The next two decades of warming are largely locked in. What comes after is still a choice.

A Senators for Climate Solutions Briefing Note on

CANADA'S CHANGING CLIMATE REPORT 2026

October 2026 ·

Senators for Climate Solutions
Sénateurs pour des solutions climatiques

OVERVIEW

On September 3, 2026, Environment and Climate Change Canada released Canada's Changing Climate Report 2026 (CCCR2026), the second edition of the country's national climate science assessment. The first came out in 2019. It was written mainly by Canadian climate scientists from ECCC, Fisheries and Oceans Canada, universities and Ouranos, drawing on peer-reviewed research. It also delivers on a commitment in the Government of Canada Adaptation Action Plan to produce regular, Canada-wide climate science assessments to inform adaptation decisions.

Its scope is the **physical climate**: how Canada has changed and how it is projected to change under different global emissions paths. Impacts on communities, health, the environment and the economy are covered in other reports of the National Assessment Process, so the report describes the hazards without measuring their consequences. The report also includes 13 place-based case stories from First Nations, Inuit, and Métis authors that document Indigenous observations and knowledge.

The central findings are that Canada has warmed about 2.0°C since 1948, nearly twice the global rate since 1970, and that about 0.9°C more warming by 2040 is unavoidable. What happens after that depends on global emissions. This note summarizes the findings and highlights where they intersect with policy areas senators work on, to inform discussion rather than recommend a policy position.

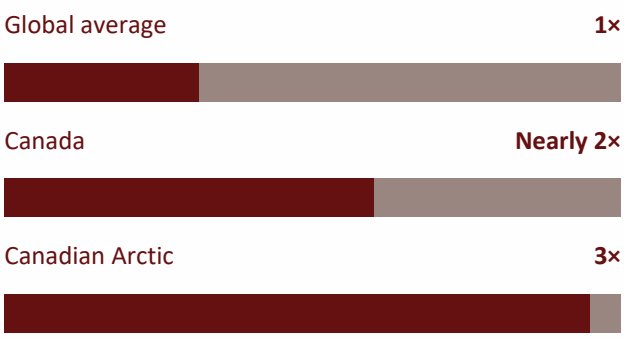
> **"Human-caused warming is the only explanation for the collective changes observed.**
>
> — Canada's Changing Climate Report 2026, Headline Statement 4

1 · WHAT HAS ALREADY CHANGED

Canada has warmed faster than most of the world, and the cause is not in doubt.

Warming rate since 1970

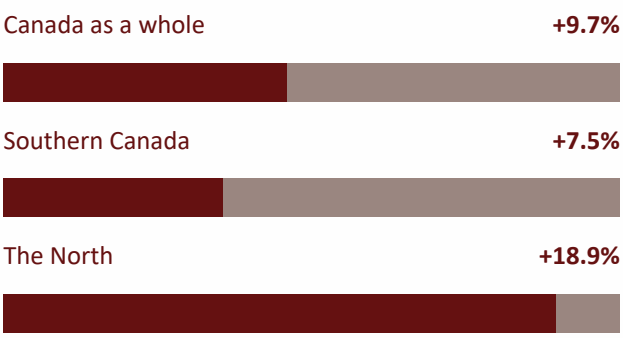
Compared with the global average (1×)



Source: Headline statement 2; Chapter 4. The Arctic is the region north of the Arctic Circle in Canada.

Change in annual precipitation

1949 to 2023, as a share of the 1961–1990 average



Source: Chapter 2 key messages. The North means Yukon, the Northwest Territories and Nunavut.

Warming has set off a chain of observed changes

AIR AND LAND

- More hot extremes
- Fewer cold extremes
- Longer growing seasons
- Longer fire seasons

WATER AND ICE

- Earlier spring peak streamflow
- Shorter snow and ice seasons
- Thinning glaciers
- Thawing permafrost

OCEANS AND COASTS

- Warming oceans
- More marine heatwaves
- Acidifying oceans
- Rising sea level







Analysis

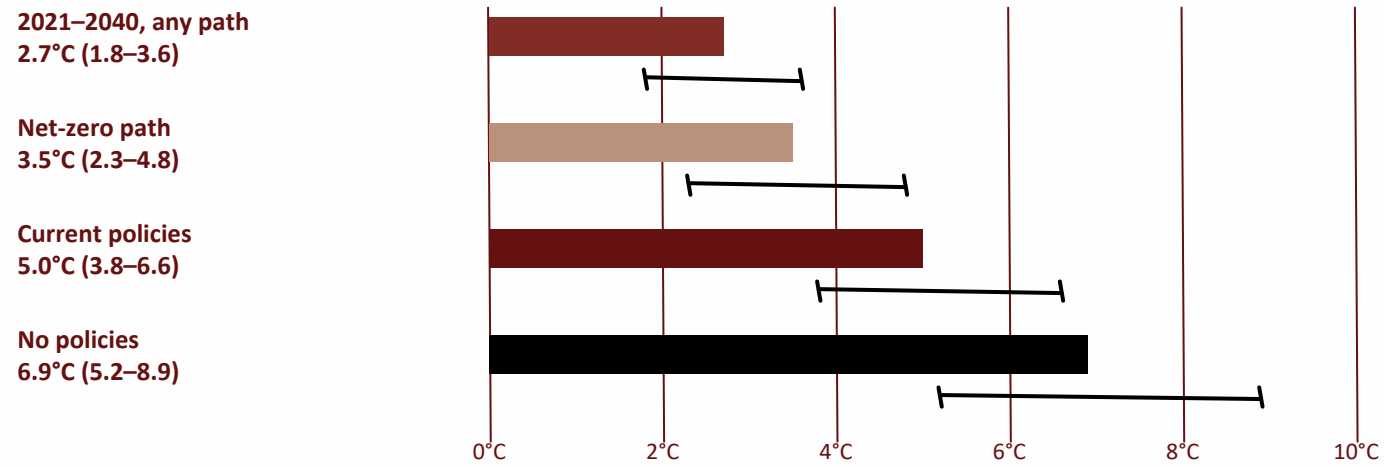
- **The cause is no longer the debate.** The report finds that human greenhouse gas emissions are the only plausible explanation for the pattern of changes (very high confidence). Attribution is stronger than in 2019, and confidence that precipitation has risen went from medium to very high.
- **A national average understates the North.** The North has warmed 2.6°C against 2.0°C nationally, and Arctic amplification, driven by feedbacks such as sea-ice loss, will continue through this century.
- **The seasons are not warming evenly.** Winter and fall have warmed more than spring and summer, which shows up as shorter snow and ice seasons and less extreme cold, not only hotter summers.

2 · WHAT IS COMING

Up to 2040 the path is set. Then it forks.

Projected warming in Canada above pre-industrial levels (1850–1900)

Bar: central estimate. Line: 5–95% range. The three lower rows are 2081–2100.



Net-zero path

- Temperature stabilizes after about 2050
- Precipitation up about 10%
- Sea level, glaciers and permafrost keep changing

Current policies

- Still warming in 2100
- Western glaciers lose over 75% of mass
- Central Arctic Ocean likely ice-free most Septembers

No policies

- Precipitation up about 17%
- Heavier downpours; more summer drought in the south
- Glacier, permafrost and sea-level change all higher

What the numbers mean

- **2026–2040 is a fixed planning window.** About 0.9°C more warming arrives under every scenario, making timely adaptation essential regardless of the emissions pathway.
- **After 2040, each choice adds degrees.** By late century, net-zero to current policies is +1.5°C, and current policies to no policies is +1.9°C.
- **Even the best case needs adaptation.** Net-zero still means about 3.5°C above pre-industrial levels, with sea level, glaciers and permafrost still changing.



3 · WHERE IT LANDS

The Physical Changes Will Land Unevenly, and On Very Different Policy Areas.

> The report assesses physical climate changes; it does not provide a comprehensive assessment of their social and economic impacts. The tags show the report's confidence in each finding. The "Senate lens" lines are our reading of where each finding is likely to land.

Extreme heat

HIGH

Hot extremes are already more frequent and intense, cold extremes less so. Both trends grow with every added degree.

Senate lens: Public health, outdoor work, power demand: more cooling, less heating.

Drought and summer water

HIGH

Summer droughts will lengthen and intensify in central and southern Canada. Earlier snowmelt threatens summer water supply.

Senate lens: Agriculture, irrigation and municipal water supply.

Flash flooding

HIGH

More intense rain means more flash floods, including in cities. River floods show no consistent national trend so far.

Senate lens: Municipal drainage, housing, loss of life, insurance and disaster financing.

Wildfire

HIGH / MEDIUM

Fire seasons are longer and extreme fire weather will rise in most regions. Area burned has risen, at medium confidence.

Senate lens: Emergency management, loss of forestry carbon sinks, evacuations, smoke and health.

Coasts and sea level

HIGH

Rise reaches 34 cm per century in southern Atlantic Canada and the western Arctic. Extreme high-water events will increase.

Senate lens: Coastal infrastructure, housing, and Indigenous well-being in Atlantic Canada and the Arctic.

Oceans

HIGH

Waters around Canada have warmed and acidified, and marine heatwaves are more frequent and will keep increasing.

Senate lens: Fisheries, aquaculture, weakening of ocean carbon uptake in some regions and coastal economies.

Permafrost, snow and sea ice

HIGH

Permafrost thaw is reshaping northern land, and landfast ice, vital for travel and hunting, has declined.

Senate lens: Northern infrastructure, housing, travel and hunting access, Indigenous communities.

Glaciers and mountain water

HIGH

Western glaciers will largely disappear by 2100; over 55% of ice goes even if warming is held to 2°C.

Senate lens: Water security in western watersheds.

4 · CANADA'S CARBON BALANCE

Canada's carbon sinks: an important uncertainty

Land and oceans absorb carbon, helping to offset some human-caused emissions. CCCR2026 assesses Canada's land and oceans as net carbon sinks in recent decades, with medium confidence. It expects the oceans to remain a sink as long as atmospheric CO_2 continues to rise, though uptake may be weakened in some regions by factors such as increased stratification, reduced deep-water formation in the Labrador Sea, and limited Arctic capacity. The future balance on land is uncertain, greater carbon uptake by vegetation could be offset by emissions from wildfires, permafrost thaw and other disturbances, as well as by the loss of forest vegetation that would otherwise continue absorbing carbon.



Why the Carbon Balance Matters

CARBON UPTAKE

- Vegetation growth and ocean absorption can remove carbon dioxide from the atmosphere.

CARBON RELEASE

- Wildfires, permafrost thaw and other disturbances can release carbon back into the atmosphere.

Analytical Implication

It would be misleading to assume that natural carbon sinks will always absorb the same amount of carbon in the future. Their uncertain trajectory reinforces the importance of distinguishing emissions reductions from the contribution of natural systems.

IF YOU ONLY HAVE 30 SECONDS...

- Canada has warmed about 2.0°C since 1948, nearly twice the global rate since 1970, and the North faster still.
- About 0.9°C more by 2040 is locked in. Net-zero versus current policies is the gap between 3.5°C and 5.0°C by 2100.
- Even the best case is about 3.5°C above pre-industrial levels. Adaptation is not optional.

Read next

Headline statements

The 15 core findings, one paragraph each.

Read the Report Summary



QUESTIONS WORTH ASKING

1. Are current infrastructure standards, building codes and funding criteria incorporating the latest climate projections, and how are departments assessing whether existing standards remain fit for purpose?
2. About 0.9°C of near-term warming is unavoidable. Which adaptation investments pay off under every scenario, and are they funded on a 2040 horizon?
3. Warming is fastest in the North and permafrost thaw is reshaping the land. Does adaptation support match the exposure of northern and Indigenous communities?
4. Chapter 10 aims to connect national science to local decisions. Can municipalities, provinces and Indigenous governments get tailored climate data when they need it?
5. The report includes 13 First Nations, Inuit and Métis case stories. How are Indigenous science and community-led monitoring feeding federal decisions?

Some Reactions to the Report

Adapting now can limit damage from the warming that is already locked in—and it will pay for itself many times over. Every dollar invested in preparing infrastructure, communities and businesses for floods, heat, and heavy rain returns up to $15 in avoided losses, according to our analysis. ***- Ryan Ness, Adaptation Research Director, Canadian Climate Institute***

The current policies we have globally and here in Canada are not consistent with meeting that temperature target. As a result, right now we're looking at more intense climate events and damaging storms on the horizon. ***- Damon Matthews, Professor and Climate Scientist, Concordia University***

Given recent major climate policy rollbacks, the national electricity (or more accurately electrification) strategy has become Canada's best tool for reducing emissions, while building a stronger, more secure and more resilient Canadian economy. Yet at this stage, it is a concept — not a plan. For it to become a meaningful solution, fall's Budget 2026 must include scaled-up investments in electrification across the economy.
- Chris Severson-Baker, Executive Director, Pembina Institute

This report should be a call to action. What the future looks like for our children depends on the policy choices being made today. The worst impacts of climate change are far from inevitable. However, the only way to avoid those impacts is to quickly transition away from producing and burning oil, gas and coal. The good news is that many of Canada's peers are doing exactly that. Yet PM Carney is moving Canada in the opposite direction by recklessly doubling down on fossil fuels. Canada is falling behind. ***- Julia Levin, Associate Director, National Climate, Environmental Defence***

Climate Proof Canada calls on the federal government to accelerate adaptation efforts, including through the National Adaptation Strategy. For Budget 2026, the government must prioritize investments in adaptation, including additional funding for resilient infrastructure in the Build Communities Strong Fund, as well as mandate that federal dollars do not support new homes in high-risk flood and wildfire zones..
- Rachel Barry, Spokesperson, Climate Proof Canada Coalition