Greenhouse Gas Emissions From Large Facilities

Canadian Environmental Sustainability Indicators

Environment and Climate Change Canada
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Greenhouse gas emissions from large facilities

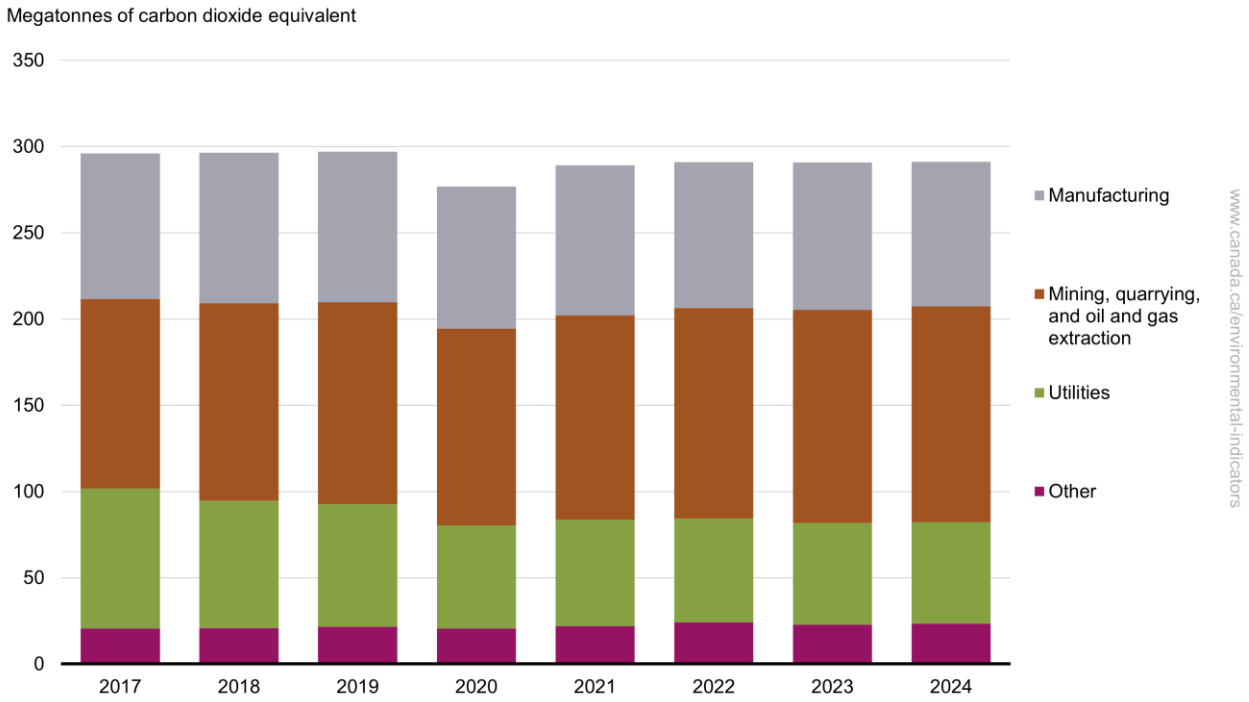
Releases of greenhouse gases (GHGs) and their increasing concentrations in the atmosphere are leading to a changing climate. This change has an impact on the environment, human health and the economy. This indicator tracks GHG emissions from the largest emitting facilities in Canada. The indicator complements the Greenhouse gas emissions indicators and provides information on an important source of Canada's industrial GHG emissions.

Greenhouse gas emissions by industry sector

Key results

- In 2024, 292 megatonnes of GHGs in carbon dioxide equivalent (Mt CO_2 eq) were emitted from large facilities, representing 44% of Canada's total GHG emissions
- In 2024, the mining, quarrying, and oil and gas extraction sectors collectively accounted for 43% (126 Mt CO_2 eq) of the reported emissions, the manufacturing sector for 29% (84 Mt CO_2 eq) and the utilities sector for 20% (59 Mt CO_2 eq)
- From 2017 to 2024, the GHG emissions from large facilities decreased by 1.5% (4 Mt CO_2 eq), due primarily to reductions in the utilities sector

Figure 1. Reported greenhouse gas emissions by industry sector, Canada, 2017 to 2024



Data for Figure 1

Note: Greenhouse gas emissions data have been reported since 2005. However, the graph focuses on the 2017 to 2024 period as it includes only facilities subject to the same reporting threshold. For more information, consult the Caveats and Limitations section. Sectors included in the "Other " category are primarily agriculture, forestry, fishing and hunting; transportation and warehousing; administrative and support, waste management and remediation services, and other miscellaneous sources that account for a negligible share of total reported emissions.
Source: Environment and Climate Change Canada (2026) Greenhouse Gas Reporting Program - Overview of 2024 Reported Emissions.

Total facility-reported GHG emissions in 2024 remained stable compared to 2023. In 2024, 1 additional facility reported to the GHG Reporting Program compared to the previous year (1,878 in 2023).

From 2017 to 2024, facility-reported GHG emissions decreased from 296 Mt CO_2 eq to 292 Mt CO_2 eq (-1.5%). Facility-reported emissions by sector:

- increased by 15.7 Mt CO_2 eq in the mining, quarrying, and oil and gas extraction sector
- decreased by 22.3 Mt CO_2 eq in the utilities sector

- decreased by 0.4 Mt CO_2 eq in the manufacturing sector
- increased by 2.8 Mt CO_2 eq in the other sectors

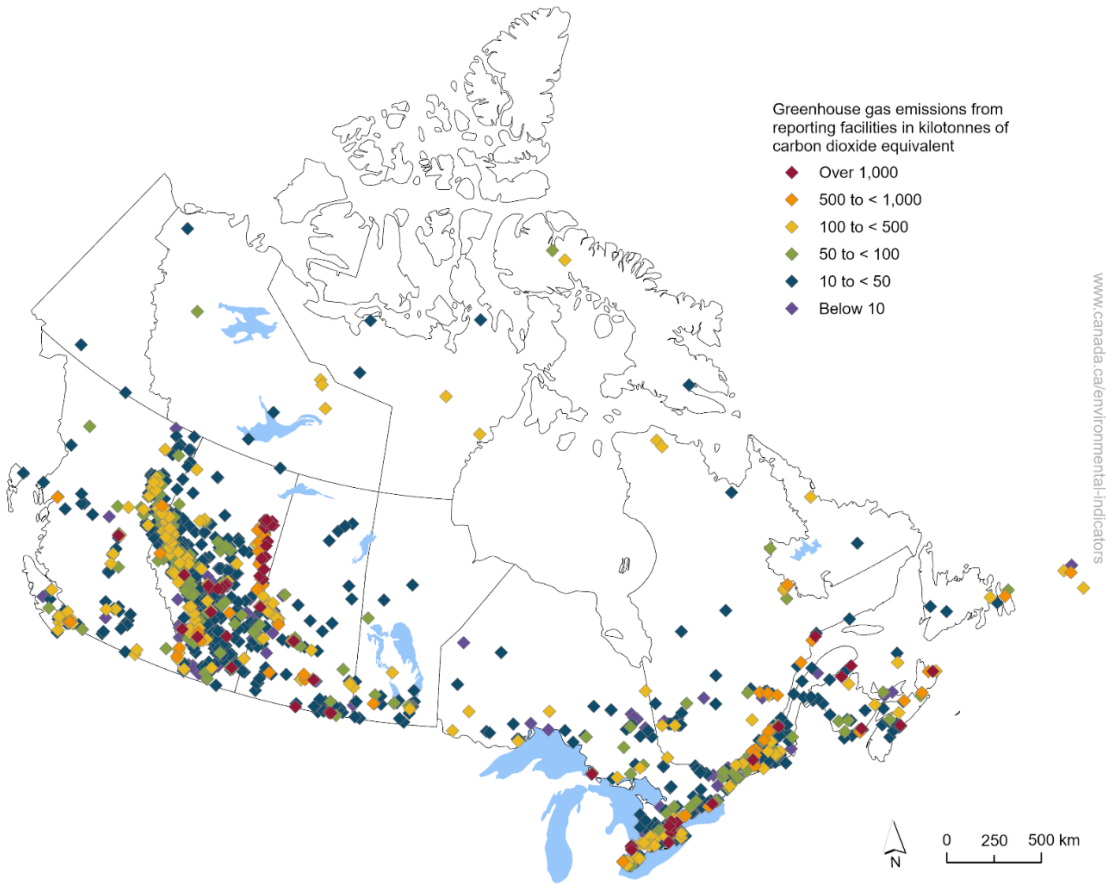
Greenhouse gas emissions by facilities

Key results

In 2024, 1,879 facilities reported to the Government of Canada's GHG Reporting Program. Of these facilities:

- 165 facilities with emissions below 10 kilotonnes (kt) CO_2 eq reported voluntarily[1] (accounting for 0.7 Mt CO_2 eq or 0.2% of reported emissions)
- 1,120 facilities reported emissions in the 10 to 50 kt CO_2 eq range (accounting for 25 Mt CO_2 eq or 8.5%)
- 234 facilities reported emissions in the 50 to 100 kt CO_2 eq range (accounting for 16 Mt CO_2 eq or 5.6%)
- 234 facilities reported emissions in the 100 to 500 kt CO_2 eq range (accounting for 49 Mt CO_2 eq or 16.7%)
- 63 facilities reported emissions in the 500 to 1,000 kt CO_2 eq range (accounting for 44 Mt CO_2 eq or 15.2%)
- 63 facilities reported emissions over 1,000 kt CO_2 eq (accounting for 157 Mt CO_2 eq or 53.8%)

Figure 2. Greenhouse gas emissions from large facilities, Canada, 2024



Navigate data using the interactive map

Source: Environment and Climate Change Canada (2026) Greenhouse Gas Reporting Program - Overview of 2024 Reported Emissions.

[1] The GHG Reporting Program requires all facilities that emit the equivalent of 10,000 tonnes (10 kilotonnes) or more of GHGs (in carbon dioxide equivalent units) per year to submit a report to Environment and Climate Change Canada. Facilities with emissions below 10 kilotonnes per year can voluntarily report their GHG emissions.

About the indicator

What the indicator measures

The indicator reports total GHG emissions from the largest GHG emitters in Canada for the 2024 reporting year.

In March 2004, the Government of Canada announced the introduction of the Greenhouse Gas Reporting Program to annually collect emission information for facilities across Canada. Unlike Canada's National Inventory Report, which compiles GHG data at the national and provincial/territorial levels and covers all GHG sources and sinks in Canada, the GHG Reporting Program applies only to specific emission sources that exist at large GHG-emitting facilities (industrial and other types of facilities).

The GHG Reporting Program requires all facilities that emit the equivalent of 10,000 tonnes (10 kilotonnes) or more of GHGs (in carbon dioxide equivalent units) per year to submit a report to Environment and Climate Change Canada. Mandatory reporting of GHG emissions by facilities was established by the Minister of the Environment under the authority of section 46 of the *Canadian Environmental Protection Act, 1999*.

Why this indicator is important

The release of GHGs and their increasing concentrations in the atmosphere are having significant impacts on the environment, human health and the economy. The indicator informs the public and decision makers on the release of GHG emissions from the largest emitting facilities in Canada.

The GHG Reporting Program ensures that the GHG emissions from Canada's largest emitters are tracked and reported. This mandatory reporting contributes to the development, implementation and evaluation of climate change and energy policies and strategies in Canada.

Greenhouse gas emissions data reported through the GHG Reporting Program are used to inform the development of estimates of GHG emissions in Canada in the National Inventory Report, and to support regulatory initiatives.

Related indicators

The Greenhouse gas emissions indicators report trends in total anthropogenic (human-made) GHG emissions at the national level, per person and per unit gross domestic product, by province and territory and by economic sector.

The Global greenhouse gas emissions indicator provides a global perspective on Canada's share of global GHG emissions.

The Greenhouse gas emissions from a consumption perspective indicator shows the impact of Canada's consumption of goods and services, regardless of where they are produced, on the levels of carbon dioxide released into the atmosphere.

The Greenhouse gas emissions projections indicator provides an overview of Canada's projected GHG emissions up to 2035.

The Land-based greenhouse gas emissions and removals indicator tracks exchanges of GHG emissions and removals between the atmosphere and Canada's managed lands.

The Greenhouse gas concentrations indicators present atmospheric concentrations as measured from sites in Canada and at a global scale for 2 greenhouse gases: carbon dioxide and methane.

Data sources and methods

Data sources

The data used in the indicator are from Environment and Climate Change Canada's Greenhouse Gas Reporting Program.

More information

The GHG Reporting Program data are collected on an annual basis. Facilities are required to report their GHG emissions to Environment and Climate Change Canada by June 1 of each year.

The GHG Reporting Program provides local GHG emissions data from large emitters in Canada (those producing 10 kilotonnes (kt) or more of carbon dioxide equivalent emissions per year). Facilities with emissions below 10 kt per year can voluntarily report their GHG emissions.

Starting with the 2017 reporting year, the GHG reporting threshold was lowered from 50 kt to 10 kt. As a result, more facilities were required to report their emissions compared to the previous years.

The Canadian Environmental Sustainability Indicators' interactive map provides facility GHG data for the years 2004 to 2024.

Methods

The quantity of GHGs released by each facility is calculated or measured by the reporting facility. The methods used to determine emissions are based on monitoring or direct measurement, mass balance, emission factors, engineering estimates and/or fuel and activity data. See the Technical guidance on reporting greenhouse gas emissions for more information.

More information

Environment and Climate Change Canada requires facilities involved in certain industrial activities to follow prescribed methods to determine their emissions. This is part of the reporting program's expansion initiated in 2017 to improve the quality and usability of the facility data. See Canada's Greenhouse Gas Quantification Requirements for more information. For reporting facilities that are not subject to the expanded requirements, they can choose the quantification methodologies most appropriate to their particular industry or application. However, these facilities must use methods for estimating emissions that are consistent with the guidelines developed by the Intergovernmental Panel on Climate Change and adopted by the United Nations Framework Convention on Climate Change, for the preparation of national GHG inventories. See the Technical guidance on reporting greenhouse gas emissions for more information.

Greenhouse gas emissions are reported in carbon dioxide equivalents (CO_2 eq), determined by multiplying the amount of emissions of a particular greenhouse gas by the global warming potential of that gas. Greenhouse gases differ in their ability to absorb heat in the atmosphere due to their differing chemical properties and atmospheric lifetimes. For example, over a period of 100 years, methane's potential to trap heat in the atmosphere is 28 times greater than carbon dioxide's potential. Therefore, methane is considered to have a global warming potential of 28.

The Intergovernmental Panel on Climate Change (IPCC) publishes the global warming potentials and atmospheric lifetimes for each GHG. Note that the global warming potentials in this indicator correspond to the values as presented in IPCC’s Fifth Assessment Report.

When completing a report for the GHG Reporting Program, a facility is required to identify the main activities occurring at the facility using the North American Industry Classification System (NAICS). The NAICS is an industry classification system that was developed by statistical agencies of Canada, the United States and Mexico to enable the collection of comparable statistical data across the countries. The industry sectors presented in the indicator are based on the NAICS codes reported by facilities:

- the "Mining, Quarrying, and Oil and Gas Extraction" sector corresponds to NAICS code 21
- the "Manufacturing" sector corresponds to NAICS codes 31, 32 and 33
- the "Utilities" sector corresponds to NAICS code 22

- the "Other" sector does not correspond to a NAICS sector but is a grouping of the NAICS codes not covered by the above 3 categories

Recent changes

This edition of the indicator includes additional analysis of reported greenhouse gas emissions on a sectoral basis for the period from 2017 to 2024. The analysis is based on the North American Industry Classification System (NAICS) codes assigned by each facility to their activities. Previous versions of the indicator did not present emissions data by industry sector over time.

Caveats and limitations

A facility is required to report to the Greenhouse Gas Reporting Program only if its GHG emissions exceed the reporting threshold of 10,000 tonnes (10 kilotonnes) in carbon dioxide equivalent for a given year. Since 2004, there have been 2 changes to the reporting threshold. In 2009, the reporting threshold was lowered from 100 kilotonnes to 50 kilotonnes and in 2017, it was further reduced from 50 kilotonnes to 10 kilotonnes.

Comparisons among years may be made, bearing in mind that some facilities might not have been required to report in years for which they did not exceed the reporting threshold. Attention to consistency and comparability in the dataset is needed when comparing emissions from year to year. Observed changes in reported emissions may be due to actual changes in emissions or revisions of data from facilities and additional emissions reported from facilities that are newly reporting their emissions (for example, due to the changes in the reporting threshold).

Different facilities in a given type of industry may also use different methods for estimating emissions.

For more information on the caveats and limitations with respect to facility-reported greenhouse gas emissions data, refer to the Overview of 2024 Reported Emissions.

Resources

References

Environment and Climate Change Canada (2025) Reporting greenhouse gas emissions data: Technical guidance. Retrieved on February 10, 2026.

Environment and Climate Change Canada (2026) Facility Greenhouse Gas Reporting Program - Overview of 2024 Reported Emissions. Retrieved on April 15, 2026.

Related information

Canada's action on climate change

Climate change

Annex

Annex A. Data table for the figure presented in this document

Table A.1. Data for Figure 1. Reported greenhouse gas emissions by industry sector, Canada, 2017 to 2024 Error! Reference source not found.

Year	Manufacturing (megatonnes of carbon dioxide equivalent)	Mining, quarrying, and oil and gas extraction (megatonnes of carbon dioxide equivalent)	Utilities (megatonnes of carbon dioxide equivalent)	Other (megatonnes of carbon dioxide equivalent)
2017	84.4	110.0	81.1	20.5
2018	87.3	114.5	73.8	20.8
2019	87.2	117.2	71.0	21.6
2020	82.4	114.2	59.7	20.5
2021	87.1	118.5	61.6	22.1
2022	84.6	122.0	60.3	24.2
2023	85.3	123.7	58.9	22.9
2024	83.9	125.6	58.8	23.3

Note: Greenhouse gas emissions data have been reported since 2005. However, the table focuses on the 2017 to 2024 period as it includes only facilities subject to the same reporting threshold. For more information, consult the Caveats and Limitations section. Sectors included in the "Other " category are primarily Agriculture, forestry, fishing and hunting; Transportation and warehousing; Administrative and support, waste management and remediation services, and other miscellaneous sources that account for a negligible share of total reported emissions.
Source: Environment and Climate Change Canada (2026) Greenhouse Gas Reporting Program - Overview of 2024 Reported Emissions.