

BACKGROUND

~Anti-Idling Issues~

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The Greenhouse Effect

About half of the sun's heat that reaches Earth is absorbed by the land and water. When the sun goes down, the absorbed heat is slowly released into the air. We also have an atmosphere - a layer of gases surrounding the earth - that absorbs some of the sun's heat and also helps keep the released surface heat from floating quickly off into space. The atmosphere is like a blanket that surrounds the world. It lets in just the right amount of the sun's heat (about 70%) and reflects the rest - sending it packing back out into space.

Like the plastic or glass covering a greenhouse, water vapour and trace gases (e.g., carbon dioxide, methane, and nitrous oxide) trap the heat radiated from the sun. If we didn't have these Greenhouse Gases (GHGs for short), the earth would be an icebox. Our average temperature would be about -18°C. People refer to this heat-trapping role of the atmosphere as the "greenhouse effect."

To understand why we are getting too warm in our greenhouse, let's look at carbon dioxide (CO₂), one of the most important GHGs. Carbon dioxide makes up about 25% of the natural greenhouse effect and is therefore a key player. A number of things can put CO₂ into the atmosphere (e.g., the burning of fossil fuels from driving and idling our automobiles). If you have smelled the fumes from a car, you have got a nose full of CO₂ at the same time. Also, a number of things remove CO₂ from the atmosphere (e.g., plants and trees through photosynthesis). Over the past 10,000 years, the balance between the annual atmospheric release and removal of large amounts of CO₂ has been remarkably stable on average.

Imagine two kids playing on a teeter-totter. At one end, the child weighs the same as the amount of CO₂ removed from the atmosphere. The child on the other end weighs the same as the amount of CO₂ put into that atmosphere. The teeter-totter was essentially in balance for about 10,000 years.

Out of balance:

Since the last ice age, the amount of carbon in our atmospheric blanket has been relatively stable and temperatures on earth have been fairly comfortable. That is, until the last 200 years or so. Unfortunately, when the industrial revolution began in the late 1700s, people started to add billions of tonnes of extra CO₂ to the atmosphere.

People put CO₂ into the atmosphere when we run our industries, heat our homes, and drive our cars. This is because when we do these things, we usually burn fossil fuels – oil, gas, and coal. These fossil fuels are made from the carbon of plants and animals that decomposed millions of years ago.

Based on studies of ice cores from glaciers, scientists believe that there is much more CO₂ in the atmosphere now than there has been for a very, very, very long time. The teeter-totter has now tipped. The kid who puts CO₂ into the atmosphere is now much heavier than the kid who takes CO₂ out of the atmosphere. And the one putting it in keeps getting heavier and heavier. Having this much CO₂ in the atmosphere is kind of like throwing a much thicker blanket on your bed – things can get a little too toasty for comfort. It is time for the kid putting CO₂ into the atmosphere to go on a diet!

Enhanced greenhouse effect:

When we add more GHGs to the atmosphere we get what is called the “enhanced greenhouse effect.” We are changing the natural processes of the world and making it difficult for the atmosphere to keep a balance. This enhanced greenhouse effect isn’t making us sweat buckets yet, but it is starting to change the climate and the world we are used to.

	How long does it stay in the atmosphere?	What % of climate change over the past century did it cause?	Where does it come from?
Carbon Dioxide (CO₂)	50-200 years	54.9%	Burning of oil and gas (e.g., transportation)

Climate Change

The climate is changing everywhere. Worldwide, new plant and wildlife species will appear in some areas. Familiar species will disappear if they can’t handle the new climate. Around the world, many cities, towns and villages are built close to sea level. Scientists expect climate change to cause sea levels to rise. This means that tens of millions of people who live close to the sea will have to move to higher ground. Whole islands or countries could disappear under water. Salt water could flood low-lying farmland and displace fresh water. This would harm farm crops because many plants can’t grow in salty soil.

Climate change is expected to mean very unreliable weather. Some parts of the world will get more rain and floods. Other parts will get more droughts and really hot weather. When it gets really hot and dry, more water evaporates. That means less drinking water for people and less water for farm crops and animals. Some countries may find it even more difficult to feed and house their people.

Most of this is not good news for our planet. And it means major challenges for the animals, plants and people that live there. But don't despair. There are things that people can do – and are doing – to help slow climate change and reduce its impacts (e.g., turning the automobile engine off when parked).

Vehicle Emissions

Climate change is a complex issue studied by hundreds of scientists in Canada and around the world. Although we still have much to learn, there is general scientific agreement that human-made emissions of carbon dioxide (CO₂) and other greenhouse gases (GHGs) are at the root of the problem. Human activities, particularly the combustion of fossil fuels, are a major source of GHG emissions. And Canadians' love affair with the car – we own more of them and drive them farther than ever before – is a big part of the problem. In fact, the transportation sector is the single largest source of GHG emissions in Canada. Personal vehicle use by Canadians is now responsible for half of all transportation emissions, and over two thirds (68%) of on-road transportation emissions. Close to 17 million vehicles are registered in Canada today.

Automakers have developed the technology (catalytic converters) to reduce harmful vehicle emissions that contribute to air pollution and smog such as hydrocarbons, carbon monoxide and nitrous oxide (also a GHG). But no technology exists for “cleaning up” the major GHG contributor: CO₂. Carbon dioxide is simply an unavoidable by-product of burning gasoline or diesel fuel.

Vehicle Idling:

A recent study of driving habits and behaviour shows that Canadians idle their vehicles year-round (an average of 5-10 minutes per day) and they do so for many reasons. Warming up a vehicle is the most common excuse for idling. Drivers also spend a lot of time running their cars needlessly in the drive-thru lanes of fast-food restaurants and while waiting for someone. Moreover, drivers idle while they are stopped at railway crossings, wait to park, run quick errands, stop to talk to an acquaintance or friend, wait in line to get gasoline or have the car washed, and preparing to leave the house. All these situations have two things in common: they waste fuel and money, and they cause environmental damage.

Idling produces unnecessary emissions of CO₂, the principal GHG that contributes to climate change. Carbon dioxide is an unavoidable by-product of burning gasoline. Every time drivers turn on their vehicle's engine, they generate CO₂ – and the more fuel they use, the greater their GHG emissions. The average car produces about 2.4 kg of CO₂ for every litre of gasoline used. It generates three times its own weight in CO₂ every year. Vehicle exhaust emissions also contribute to other environmental problems such as smog and acid rain.

Air Pollutants and Health:

Ground-level ozone, or “smog,” is one of Canada's most dangerous air-borne pollutants. Smog occurs when nitrogen oxide (NO_x), a by-product of burning fossil fuels such as gasoline, combines with volatile organic compounds (VOCs) in sunlight and becomes a colourless, odourless, gas. Because of the role that sunlight plays in its production, ground-level ozone is more prevalent during the sunny months, from about mid-May until mid-September, called the “smog season.”

Increasing levels of ground-level ozone coincide with increased admissions to hospital for respiratory diseases. In Windsor-Essex County (WEC), smog is causing thousands of emergency hospital visits, costing our health care system over 23 million dollars to treat unnecessary respiratory illness. What's worse is that 9% of all non-accidental deaths in WEC are due to smog.

Children are particularly vulnerable to smog because their lungs are still developing, they spend more time outdoors being physically active, they breathe faster than adults and inhale more air per kilogram of body weight, and their breathing zone is lower than adults which exposes them to vehicle exhausts and heavier pollutants that concentrate at lower levels in the air. In fact, smog has been found to:

- aggravate asthma, leading to more frequent and severe asthma attacks;
- increase the number of respiratory infections;
- aggravate and induce allergies;
- increase school day absences; and
- increase emergency room visits, hospital admissions and premature deaths.

Idling is particularly an issue at schools – many parents idle their vehicles while waiting to pick up their children. This is compounded by the fact that due to commuting traffic, smog is already at its daily peak when parents are picking up their kids.

Did you know?

Many people believe that they are protected from air pollution if they remain inside their vehicles. However, the International Centre for Technology Assessment found that exposure to most auto pollutants, including volatile organic compounds (VOCs) and carbon monoxide (CO), is much higher inside vehicles than at the roadside. VOCs and CO are linked to serious health problems – like respiratory irritation and cancer – and are known to shorten life (www.icta.org). The highest exposure occurs when sitting in traffic congestion on highways or in a line-up of idling vehicles outside a school.

Anti-Idling By-Laws

More than 20 Ontario municipalities have either stand-alone idling control by-laws, or anti-idling provisions in other by-laws. At the time of writing, 15 municipalities, all of them in Ontario, have passed stand-alone idling control by-laws. These include: Burlington, Guelph, Huntsville, Kingston, London, Markham, Niagara Falls, Oakville, Pickering, Stratford, Toronto, Vaughan, Whitchurch/Stouffville, Windsor, and Woodstock. Although many other municipal councils have considered passing idling control by-laws, they decided against a regulatory approach largely on the grounds that the by-laws are difficult to enforce.

Windsor's Anti-Idling By-Law:

Windsor has an anti-idling by-law titled “A By-Law to Prohibit Excessive Idling of Vehicles and Boats” (By-Law No. 233-2001 www.citywindsor.ca). It states that people shouldn't idle their vehicles or boats for more than five minutes in a sixty minute period. Twelve exceptions to the rule are also listed in this by-law (e.g., when the ambient temperature inside a vehicle or boat is more than 27°C or less than 5°C).

To make a complaint about an idling vehicle, please call the City of Windsor at 311 or 519-255-2489.

For more information about Windsor's anti-idling campaign, please visit www.idlefreewindsor.org or call 519-973-1156. (After May 1, 2007, please call the Citizens Environment Alliance at 519-973-1116.)