

Climate Change: A primer for Manitoba business

Why Should Business Care About Climate Change?

In Manitoba, 98% of all registered businesses are classified as small- and medium-sized enterprises (SMEs). As the largest segment of employers and the most significant contributor to Manitoba's GDP, SMEs are essential to the health of our provincial economy.

A [changing climate](#) has a real and measurable impact on SMEs and other businesses, including production losses due to extreme weather events such as droughts and flooding, and disruptive market trends such as carbon pricing and more expensive commercial insurance. However, climate change can also present new market opportunities arising from consumer preferences for low-carbon products and services, as well as policy incentives for reductions in energy use and better fuel efficiency.

It's becoming clear that in order to succeed in a changing climate, SMEs must mitigate their risks and leverage their opportunities by adapting to this new reality and reducing their [carbon emissions](#).

What Is Climate Change and Is It a Crisis?

Yes, the climate crisis is already upon us. Manitoba—particularly northern Manitoba—is experiencing the effects of it now along with the rest of Canada. Historical records show that every year since 1998—that's more than 20 years—has been warmer than the 20th century average.¹

The University of Winnipeg's [Prairie Climate Centre](#) projects a drastic shift in Manitoba's climate. By the middle of this century (2050), the southern parts of Manitoba could experience a summer climate similar to South Dakota and Nebraska. By the end of the 21st century, Manitoba's climate could be much like that of Kansas and northern Texas, a change that "would present our children with an entirely different climate, which would necessitate a complete reworking of how we live and thrive in our environment."²

Here are some facts and statistics related to climate change.

The Greenhouse Effect. According to the [Climate Atlas of Canada](#), "human activity is causing [greenhouse gases](#) to accumulate in the atmosphere, and the resulting 'greenhouse effect' is trapping more and more heat in the air and oceans. Temperatures are rising, and weather extremes risk becoming the 'new normal.'"³

¹ Prairie Climate Centre. (2017, October 31). *Seeing is believing: Temperature records prove Canada is warming*. <http://prairieclimatecentre.ca/2017/10/seeing-is-believing-historical-records-prove-canada-is-warming/>

² Prairie Climate Centre. (n.d.b). *Prairie climate atlas*. <http://prairieclimateatlas.ca/atlas.html>.

³ Prairie Climate Centre. (n.d.a). *Climate atlas of Canada*. <https://climateatlas.ca/>

Canada is warming faster than the rest of the world. According to the 2019 [Report on Canada's Changing Climate](#), temperatures in Canada are warming (1.7 degrees Celsius since 1948) at **twice the global rate**. Temperatures in our north are warming even more (2.3 degrees Celsius since 1948) and even faster than twice the global rate.

The Two Degree Celsius Warning. In 2015, member countries of the United Nations, through the [Paris Climate Agreement](#), pledged to “strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.”⁴ This target is part science and part policy compromise, a limit designed to provide a threshold zone separating safety from catastrophe as well as a focal point to coordinate global action.⁵

The Climate Crisis. Experts observing global trends in climate action have put the odds of limiting global temperature rise to less than 2 degrees Celsius at only 5%.^{6,7} Stark statistics like this and the intuition of scientists around the world have led to a general sense of urgency the world over and to the use of terms such as “climate crisis” and “climate emergency” to more accurately capture the predicament we’re facing. In 2019, in Canada alone, more than 460 municipal, provincial and territorial governments as well the federal government, have declared a “climate emergency,” acknowledging the seriousness of the situation and promising to reduce carbon emissions and increase resilience.⁸

How Is Climate Projected to Change in Manitoba?

The Prairie Climate Centre has summarized projected changes in Manitoba’s climate based on a range of global climate models and carbon emission scenarios.⁹ In Winnipeg, for example, the following changes are projected for a high-carbon future for the 2051 to 2080 period:

- **Average hottest temperature of the year:** 4.8 degrees Celsius higher than the recent past.
- **Average coldest temperature of the year:** 6.2 degrees Celsius lower than the recent past.
- **Average number of days per year above 25 degrees Celsius:** 43 days more than the recent past.
- **Average number of below zero degrees days per year:** 40 days less than the recent past.
- **Average length of the frost-free season:** 34 days less than the recent past.
- **Change in winter and spring precipitation:** Approximately 25% more than the recent past.
- **Change in summer precipitation:** Approximately 6% less than the recent past.

⁴ United Nations Framework Convention on Climate Change (UNFCCC). (2015). *The Paris agreement*. <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

⁵ Jaeger, C. & Jaeger, J. (2011). Three views of two degrees. *Regional Environmental Change*, 11(Supp. 1), 15–26. <https://link.springer.com/article/10.1007/s10113-010-0190-9>

⁶ Raftery, A.E., Zimmer, A., Frierson, D.M.W., Startz, R. & Liu, P. (2017). Less than 2°C warming by 2100 unlikely. *Nature Climate Change*, 7, 637–641. <https://www.nature.com/articles/nclimate3352?foxtrotcallback=true>

⁷ Titley, D. (2017). *Why is climate change's 2 degrees Celsius of warming limit so important?* The Conversation. <https://theconversation.com/why-is-climate-changes-2-degrees-celsius-of-warming-limit-so-important-82058>

⁸ Sutherland, S. (2019). *What is a climate emergency, and what does it mean?* The Weather Network. <https://www.theweathernetwork.com/ca/news/article/toronto-declares-climate-emergency-what-does-this-mean>

⁹ Prairie Climate Centre. (2017). *Manitoba and climate change*. https://climateatlas.ca/sites/default/files/Manitoba-Report_FINAL_EN.pdf

This change in climate can cause a range of physical changes to Manitoba's natural and built environment, such as:¹⁰

- Increased flood and drought
- Longer, warmer and drier growing season
- Increased lightning strikes and resulting wildfires
- Changes in pests, invasive species and disease vectors
- Shorter northern winter road season
- Melting permafrost and impacts on northern roads, rails and airports
- Longer ice-free season in Hudson Bay and northern channels leading to increased shipping trade
- Increased algae blooms on Lake Winnipeg affecting fisheries and tourism

Case Example:¹¹ Manitoba's 2019 weather affected agricultural producers in spring, summer and fall. Manitoba endured a dry spring and summer that stunted some crops, followed by a very wet September (three times the average level of precipitation) that delayed the fall harvest of canola, corn, soybean, potato crops and other commodities. Unusually wet weather in southern Manitoba also caused municipalities to have to fight floods at a time when rivers usually run low. A Colorado low brought a record dump of heavy, wet snow into Manitoba, further delaying efforts by producers to remove what crops remained. That storm also caused more than a quarter-million customers to lose power at some point as the slushy snow brought down tree limbs and power lines, with Manitoba Hydro estimating the cost of the clean-up at approximately CAD 100 million.

The entire Red River Valley received so much water in the fall that the Red River started rising to levels approaching minor flooding on both sides of the Canada–U.S. border. The rising water, coupled with a dire precipitation forecast, led Manitoba Infrastructure to put Winnipeg's Red River Floodway into use in the fall for the first time in history.

According to Danny Blair, a geography professor at the University of Winnipeg and co-director of the Prairie Climate Centre, the unusually wet fall weather is indicative of climate change. "One of the things that we always say about what to expect with climate change is even more variability than is already normal for our mid-continental climate."

How Might Climate Change Affect Manitoba Business?

In addition to the physical impact on our surrounding environment, a changing climate will bring about new economic and social conditions as well. The effects will come in different shapes and sizes, different paces and places, all of which will present a range of both risks and opportunities for Manitoba businesses to consider during the transition to a low-carbon economy. For example:

¹⁰ Prairies Regional Adaptation Collaborative. (2020). *Climate change impacts on the Prairies*. <https://www.prairiesrac.com/climate-impacts/>

¹¹ Kives, B. (2019). 'Unprecedented' wet fall Manitoba weather hurts crops, puts flood fighters into action. *CBC News*. <https://www.cbc.ca/news/canada/manitoba/manitoba-crops-weather-climate-1.5316449>

- **Changes to consumer preferences:** Reacting to the climate crisis and recognizing all of the co-benefits associated with a low-carbon economy, consumers are shifting (and will continue to shift) their preferences toward less carbon-intensive and more eco-friendly products and services,¹² including energy-efficient appliances, plug-in hybrid-electric vehicles, renewable energy for heat and power (solar, wind, geothermal, hydro), plant-based sources of protein nutrition, programmable thermostats, recycling and composting, to name just a few.
- **Changes to employee preferences:** Workplace surveys show that millennial workers want their jobs to hold meaning and suggest that corporate social responsibility and environmental sustainability are becoming increasingly important for attracting millennials and Gen Z workers.¹³
- **A busier North:** With expectations of year-round shipping in the northern sea passage within a decade,¹⁴ economic opportunities may grow rapidly in Manitoba's northern supply chain through Thompson and Churchill. But there are social and environmental risks associated with rapid economic expansion, risks that will need to be managed through integrated and forward-looking planning and through public-private-civil society partnerships.
- **Changes to transportation logistics:** Policies are coming online to incentivize more fuel-efficient vehicle fleets and supply chains in a transition to a low-carbon economy.
- **Changes in the growing season:** A longer growing season presents new opportunities for agribusiness going forward, including in the provision of risk management tools for adapting to change.
- **Changes in policy:** The federal carbon price will affect operating costs, but at the same time will also incentivize new market opportunities for less carbon-intensive products and services. New federal requirements for assessing carbon emissions and undertaking climate resilience assessments for accessing public infrastructure funding¹⁵ will create new opportunities for consulting services.
- **Need for extreme weather-proofing:** Increased extreme weather will necessitate more attention to increasing resilience of business operations, products and services, to adapt to the increased risk of floods, drought, winter power outages and wildfires, to name just a few.
- **Pests, invasive species and extreme heat:** The health sector will see changes in the demand for certain health care services as incidences of heat-related illnesses in urban centres increase, and pests bring increased frequency of disease vectors such as West Nile Virus and Lyme Disease.

What Are the Sources of Carbon Emissions in Manitoba?

The sources of carbon emissions in Manitoba are shown in Figure 1.¹⁶ The greatest source (39% of the total) is the transportation of people, goods and services including by road, rail and air. The next highest source of emissions at 31% is from agricultural-related activities including nitrous oxide from fertilizers and soil tillage/cultivation, and methane released from livestock.¹⁷

¹² Associated Press. (2019, February 25). Companies now factoring climate change into business models. *NY Post*. <https://nypost.com/2019/02/25/companies-are-now-factoring-climate-change-into-their-business-models/>

¹³ Weikle, B. (2019). Millennials are on a quest to find meaningful work — and they're willing to take less pay to get it. *CBC News*. <https://www.cbc.ca/news/business/millennials-meaningful-work-1.5075483>; <https://www.gallup.com/workplace/257786/millennials-worry-environment-company.aspx>;

¹⁴ Brown, C. (2019). Sea and ice: Russia's multibillion-dollar mission to own the Arctic. *CBC News*. <https://newsinteractives.cbc.ca/longform/putin-arctic>

¹⁵ Infrastructure Canada. (2019). *Climate lens – General guidance*. <https://www.infrastructure.gc.ca/pub/other-autre/cl-occ-eng.html>

¹⁶ Government of Canada. (n.d.). *Canada's official greenhouse gas inventory*. <https://open.canada.ca/data/en/dataset/779c7bcf-4982-47eb-af1b-a33618a05e5b>

¹⁷ For more information see Government of Manitoba. (n.d.). *Agriculture and climate change*. <https://www.gov.mb.ca/agriculture/environment/climate-change/agriculture-and-climate-change.html>

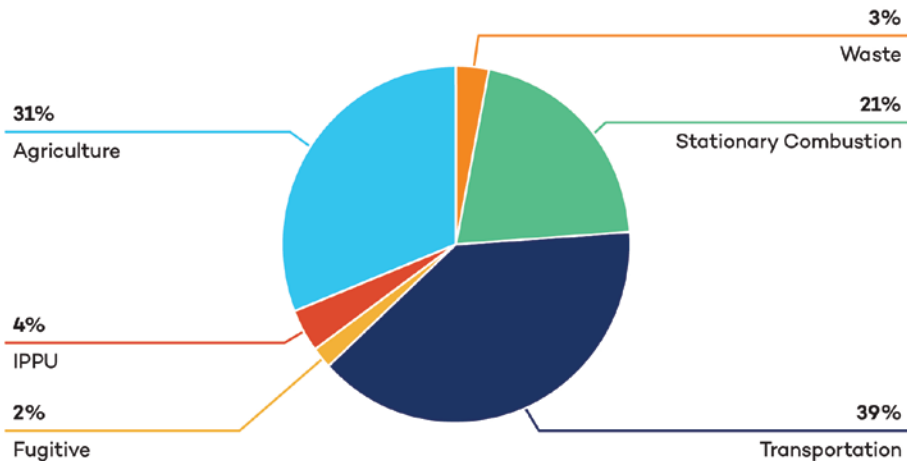


Figure 1. Manitoba's carbon emissions profile¹⁶
 Further information on figure [here](#).

Manitoba's third-highest source of emissions (21%) is the stationary combustion of fuels for energy, mostly energy used for residential and commercial heating (noting electricity produced from hydropower results in almost negligible carbon emissions).

Rounding out the remaining sources of carbon emissions in Manitoba are industrial processes and product use (IPPU) and waste (mostly methane from landfills).

Which Policies Influence Climate Action in Manitoba?

The policy that drives climate action at the federal level is Canada's commitment under the [United Nations Framework Convention on Climate Change](#). Under the Convention's Paris Climate Agreement,¹⁸ Canada is required to reduce its total emissions to 523 megatonnes by 2030, which is equal to 30% below 2005 levels. For context, one tonne of carbon is equal to the emissions from driving a car 4,500 km or heating a home for four months.¹⁹ As of 2016, Canada was not on track to achieve this target—it is projected to miss it by over 200 megatonnes under business-as-usual assumptions.²⁰

To help bend the trajectory downward toward its 2030 target, the federal government put forth in December 2016 the [Pan-Canadian Framework on Clean Growth and Climate Change](#),²¹ which included a national price on carbon along with sector-specific actions and adaptation efforts. The Province of Manitoba then released in October 2017 its [Climate and Green Plan](#) discussion paper with suggested sector emission strategies and adaptation actions along with a Manitoba-specific price on carbon, the latter of which was eventually rescinded.

Choices matter. Collective and cumulative climate action via international commitments and federal, provincial and local climate action plans will mean the difference between a low-carbon future where average temperature across Canada is kept to within a safety zone of only a 2 degrees Celsius increase, or a high-carbon future where Canada's average temperature could climb by an alarming 6.3 degrees Celsius by the end of the century.

¹⁸ United Nations Framework Convention on Climate Change (UNFCCC). (2015). *The Paris agreement*. <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

¹⁹ Citizens for Public Justice. (2016). *Infographic: What is a tonne of greenhouse gas emissions?* <https://cpi.ca/infographic-what-tonne-greenhouse-gas-emissions>

²⁰ Government of Canada. (2017). *Pan-Canadian framework on clean growth and climate change*. https://www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework/introduction.html#1_4

²¹ Government of Canada. (2017). *Pan-Canadian framework on clean growth and climate change*. <https://www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework.html>

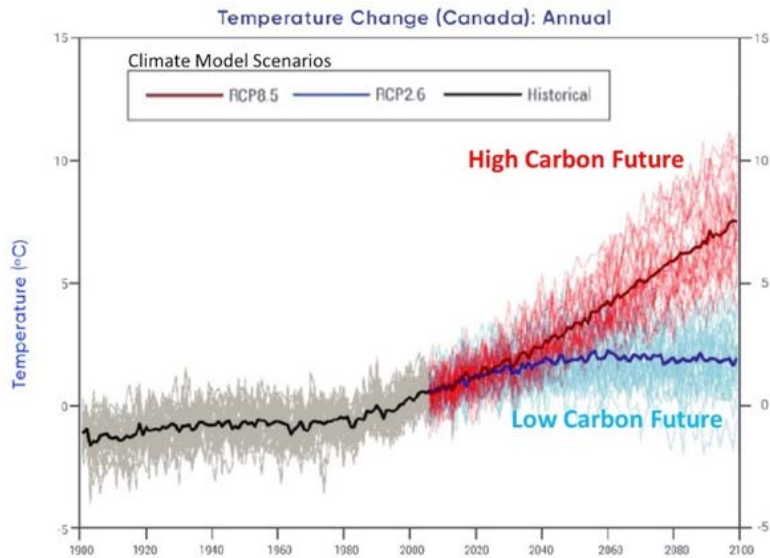


Figure 2. Annual temperature change in Canada

Source: Bush & Lemmen, 2019²²

How Can I Take Climate Action as a Business Leader?

For information on examples of climate action by Manitoba business and to access tools and resources for taking climate action, visit the **Climate Action Toolkit for Manitoba Business**

<https://mbchamber.mb.ca/climate-change-action-toolkit-for-manitoba-business/>.

About the Partners

The Manitoba Chambers of Commerce was established in 1931 and is the umbrella organization for Manitoba's chamber movement. With a membership comprised of local chambers of commerce as well as direct corporate members, the MCC is Manitoba's largest business lobby, representing more than 10,000 businesses and community leaders. Its mission is to champion sustainable economic growth leading to greater prosperity for business and communities in Manitoba.

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²² Bush, E. & Lemmen, D.S. (Eds.). (2019). Canada's changing climate report. Government of Canada. https://changingclimate.ca/site/assets/uploads/sites/2/2019/04/CCCR_FULLREPORT-EN-FINAL.pdf