

Climate Change in New Brunswick

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.

Over the next 100 years, temperature increases of 3 to 4°C are projected for the Atlantic Provinces. Changes in precipitation patterns and an increase in extreme events are also anticipated. These climate changes are expected to be the largest and most rapid of the last 10,000 years and will have profound effects on our lives and the ecosystems that support us.

The air we breathe

The number of “bad air days” caused by smog is expected to increase due to a warming climate. The city of Saint John is already experiencing more smoggy days. Smog is a mix of pollutants, including nitrogen oxides (NO₂) and volatile organic compounds (VOC), which react together in sunlight to form ground level ozone. This ozone is harmful to human health, causing impaired lung function, increased hospital admissions, and premature death. The very young, the elderly, and those with chronic lung diseases, such as asthma, are at the greatest risk.

Bodies of water

Due to a warming trend in New Brunswick, the number of mild days in winter has been increasing and large peak flows on the

St. John River in late winter are becoming more common. If this warming trend continues, ice breakup and flooding on the river will become more frequent and unpredictable. This could increase damage to property, highways, and bridges, and force power companies to change the management regimes of their reservoirs.

Forests

The risk of trees blowing down may increase, as storms become more frequent and intense as a result of climate change. For example, a massive blowdown in 1994 caused 30 million trees to be felled and cost \$100 million in damages.

Warmer winter temperatures may allow invasive insects such as the gypsy moth to become more pervasive. This is because prolonged temperatures at or below -9°C,

or short periods below -23°C , are necessary to limit the development and survival of this species.

All of these conditions could result in stresses on existing tree species, the elimination of some, and the introduction of others.

Agriculture

A longer, warmer summer would lengthen the growing season and increase the yield of warmer weather crops such as soybeans, winter cereals, corn, and grapes. However, these conditions could also result in more droughts and a greater need for irrigation. Warmer winters may benefit agriculture by reducing winterkill of forage and fruit, but could also create problems for farmers by increasing the range and abundance of insect pests.

An increase in extreme weather events, including storms, hail, floods, and drought, may be the greatest concern for agriculture. These events damage crops and livestock, and may affect the availability of electric power and communication lines.

Oceans

Scientists project that a warmer climate will change ocean temperatures and affect marine ecosystems. Fish are sensitive to temperature; therefore changing temperatures would influence the distribution and population abundance of some species. Furthermore, climate change may increase the range and extent of the organisms responsible for toxic algae blooms, such as red tides. Toxic blooms pose a serious threat to both fish populations and human health.

Storm surges and coastal flooding

Storm surges form when low pressure and strong onshore winds combine to raise the water level a metre or more above normal. As sea levels on the Atlantic coast are expected to rise dramatically over the next century, storm surges will be able to flood areas never before flooded. Low-lying coastal areas will be the most threatened. Sinking of coastal land could compound the problem, as much of the New Brunswick coast is low-lying and sensitive to erosion and flooding.

Taking Action

Given the potentially serious and long-term nature of the risks associated with these impacts, the only prudent course is to take action 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, New Brunswick's provincial gross domestic product

in the year 2010 would grow to a level that would be about 0.22 percent less than in a business as usual scenario. Growth in new jobs would slow by approximately 0.4 percent, or a delay in job creation over the next eight years of about 1,500 new jobs. To put this into context, New Brunswick's economy created approximately 10,100 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 0.16 percent less than business as usual. Relative to what they would otherwise be, electricity prices could drop by approximately 0.24 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:

- **pulp and paper** would rise by 0.06 percent, about 59 cents per tonne
- **electricity** – coal would rise by 0.14 cents per KWH, or by 1.94 percent
- **steel** – conventional would rise by 0.29 percent, about \$2.10 per tonne

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.

New Brunswick-based companies and communities are already showing leadership in meeting the challenges of climate change¹:

- A cogeneration facility, which produces electricity and usable heat at the same time, at Nexfor Inc.'s wood products plant has reduced fuel costs 75 percent by replacing fossil fuels, such as oil, gas and coal, with wood waste and with energy efficiency projects. In 1998, Nexfor reduced its greenhouse gas emissions 23.1 percent below 1990 levels.

- By installing a variable frequency drive on a kiln exhaust fan at its Havelock, New Brunswick facility, Graymont Inc. reduced electricity consumption by about eight percent – a net savings of 558,000 KWh per year.
- Energy efficiency initiatives at Repap New Brunswick Inc. have resulted in a decrease of total electrical power usage from 1.94 to 1.69 megawatt hours per tonne (12.9 percent).

¹ Examples are taken from the public record.

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and what you can do,**

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