so energy efficient that they will have no furnace in the home and will heat it with two space heaters purchased from Target. Most of us can't expect to take the benefits of insulation that far, but there is plenty of opportunity to lower your carbon footprint and save money through relatively small investments in additional insulation to your home.

Insulation is measured by R value (resistance to heat flow). The walls and attic of your home come into contact with cold air in the winter and warm air during the air conditioning season. With sufficient R value in your insulation, your heating and cooling costs can be substantially lower and your carbon footprint that much smaller. A good attic R value to shoot for in a climate like Minnesota is an R value of around 50-60, which is about 15-18 inches of insulation, depending upon the quality of the insulation. You can check the depth of your attic insulation yourself or ask a contractor to give you an estimate and you will find out in the process what R value you currently have. As additional insulation is installed, please be sure that you or your contractor (a) plug all air leaks coming up from inside the house (e.g., next to chimneys); and (b) leave the vents on the eaves free of insulation in order to allow free outside air movement up through the attic to avoid moisture problems (inexpensive "ventilation baffles" help solve this problem). With your walls, the easiest way to add insulation is to add a layer of styrofoam insulation when you re-side your home.

The end result will leave you warm and toasty inside on the coldest days of the winter.