

Northwest Territories

Climate Change in the Northwest Territories

There is broad scientific consensus on the reality of climate change. It is happening, and it has serious implications—for our health, our economy, and our future.

Human activities, including the heavy use of fossil fuels for heating, transportation and electricity, release greenhouse gases that are accumulating and causing global warming. Average global temperatures are rising—the 20th century was the warmest the world has seen in 1,000 years, and the 1980s and 1990s were the warmest decades on record. As a northern country, Canada will feel the impacts of climate change more than most countries.

Climate change has already started to affect the Northwest Territories. In the last 40 years the Mackenzie River Basin has warmed by 1.5°C. Also during this time, the sea ice has been shrinking and the permafrost has been melting.

Scientists predict that by the end of the 21st century, temperatures in the Northwest Territories will be at least 5°C warmer than they are today. Changes to the environment have already started taking place in the north and will have a significant impact on northern environment and quality of life.

Northern landscapes

The melting permafrost is forcing up the cost of maintaining all weather roads. It also increases the risk of landslides and could cause structural damage to older buildings. Melting permafrost may also negatively affect water supplies and communities' waste disposal systems.

Warmer winters are causing problems for ice roads. They are freezing later and melting earlier in the spring. This has made transporting goods to the communities and mines that depend on these roads more difficult. As the climate changes and temperatures rise, these problems are expected to get worse.

Life on the land

Increased temperatures mean birds, mammals and insects are moving further north every year. Many Dene elders have reported seeing species of birds that have never come as far north before. Mammals like moose, whitetail deer, coyotes, cougars, porcupines, beavers and otters also seem to be migrating north. The warming trend is allowing more species of insects to survive further north, so that flies and mosquitoes are creating problems for both humans and animals.

The caribou are put at risk by the changing climate as well. Changing vegetation, snow conditions and an increase in insects are all affecting calving success.

The longer summers are also affecting polar bears. Warmer temperatures are causing more ice to melt, resulting in more open water and fewer seal pups surviving, so it is harder for the bears to catch the food they need to stay healthy all winter. This, scientists say, is causing bears to be skinnier than they were 30 years ago. This is also why polar bears are having fewer cubs now than in the past (one or two instead of two or three). If things get worse for the polar bear there is a chance they will disappear from the Hudson Bay area within 50 years.

Early melting of snow and spring rains can destroy seal pups' snow dens and expose them to predators such as polar bears. This, and earlier sea ice breakup has made it more difficult for aboriginal hunters to find and harvest seals.

Of ice and men

Climate change models are projecting major changes in northern sea ice. These models predict most summer ice in the north could disappear by 2100. Early ice breakup or complete loss of ice would have a profound effect on northern lifestyle. Traditional knowledge is used to predict ice conditions and guide hunters in their travels and work. However, as temperatures increase and ice conditions change, this would make predictions more difficult and could make traveling more dangerous.

Communities along the Arctic Coast are experiencing problems because of lower winter ice levels. Open water in early winter is causing stormy waters to erode Tuktoyaktuk's coastline, causing buildings to be abandoned.

Taking Action

Given the potentially serious and long-term nature of the risks associated with these impacts, the only prudent course is to take actions now to reduce the emissions that contribute to climate change. Analysis shows that the impact on Canadian jobs and economic growth associated with reducing greenhouse gas reductions can be kept modest and manageable relative to the strong growth expected over the next decade.

To give a sense of the possible order of magnitude of the impacts on industry, the estimated economic impact of implementing steps one and two in the Climate Change Plan for Canada to meet Canada's Kyoto commitments ranges from -0.4 percent to -1.6 percent of Canada's gross domestic product, dependent on various assumptions.

This is a modest impact relative to the strong economic growth expected over this period. Analysis shows job growth of 1.08 to almost 1.26 million jobs by 2010, compared to just over 1.32 million in a business as usual scenario. That means a delay in job creation of about 62,000 jobs across Canada in the year 2010. By comparison, the Canadian economy is currently creating new jobs at a rate of about 46,000 per month.

Estimates indicate that with the implementation of actions to reduce greenhouse gas emissions, the provincial gross domestic product for Canada's northern territories in the year 2010 would grow to

a level that would be about 0.04 percent less than in a business as usual scenario (combined average for the Northwest Territories, Yukon and Nunavut). Growth in new jobs would slow by approximately 0.1 percent. To put this into context, the economy in Canada's northern territories created approximately 240 jobs over the past year.

These economic forecasts do not reflect the significant environmental and health benefits to be gained by addressing climate change. Taking action will provide broader benefits including cleaner air, reduced health costs and other environmental and social benefits for Canadians.

The impact on personal disposable income by 2010 would be approximately 0.19 percent less than business as usual. Relative to what they would otherwise be, electricity prices could increase by about 0.17 cents/KWh. Gasoline prices are expected to remain at their business-as-usual level in 2010.

An illustrative example of production increases for major industrial emitters in the province as a result of measures to reduce greenhouse gases (national averages) is as follows:

- **conventional oil** would rise by 3 cents per barrel, or by 0.09 percent
- **natural gas** would rise by 0.5 cents/million cubic feet, or 0.14 percent
- **electricity** – gas would rise by 0.04 cents per KWH or 0.60 percent
- **electricity** – oil would rise by 0.12 cents per KWH or 1.57 percent

Canada's approach to reducing greenhouse gas emissions is designed to minimize costs and

maximize opportunities for Canadian technology. It envisions an economy that is based on cleaner sources of energy, using leading edge technologies. The Plan proposes strategic investments in innovative climate change proposals and the creation of a Partnership Fund that will cost-share well as municipalities, Aboriginal communities and the private sector.

By drawing on Canadian innovation, and by ensuring that different sectors of the economy, regions and consumers play a role in taking action on climate change, the impact is more manageable for all. Working together, Canada can position itself as a strong competitor as the world moves to a new, less carbon-intensive economy.

Companies in the Northwest Territories are already showing leadership in meeting the challenges of climate change¹:

- EKATI, Canada's first diamond mine, is recovering waste heat from its generators to produce building heat and conserve fuel. Exhaust stacks on the generators are specially insulated to reduce the demand for heat from diesel heating boilers, thereby reducing fuel consumption. An ongoing preventative maintenance program ensures the generators operate as efficiently as possible and the mine conserves electrical power by using energy-efficient lighting, motors and diamond recovery processes. These and other measures all add up to considerable reductions in energy use, operation costs and greenhouse gas emissions.

- By taking an innovative approach to increasing energy efficiency and promoting community involvement, the Northwest Territories Power Corporation has not only pursued internal greenhouse gas (GHG) mitigation opportunities, they have also taken a leading role in consumer education. The company promotes energy efficiency through the use of customer newsletters and seminars. In several locations, the company installed waste heat recovery systems on diesel generating equipment, which captures thermal energy for local customers, indirectly reducing fuel demand. Overall, the Northwest Territories Power Corporation has reduced annual greenhouse gas emissions by 47 percent below its 1990 baseline.

¹ Examples are taken from the public record.

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and what you can do,**

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