

Climate Change in Nova Scotia

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.

Oceans

Scientists predict that climate warming 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 warming 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.

Agriculture

A longer, warmer summer would lengthen the growing season and increase the yield of warm-weather crops, such as corn, soybeans, and grapes. However, these conditions could also result in more droughts and a greater need for irrigation. Warmer winters may benefit agriculture by reducing winter kill of forage and fruit,

but 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 hydro power availability and power lines.

Rising sea level and storm surges

As temperatures warm, oceans will expand, causing sea levels to rise. Canadian research suggests that sea levels on the Atlantic coast of Nova Scotia could rise by 70 cm by 2100.

The majority of the Atlantic coast of Nova Scotia is highly sensitive to rising sea levels. The most sensitive areas are low-lying salt marshes, barrier beaches, and lagoons. Higher sea levels will cause increased erosion, smaller or disappearing

beaches, and flooding of coastal freshwater marshes. They will also affect coastal infrastructure, such as bridges, wharves, breakwaters, and roads.

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 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.

The air we breathe

The number of “bad air days” caused by smog events is expected to increase due to climate warming. 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.

Freshwater

Changing stream flow patterns and rising sea levels could threaten the province’s water resources. Over recent years, stream water volumes have been decreasing. This trend will likely continue as the climate warms. Meanwhile, sea level rise spurred by warming oceans and melting glaciers will increase the risk of saltwater intrusion into groundwater aquifers.

Forests

Climate change may increase the risks to forests in Nova Scotia. For example, warmer winter temperatures may allow invasive insects, such as the gypsy moth, to become more pervasive, while warmer, drier summers would increase the threat of forest fires in the province. Forest type may also be affected by climate change. As temperatures increase, the province’s boreal forests may gradually be replaced by temperate forests. However, the rate and extent of change will be limited by soil conditions and vegetation life cycles.

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, Nova

Scotia’s provincial gross domestic product in the year 2010 would grow to a level that would be about 0.30 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 1,800 new jobs. Over the past year, there was a net loss of approximately 600 jobs in Nova Scotia.

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 0.22 percent less than business as usual. Relative to what they would otherwise be, electricity prices could rise by

approximately 0.06 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:

- **natural gas** would rise by 0.5 cents/million cubic feet, or 0.14 percent
- **electricity** – coal would rise by 0.14 cents per KWH, or by 1.94 percent
- **electricity** – gas would rise by 0.04 cents per KWH or 0.60 percent
- **pulp and paper** would rise by 0.06 percent, about 59 cents per tonne

The Plan foresees continued growth in offshore oil and gas production.

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.

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

- Clean Nova Scotia's Climate Change Centre offers a Home Tune-up Program to help homeowners identify actions they can take in their homes and communities to address climate change. These two-hour home assessments help to lower heating costs and reduce emissions through energy efficiency, water conservation, environmental transportation choices and reduced solid waste generation.

- By implementing a new municipal solid waste management system, the Halifax Regional Municipality has significantly decreased the amount of waste that goes to landfill. As a result, greenhouse gas emissions from the municipality's landfill site have been reduced by 1.4 tonnes per resident compared to 1995 levels.
- Stora Enso Port Hawkesbury, of Point Tupper, Nova Scotia, commissioned a new liquor concentrator that helped reduce its proportion of in-plant energy generated by fossil fuels from 27.6 percent to 21.5 percent within one year.

¹ Examples are taken from the public record.

**To find out more about what the Government of Canada is doing
and what you can do,**

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