A DIY Guide for Canadians to Meet the Kyoto Targets

First, this document was written at the end of April 2007, once it was clear that "Canada's New Government" still hasn't got a clue, let alone a plan, for mitigating climate change related to atmospheric greenhouse gas emissions. Second, this document is going to gloss over a lot of subtleties in favour of being concise and providing an Action Plan for consumers and taxpayers.

Background

Canada has signed and ratified the Kyoto Protocol. We're in, no matter how much squirming the federal not-so-Conservatives do. We signed up to reduce Canada's greenhouse gas emissions to 6% below what we produced in 1990. The bad news is that in the intervening 16 years, we've been going the wrong way on this; emissions have been going up, not down.

In 1990, Canada produced approximately 599 megatonnes (Mt) of CO_2 equivalent (CO2E) greenhouse gases. (There are several major gases identified as greenhouse gases. Of these, carbon dioxide or CO_2 is the most prevalent. Methane or CH_4 is the next most important. While methane is less common than carbon dioxide, it is more potent in its effect. So eliminating a molecule of methane is worth more than eliminating 20 molecules of carbon dioxide. This variance in potency has led to the measuring other greenhouse gases in terms of their impact relative to the same amount of carbon dioxide, or CO_2 equivalet.)

Later figures show Canada actually emitted 609 Mt in 1990, but 599 is the baseline we agreed on. Knocking 6% off that, we get 563 Mt per year as our Kyoto target.

In 2004, Canada produced 758 Mt of CO2E; 27% above 1990, and 35% above our target. Curiously, well into the second quarter of 2007, we don't yet have figures for 2005, let alone 2006. Clearly, having real numbers to work with is not a priority for the government. However, given pretty much nothing has been done in the past couple of years on this file, we can assume linear growth of 2% a year for 2005-2007, and we are somewhere around 804 Mt now (2007), or about 43% above the target. Not encouraging.

Canada's commitment is to reduce our GHG emissions over the five year period from 2008-2012.

Well, people, 2008 is just around the corner now. It's time to stop listening to the whining of our politicians and major emitters, and get on with fixing the problem. They had a decade, and they let the situation get worse. It's up to us, folks. Let's stop talking to politicians, and do something constructive ourselves. If we don't meet the targets within our borders, we will be paying for credits outside our borders, and that's going to come from our taxes or increased prices on the goods we buy – nowhere else.

Like the oil filter guys used to say, you can pay me now, or pay me (more) later.

43% reduction in five years. That's about 9% a year. So, how do we do it?

Over 80% of the GHGs produced in Canada are associated with our use of energy, notably the burning of fossil carbon stocks such as oil, natural gas and coal. So, if we want to make big changes fast, that has to be our primary target.

Where do we, as consumers, use that energy? The following figures are based on "typical" use – they won't be a perfect fit to anyone, but they are instructive. It's split about half and half between transportation and household use, although some of that is embedded in products we buy (indirect use).

Let's start on the home front. Most of us use energy to heat our living space, heat our water, illuminate our homes, and run appliances, pretty much in that order. As energy costs rise, it makes sense to target the biggest bills. For most of us, that is heating. There are many proven ways to reduce your heating bill: improved insulation, improved weather-sealing, programmable set-back thermostats, use of passive solar energy, and more. Your hot water bill can be tamed to some extent by turning down the temperature on the tank to 50 degrees Celsius, putting additional insulation around the tank, installing water-saver devices, etc. Your lighting bill can be reduced dramatically by turning off lights that don't need to be on, installing photo-sensor switches on outdoor lights, and switching over to efficient lighting options like compact fluorescent lighting.

Here's a sample five-year plan. The order is not particularly important, and you can do other things instead of what is listed here. This is intended only as a guide. A Personal Energy Plan is exactly that; you should tailor it to suit your needs. The objective is to reduce your overall energy consumption by about 10% a year, and sustaining those reductions. With some thought, you will be able to put a pile of cash in your pocket over the next five years, reduce air pollution, and reduce the impacts of climate change.

Year 1

Household Energy

Plant a deciduous tree (possibly a fruit tree) on the sun-facing side of your house to provide summer shade, and install a programmable, set-back thermostat.

Transportation Energy

Slow down to posted speed limits. Energy required to overcome aerodynamic drag goes up with the *cube* of speed. Travelling at 90 km/h instead of 110 km/h uses 20% less fuel to cover the same distance.

Indirect Energy

Look for and buy more locally produced food. On average, food travels more than 2000km to reach the end-consumer.

Year 2

Household Energy

Upgrade the weather-sealing all around your house, and add insulation for your windows during the heating season (insulated blinds, extra layer of glazing like storm windows, or plastic film).

Transportation Energy

Park your car one day every two weeks; telecommute, car-pool, walk, bike, use transit or whatever other means works for you to reduce your actual fuel consumption by 10%.

Indirect Energy

Find a way to reduce your garbage volume by 20 per cent, by reducing the packaging you buy or diverting to recycling. For example, take your own re-usable bags when shopping, or take your own mug when buying a beverage.

Year 3

Household Energy

Upgrade the insulation in your attic, and if feasible, walls. Don't forget the space at the top of your basement where joists meet the outside wall, as it's a prime area for heat loss.

Transportation Energy

Check tire pressures monthly, and have your vehicle tuned up regularly. This will save fuel, increase tire life, and improve vehicle performance and handling. Plan your trips to combine errands, minimize total distance, left turns and being stuck in congested traffic.

Indirect Energy

Start a garden, even a container garden, and grow some food for your own use, perhaps radish, cherry tomatoes, leaf lettuce and herbs as starters. Use compost for soil in containers or your garden. Avoid chemical fertilizers, herbicides and pesticides.

Year 4

Household Energy

Replace incandescent lighting with efficient lighting, such as conventional fluorescents (e.g., T-8 lights), compact fluorescents, or LEDs.

Transportation Energy

When it is time to replace your car or truck, find a vehicle that is fuel efficient while meeting most of your needs. For exceptional needs, rent or borrow a vehicle.

Indirect Energy

Buy your electricity from a renewable source, either through your supplier or via Green Tags or similar mechanisms.

Year 5

Household Energy

Look into increasing the amount of heating you can do using passive or active solar systems, or a ground-source heat pump.

Transportation Energy

Avoid idling your vehicle, including time spent to warm up or cool down the vehicle prior to starting a trip.

Indirect Energy

Try to buy products that are made from recycled materials, and produced as locally as possible. Buying energy-intense products made in China not only means

increased coal being burned to generate the electricity used in production, but also requires the product to be shipped about 12,000 km to get to you.

If you carry out the changes listed above, or their equivalents, you can reduce your greenhouse gas emissions by 50% in five years, and probably save money doing it. Of course, the earlier you start, the more you will save.

Other candidates to substitute (or add) for those above.

Household Energy

√ Replace an older refrigerator with a modern, efficient model.
√ Replace an old air conditioner with a modern, efficient model.
√ Use a solar water pre-heater, even seasonally.
√ When it is time to replace your roof covering, select a light-coloured material to reduce heat gain and local warming effects.
√ Install awnings or other outdoor window shading to reduce summer solar heat gain.
√ Put additional insulation around your hot water tank and hot water pipes.
√ Find and exorcise your phantom loads. Put your TV, DVD player, stereo, computer, etc. on isolation switches or power bars to make sure they are really off when you want them to be off.

Transportation Energy

√ If feasible, consider a car-sharing program like VirtuCar instead of owning a car.
√ Switch to E10 ethanol fuel or B10 diesel fuel.
√ Buy a (second-hand) bicycle, tune it up and use it at least once a week during the fair weather seasons. If beneficial, add electric-assist to help with starts and hill-climbing.
√ For inter-city trips up to 400 km, consider taking the train instead of an airplane. After allowing for trips to and from airports, pre-flight check-in, going through security, and checking and retrieving luggage, the time difference may be quite small. Also, there are no air pressure changes, bigger seats, and the train uses much less energy per seat. Many trains now provide wireless Internet service, and your cellular phone works.

Indirect Energy

√ Re-use materials as much as possible.
√ A metal roof will last longer than asphalt shingles, and consumes less energy to produce, transport and install.
√ Concrete production is a major source of GHGs. Consider the use of woodcrete or papercrete or rock and mortar as substitutes, or using chunks or old concrete as filler.
√ Set aside scrap metals for recycling instead of throwing them in the garbage.
√ Buy fewer soft drinks. Each one adds a little bit of CO_2 to the atmosphere.

(This information comes courtesy of Darryl McMahon, author of *The Emperor's New Hydrogen Economy*.)