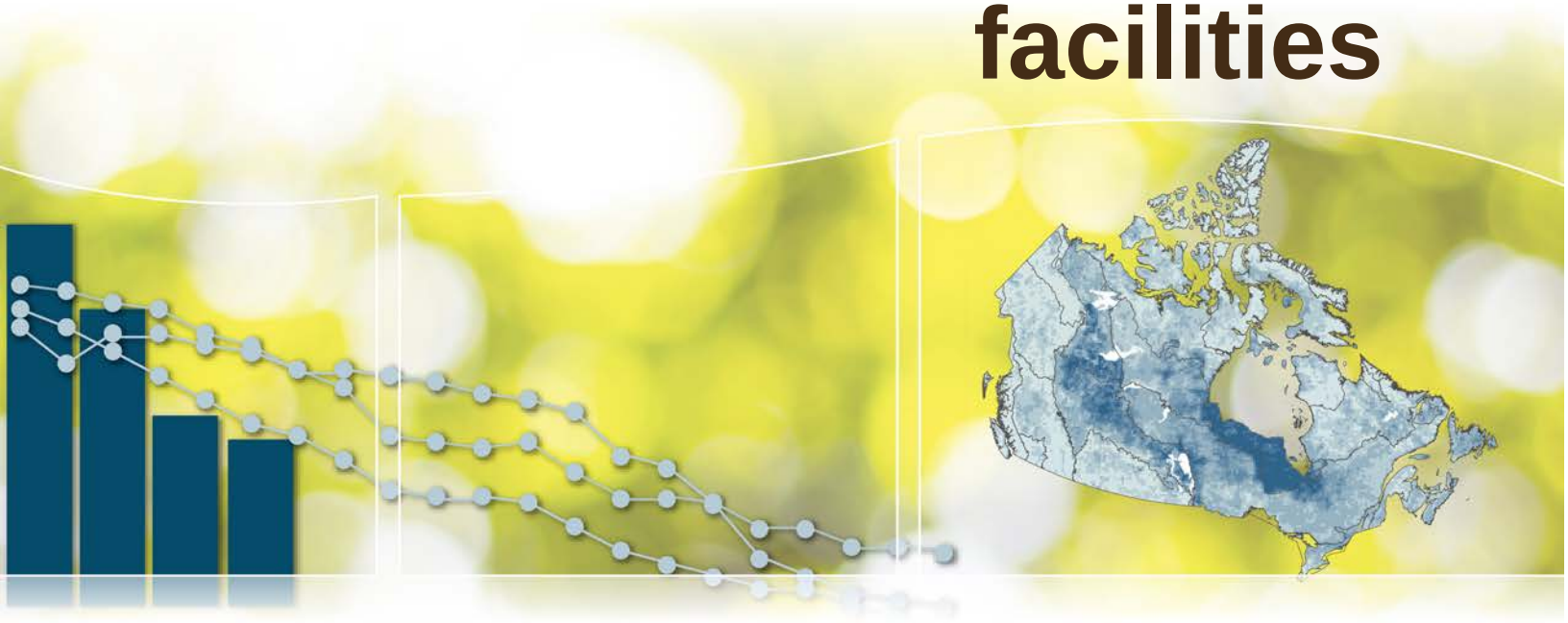
Environment and Climate Change Canada
Environnement et Changement climatique Canada

Canadian Environmental Sustainability Indicators

Greenhouse gas emissions from large facilities



Canada

Suggested citation for this document: Environment and Climate Change Canada (2019) Canadian Environmental Sustainability Indicators: Greenhouse gas emissions from large facilities. Consulted on *Month day, year*.
Available at: www.canada.ca/en/environment-climate-change/services/environmental-indicators/greenhouse-gas-emissions/large-facilities.html.

Cat. No.: En4-144/36-2019E-PDF
ISBN: 978-0-660-29993-8

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April 2019

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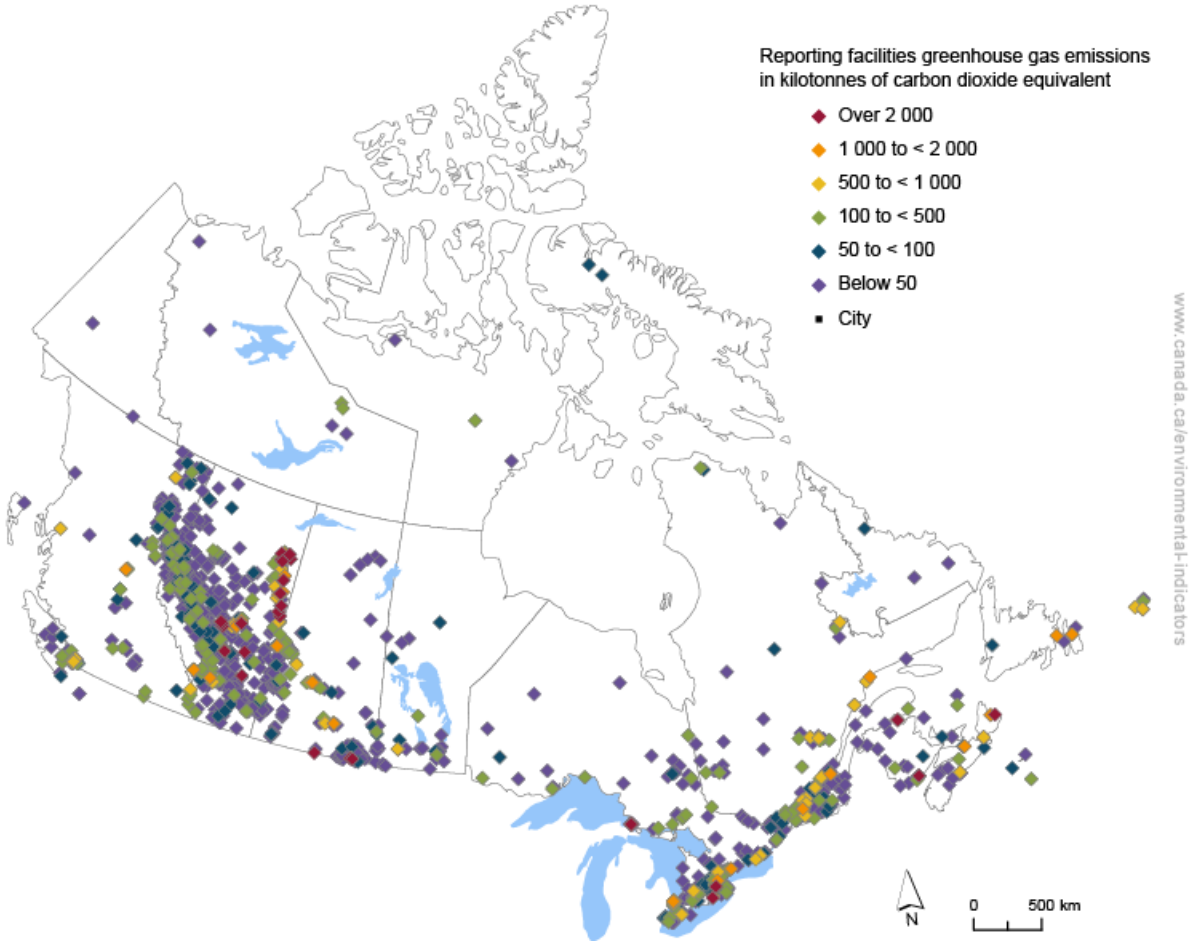
Greenhouse gas emissions from large facilities

The release of greenhouse gases (GHGs) and their increasing concentration in the atmosphere is leading to a changing climate. This change has an impact on the environment, human health and the economy. This indicator tracks GHG emissions and provides consistent information on emissions from the largest emitting facilities in Canada.

Key results

- In 2017, 292 megatonnes (Mt) of GHGs in carbon dioxide equivalent (CO_2 eq) were emitted by 1 622 facilities reporting to the GHG Reporting Program
- Emissions from the reporting facilities account for 41% of Canada's total GHG emissions

Figure 1. Greenhouse gas emissions from large facilities, Canada, 2017



Navigate data using the interactive map

Data for Figure 1

Source: Environment and Climate Change Canada (2019) Greenhouse Gas Reporting Program - Overview of reported 2017 emissions.

For the 2017 reporting year, the GHG reporting threshold was lowered from 50 kilotonnes (kt) to 10 kt. As a result, there were more facilities reporting to the GHG Reporting Program compared to the previous year (1 622 compared to 611). In 2017, 953 facilities reported for the first time and 61 facilities with emissions below 10 kt reported voluntarily. The change in the reporting threshold resulted in total facility-reported emissions in 2017 to increase to 292 Mt CO_2 eq, from 263 Mt CO_2 eq in 2016.

In 2017, mining, quarrying, and oil and gas extraction accounted for 36% of facility-reported emissions; utilities, 30%; and manufacturing, 29% while in 2005, mining, quarrying and oil and gas extraction accounted for 17%; utilities, 44%; and manufacturing, 33%.

Compared to 2005, total emissions from facilities emitting 50 kt or more decreased by 3% (9 Mt). Over the same period, the number of facilities emitting 50 kt or more has increased from 337 in 2005 to 520 in 2017.

Since 2005, emissions from facilities in the utilities and manufacturing sectors have declined overall, while emissions from the mining, quarrying, and oil and gas extraction sector have steadily increased.

About the indicator

What the indicator measures

The indicator reports the total emissions of large GHG emitters in Canada for the year 2017.

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. Consult Greenhouse gas emissions: drivers and impacts for information on the human health, environmental and economic impacts of greenhouse gas emissions.

The GHG Reporting Program ensures that the GHG emissions from Canada's largest emitters are measured 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. Emissions are also presented 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 Carbon dioxide 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 Progress towards Canada's greenhouse gas emissions reduction target indicator provides an overview of Canada's projected GHG emissions up to 2030.

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 Greenhouse gas emissions from large facilities indicator uses data from the facility GHG Reporting Program. The 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 or more of carbon dioxide equivalent emissions per year). Facilities with emissions below 10 kilotonnes per year can voluntarily report their GHG emissions.

The Canadian Environmental Sustainability Indicators interactive map provides facility GHG data for the years 2004 to 2017.

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 does not impose specific methods. Reporting facilities have been advised to choose the quantification methodologies most appropriate to their particular industry or application. However, 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. There are exceptions to that rule for facilities involved in certain industrial activities where expanded requirements are applied. See the Technical guidance on reporting greenhouse gas emissions for more information.

Recent changes

For the 2017 reporting year, the GHG reporting threshold was lowered from 50 kilotonnes to 10 kilotonnes. This means that all facilities emitting the equivalent of 10 kilotonnes or higher of GHGs in 2017 were required to submit a report to the GHG Reporting Program.

Also, expanded data and prescribed methodological requirements now apply to facilities in targeted industry sectors. See Canada's Greenhouse Gas Quantification Requirements for more information.

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 in carbon dioxide equivalent for a given year.

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.

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

For a complete discussion of the caveats and limitations with respect to facility-reported greenhouse gas emissions data, refer to the Overview of reported 2017 emissions.

Resources

References

Environment and Climate Change Canada (2018) Reporting greenhouse gas emissions data: Technical guidance 2017. Retrieved on February 20, 2019.

Environment and Climate Change Canada (2019) Facility Greenhouse Gas Reporting Program - Overview of reported 2017 emissions. Retrieved on April 12, 2019.

Additional information can be obtained at:

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