What's the Carbon Footprint of Your Home?

The typical home is a major source of U.S. greenhouse gas emissions, accounting for over twice as much carbon dioxide (CO2) annually as the average automobile. In the upper Midwest, for example, the average home accounts for roughly 25,500 pounds of CO2/year. By comparison, a car getting 22 miles/gallon and driven the EPA-estimated average of 12,000 miles/year produces about 10,000 pounds of CO2.

Cutting the energy usage of our homes is clearly an important part of the solution to global climate change. Where can the biggest CO2 "savings" be achieved?

Adding Up the Numbers — Electricity
Electrical power is the largest source of CO2 emissions for the residential sector. Surprisingly, this is true even for those of us living in northern Illinois, a region known as a leading producer of nuclear power, a "clean" energy source.

ComEd is part of a regional transmission network that includes parts of Indiana, Ohio, Pennsylvania, and several other Mid-Atlantic states. The energy that makes your porch light shine could just as easily have been powered by a coal-fired plant in Ohio as the nuclear plant in Braidwood, Illinois. The resource mix for the electricity in our grid is almost 50 percent coal and 48 percent nuclear power. This produces emissions of 1.56 pounds of CO2/kilowatt-hour of electricity.

More than half of the CO2 (56 percent) attributable to homes in our area is caused by the electricity we use. The average electrical consumption in the upper Midwest (for homes of all types) is 9,200 kWh/year, resulting in 14,300 pounds of CO2.

How does your home compare? You can figure out your annual electrical consumption by reviewing your account history on the ComEd website. Add up the number of kilowatt hours used over twelve months and multiply that number by 1.56 to determine the number of pounds of CO2 produced in generating your electricity.

Lighting takes the biggest share of the electricity used by homes in this region, followed by air conditioning. (If you have an electric heating system, that likely is your home's biggest user.) This emphasizes the importance of such action steps as switching to fluorescent lights, installing ceiling fans, raising the thermostat setting for your air conditioner, and replacing any central air conditioner more than twelve years old with an Energy Star-qualified unit.

Adding Up the Numbers — Natural Gas
Natural gas usage accounts for about 44 percent of the CO2 generated by homes in our area. The average annual home gas consumption in the upper Midwest is 950 CCF (hundred cubic feet), which produces about 11,100 pounds of CO2.

On a Nicor gas bill, the volume of gas used is converted from cubic feet into therms — a measure of the heat content of the gas. One hundred CCFs of natural gas is roughly equal to one therm, making the average usage for homes in our area about 950 therms.

How does your home compare? Visit the Nicor website to review your gas use history. Add up the number of therms used over a year's time and multiply that number by 11.7 to determine the number of pounds of CO2 produced by your natural gas consumption.

Improving the "envelope" of your home — by sealing air leaks and adding insulation — is probably the most important and cost-effective step you can take to reduce your natural gas usage. Dialing down the thermostat in winter can also help; in the upper Midwest, lowering the thermostat just one degree will reduce energy usage by about three percent.

Improving Energy Efficiency

Individuals can do a lot to cut their own home energy consumption. But enlightened energy policies are also key to reducing emissions from the residential sector as a whole.

Stronger building energy codes are one important tool for achieving substantial reductions in emissions, and several major initiatives to improve state and local building codes are underway. The 30% Solution, for example, is a package of proposed changes to the International Energy Conservation Code, the most widely-used model energy code for residential construction in the U.S. As its title suggests, the proposed code changes would boost energy efficiency in new homes by 30 percent. The proposal is to be voted on by local government officials attending the International Code Council annual meeting in mid-September.

Another approach is the Residential Energy Conservation Ordinance (RECO), a policy tool for upgrading energy efficiency of existing housing. Several cities have adopted RECO programs, including Berkeley, California. In place since 1985, this program requires owners of homes or apartment buildings undergoing substantial renovations or being sold to demonstrate compliance with specified efficiency measures.

These and other strategies can bring about substantial improvements in the energy efficiency of our homes and other buildings, transforming them from major sources of global warming pollution into part of the solution to global climate change.