

Hydropower

Clean Air, Renewable Energy
The Power of Water

The Power of Water for **Cleaner Air**

Most scientists agree that the world is getting warmer. Greenhouse gases from the burning of fossil fuels (coal, oil and natural gas) collect in the atmosphere and add to the gases that are naturally present. This accumulation of gases has created a greenhouse effect, which may increase temperatures by 1 to 3.5 degrees Celsius over the next century—much more in certain regions of Canada.

Air Emissions

Major greenhouse gases:



Causing acid rain:



Causing smog:



Higher temperatures increase the likelihood of extreme meteorological events such as hurricanes, tornados and droughts. They could affect agricultural and forest productivity, and cause flooding and erosion of coastal areas.

Of particular concern to Canada is that climate change could melt the permafrost, modify river levels and threaten the existence of forests, fisheries and major species such as caribou, polar bears and beluga whales. And as we have already experienced with existing environmental problems such as smog, which will worsen with warmer temperatures, climate change will affect our health.

Two sectors are responsible for more than half of the greenhouse gases caused by the burning of fossil fuels: transportation and energy industries.

Electricity generation, more specifically the burning of fossil fuels to generate electricity, produces 17% of greenhouse gas emissions in Canada. Emissions for the electricity generation sector break down as follows. The overwhelming proportion comes from the burning of coal, at 84%. Oil and natural gas account for 7 and 9% respectively. The burning of fossil fuels, whether for use by transportation, industry or electricity generation, also produces emissions that cause air pollution, smog and acid rain.

Hydropower, on the other hand, produces no air pollutants that cause acid rain and smog, no polluting or toxic waste by-products, and very few greenhouse gases. Hydropower reservoirs, like natural lakes and rivers, emit small amounts of greenhouse gases due to decomposing vegetation and other natural biological reactions. In boreal regions, such as Canada, these amounts are much lower than those produced by natural gas or coal fired plants, and are comparable, under a life-cycle assessment, to those of other renewable sources of electricity, such as wind power.

It's clear that in order to cut air pollution and address climate change, we must reduce our dependence on carbon intensive fossil fuels by developing renewable sources of electricity like hydropower. Canada has large undeveloped hydropower resources and the development of these resources can play a key role in meeting our growing needs for electricity while reducing emissions of greenhouse gases and air pollutants.

GHG Emissions

