Air pollutant emissions

Canadian Environmental Sustainability Indicators

Environment and Climate Change Canada
Environnement et Changement climatique Canada

Canada

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Canadian Environmental Sustainability Indicators

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Air pollutant emissions

Air pollution problems, such as smog and acid rain, result from the release of pollutants into the atmosphere. These pollutants can affect the health of people in Canada, the environment, infrastructure and the economy. These pollutants are released primarily through human activities, such as the burning of fuels for electricity and heating, transportation, and industrial activities. These indicators report emissions of sulphur oxides (SO_X), nitrogen oxides (NO_X), volatile organic compounds (VOCs), carbon monoxide (CO), ammonia (NH_3), fine particulate matter ($PM_{2.5}$) and black carbon (a component of $PM_{2.5}$), released through human activities.

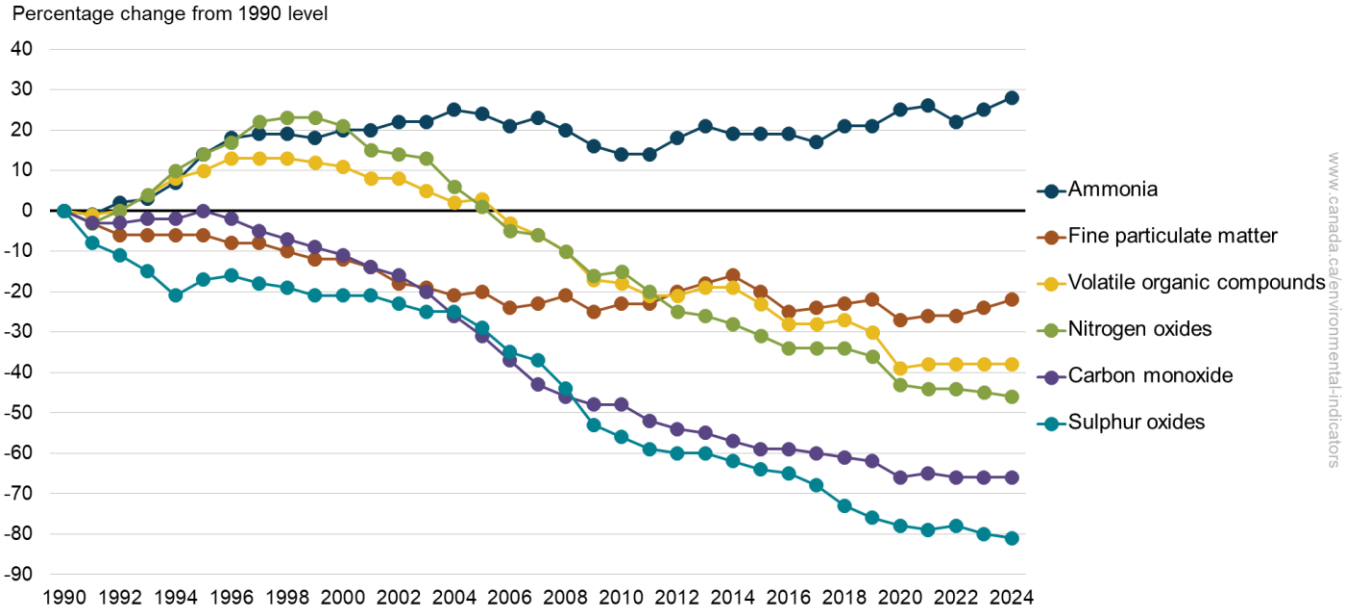
National air pollutant trends

This section presents a summary of Canada's emissions of 6 key air pollutants between 1990 to 2024, highlighting the main sources and provincial and territorial distributions for 2024. Detailed analysis by pollutant, including information from individual industrial and commercial facilities accessible through an interactive map, is presented following this section. Information on black carbon, a component of particulate matter, along with emissions from 3 of the largest source sectors in Canada, are also presented.

Key results

- In 2024, emissions of 5 key air pollutants were lower than in 1990:
  - SO_X 81% lower
  - NO_X 46% lower
  - VOCs 38% lower
  - CO 66% lower, and
  - $PM_{2.5}$ 22% lower
- Emissions of NH_3 were 28% higher in 2024 than in 1990

Figure 1. Air pollutant emissions, Canada, 1990 to 2024



Data for Figure 1

Note: This indicator reports emissions of 6 key air pollutants from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. Emissions from black carbon, a component of $PM_{2.5}$, are also not included. Consult the black carbon section for a detailed analysis of the pollutant or the interactive figures to explore the national results and emissions from black carbon in a dynamic and customizable format.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

The years 2020 and 2021 were marked by the COVID-19 pandemic. This coincides with decreases in emissions between the years 2019 and 2020 for all the pollutants, except for NH_3. In 2021, the second year of the pandemic, most of the pollutant emissions increased compared to 2020 levels but stayed below 2019 pre-pandemic levels.

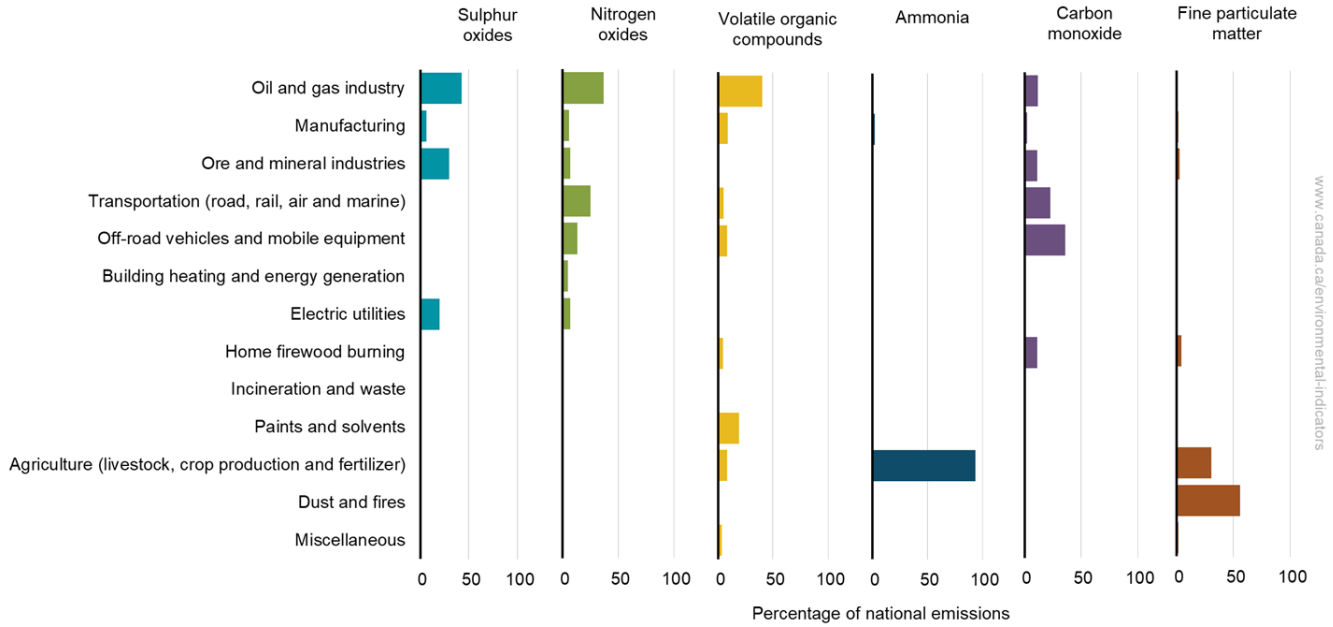
The year 2024 showed decreases in SOx, CO and NOx compared to 2023. In contrast, emissions of $PM_{2.5}$, NH_3, and VOCs increased between 2023 and 2024. For all pollutants except NH_3, emissions in 2024 remained below pre-pandemic (2019) levels.

Air pollutant emissions by source

Key results

- In 2024, the largest human-made sources of emissions of the 6 key air pollutants in Canada were the oil and gas industry, off-road vehicles and mobile equipment, agriculture, and dust and fires (for example, road dust, dust from construction operations and prescribed burning, but excluding forest fires)

Figure 2. Distribution of air pollutant emissions by source, Canada, 2024



Data for Figure 2

Note: The indicator reports emissions of 6 key air pollutants from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. Emissions from black carbon, a component of $PM_{2.5}$, are also not included. Consult the black carbon section for a detailed analysis of the pollutant. The category "dust and fires" includes emissions from human activities such as prescribed burning and dust from roads. Consult Table 1 in the Data sources and methods for a complete list of the air pollutant emissions sources included under each category.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

In 2024, the human-made sources most contributing to emissions of each pollutant were as follows:

- the oil and gas industry (42%), ore and mineral industries (30%) and electric utilities (20%) emitted the majority of SO_X emissions
- the oil and gas industries (37%), transportation (road, rail, air and marine) (25%) and off-road vehicles and mobile equipment (13%) were major sources of NO_X emissions
- most of the VOC emissions came from the oil and gas industry (40%), the use of paints and solvents (19%), manufacturing (9%) and off-road vehicles and mobile equipment (9%)
- agriculture (livestock, crop production and fertilizer) accounted for the majority of NH_3 emissions (94%)
- off-road vehicles and mobile equipment (36%), transportation (23%), the oil and gas industry (12%), the ore and mineral industries (11%) and home firewood burning (11%) were major sources of CO emissions
- dust and fires (56%) and agriculture (livestock, crop production and fertilizer) (31%) were the largest sources of $PM_{2.5}$ emissions

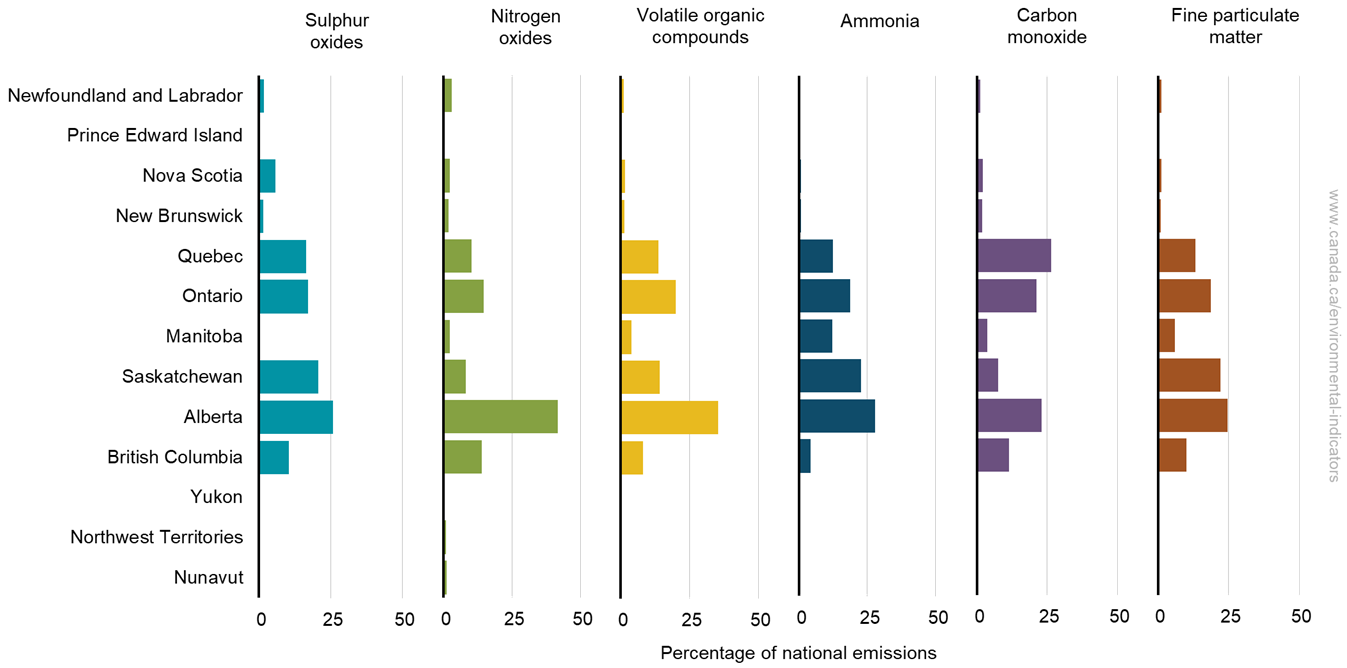
Air pollutant emissions by province and territory

Key results

At the provincial and territorial level, emissions as a percentage of national emissions of the 6 key air pollutants in 2024 were:

- the highest in Alberta for SO_X (26%), NO_X (42%), VOCs (35%), NH_3 (28%) and $PM_{2.5}$ (25%); the second highest for CO (23%)
- the highest in Quebec for CO (27%)
- the second highest in Saskatchewan for SO_X (21%), NH_3 (23%) and $PM_{2.5}$ (22%)
- the second highest in Ontario for NO_X (15%) and VOCs (20%)
- also important in:
    - British Columbia for NO_X (14%)
    - Quebec for SO_X, VOCs and $PM_{2.5}$, accounting for 16%, 14% and 13%, respectively
    - Saskatchewan for VOCs (14%)
    - Ontario for SO_X, NH_3, CO and $PM_{2.5}$, accounting for 17%, 19%, 21%, and 19%, respectively

Figure 3. Distribution of air pollutant emissions by province and territory, Canada, 2024



Data for Figure 3

Note: The indicator reports emissions of 6 key air pollutants from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. Emissions from black carbon, a component of $PM_{2.5}$, are also not included. Consult the black carbon section for a detailed analysis of the pollutant.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

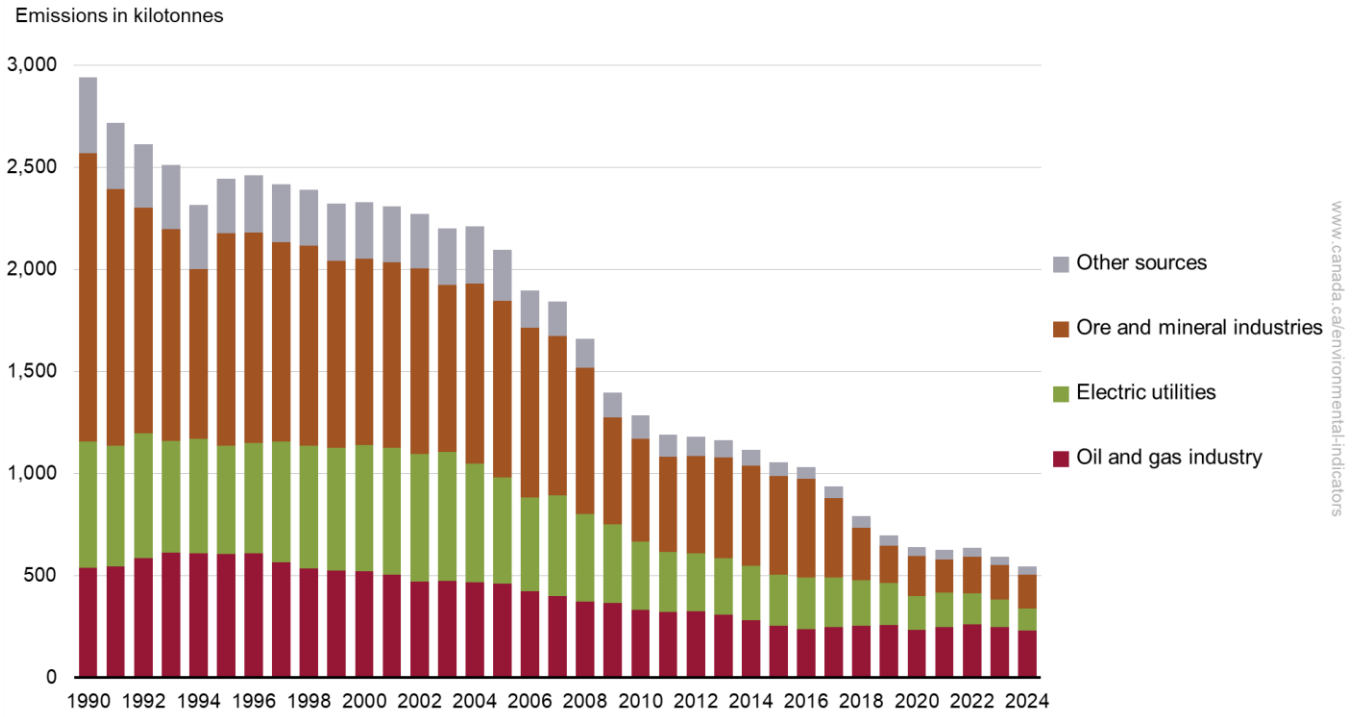
Sulphur oxide emissions by source

Emissions of sulphur oxides (SO_X) to the atmosphere can result in adverse effects on human health and the environment. The SO_X emissions released by human activities are mostly in the form of sulphur dioxide (SO_2). Sulphur dioxide can affect the respiratory systems of humans and animals and can cause damage to vegetation, buildings and materials. It also contributes to the formation of fine particulate matter ($PM_{2.5}$) and acid rain.

Key results

- In 2024,
  - SO_X emissions were 545 kilotonnes (kt), which is 81% lower than in 1990
  - the oil and gas industry, the ore and mineral industries and electric utilities accounted for 92% (503 kt) of the total SO_X emissions

Figure 4. Total sulphur oxide emissions by source, Canada, 1990 to 2024



Data for Figure 4

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. The category "other sources" includes emissions from transportation (road, rail, air and marine), off-road vehicles and mobile equipment, home firewood burning, incineration and waste, agriculture (livestock, crop production and fertilizer), dust and fires, paints and solvents, building heating and energy generation, manufacturing, and other miscellaneous sources. Consult Table 1 in the Data sources and methods for a complete list of the air pollutant emissions sources included under each category. The interactive figures provide a dynamic and customizable format to explore the emissions.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

In 2024, the oil and gas industry accounted for approximately 42% of total national SO_X emissions (232 kt). The ore and mineral industries and electric utilities followed with 30% (163 kt) and 20% (109 kt) of national emissions, respectively. For the ore and mineral industries, 36% (59 kt) of its SO_X emissions came from the non-ferrous refining and smelting industry and 39% (63 kt) came from the aluminum industry.

The largest reduction in emissions between 1990 and 2024 was from the ore and mineral industries with a reduction in emissions of approximately 1,247 kt. The largest driver of the reduction from this source was from the non-ferrous refining and smelting industry with a reduction of 1,206 kt over the period.

This significant decrease in SO_X emissions from 1990 to 2024 (81%) is due in large part to government actions to fight acid rain and related federal-provincial and Canada-United States agreements[1,2] on capping SO_X emissions by 1994.

[1] Environment and Climate Change Canada (2024) Canada-United States Air Quality Agreement. Retrieved on March 16, 2026.

[2] Canadian Council of Ministers of the Environment (1998) The Canada-Wide Acid Rain Strategy for Post-2000. Retrieved on March 16, 2026.

Further reductions were also realized through:

- technological upgrades, new air pollution controls for non-ferrous metal smelters and the closure of 4 major smelters in Manitoba, Ontario, Quebec and New Brunswick
- improved technologies used in fossil-fuel-fired (such as, coal-fired) power-generating utilities, as well as plant closures (for example, the phase-out of coal electricity generation in Ontario and Alberta)
- implementation of regulations on low-sulphur fuels[3,4]

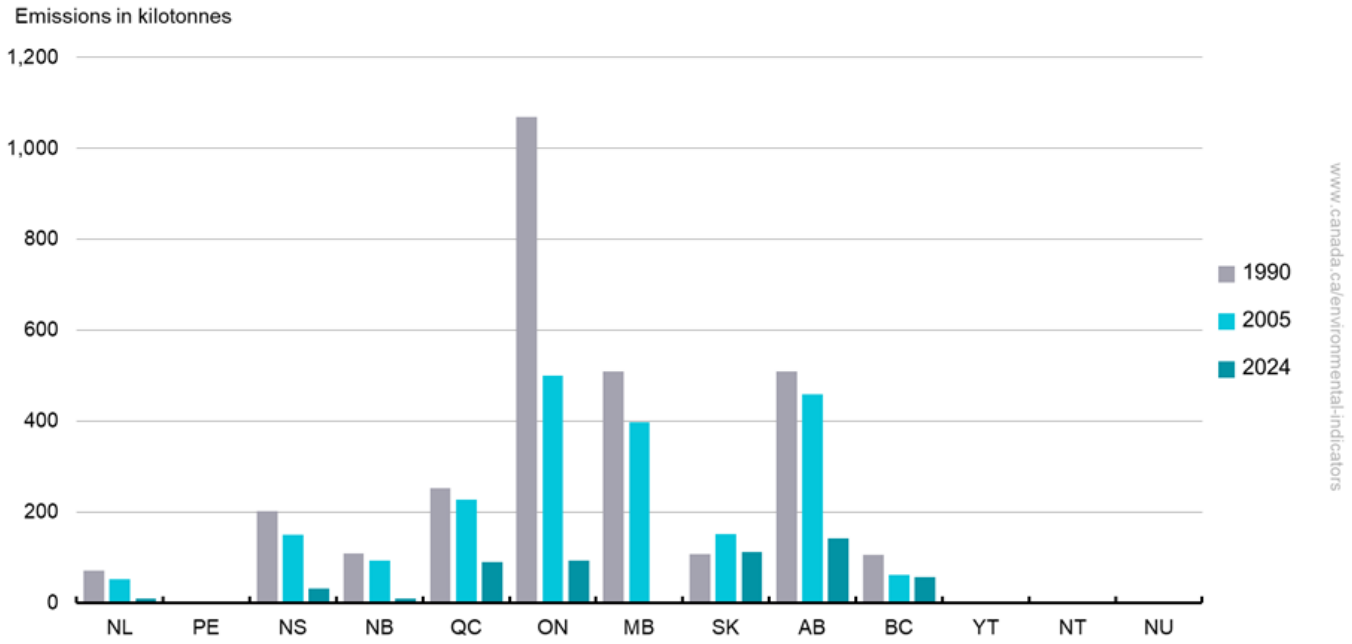
More recently, between 2023 and 2024, SO_X emissions have declined due to decreases in emissions from the electric utilities industry of 26 kt (19%), largely driven by reduced use of coal power plants and increased use of cleaner fuels.

Sulphur oxide emissions by province and territory

Key results

- In 2024, Alberta and Saskatchewan accounted for 26% (141 kt) and 21% (112 kt) of national SO_X emissions
- Between 1990 and 2024,
    - the largest reductions in emissions were observed in Ontario and Manitoba. Emissions in these provinces decreased by 976 kt (91%) and 507 kt (99.6%), respectively
    - Saskatchewan was the only province that had an increase in SO_X emissions (4% or 5 kt)

Figure 5. Sulphur oxide emissions by province and territory, Canada, 1990, 2005 and 2024



Data for Figure 5

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Alberta was the highest emitter of SO_X in 2024, accounting for 26% (141 kt) of total national emissions. Emissions in the province mainly came from the oil and gas industry, accounting for 91% (129 kt) of its emissions. Between

[3] Environment and Climate Change Canada (2020) Sulphur in Gasoline Regulations. Retrieved on March 16, 2026.

[4] Environment and Climate Change Canada (2017) Sulphur in Diesel Fuel Regulations. Retrieved on March 16, 2026.

2005 and 2024, overall emissions in the province declined by 69% (317 kt). A large part of this reduction came from the oil and gas industry, particularly from natural gas processing, oil sands mining extraction and processing and petroleum refining.

Saskatchewan was the second-highest emitter of SO_X in 2024, accounting for 21% (112 kt) of total national emissions. Emissions from electric utilities, specifically coal electric power generation, was the largest contributor to SO_X emissions in the province, accounting for 60% (68 kt) of the emissions.

Ontario was the third highest emitter of SO_X, with 17% (93 kt) of total national emissions. The ore and mineral industries sector was the largest source of emissions in the province in 2024, accounting for 70% (65 kt) of the province's SO_X emissions.

Sulphur oxide emissions by facilities

The National Pollutant Release Inventory provides detailed information on air pollutant emissions from industrial and commercial facilities that meet its reporting criteria.[5]

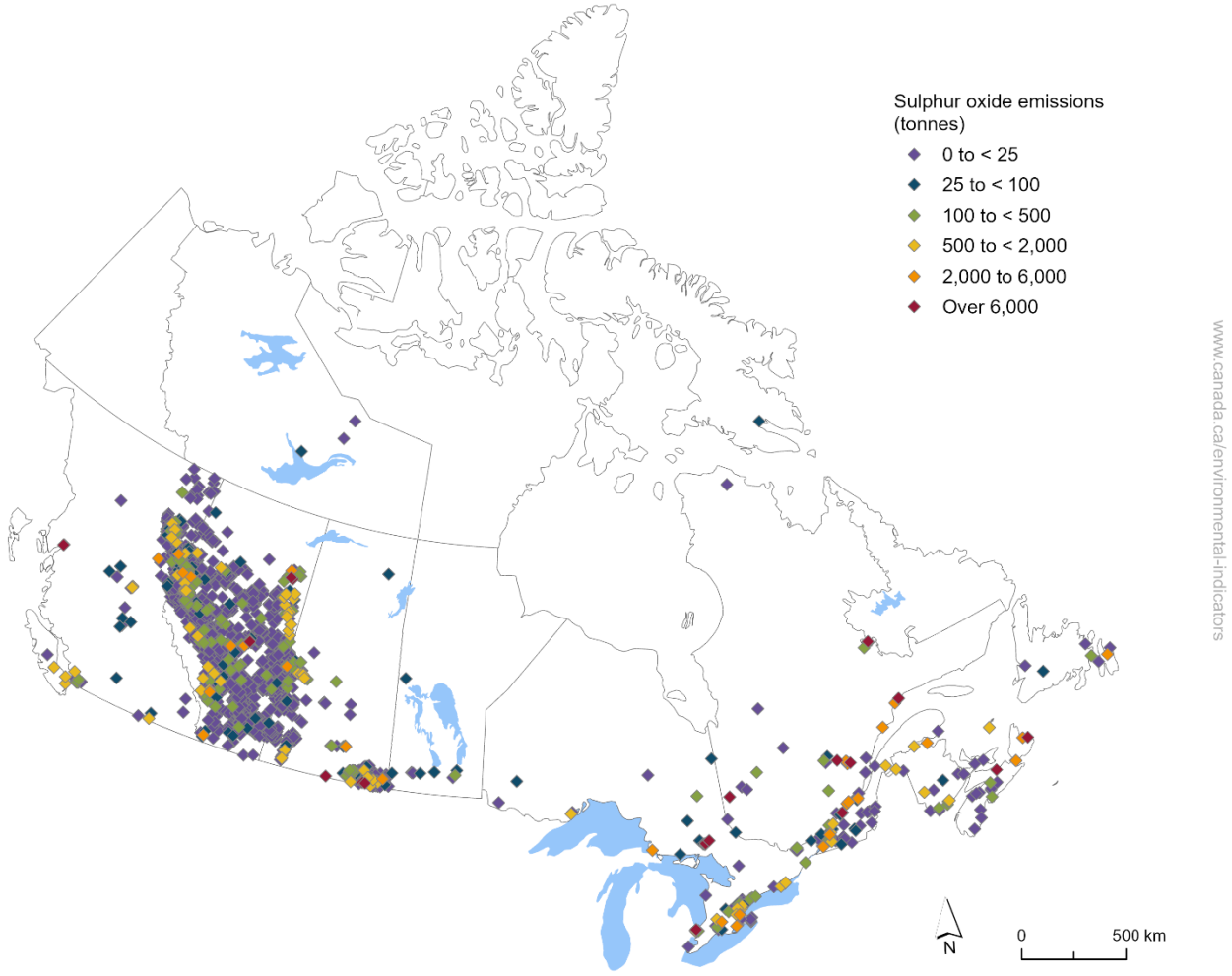
The Canadian Environmental Sustainability Indicators program provides access to this information through an interactive map. The map allows you to explore SO_X emissions from individual facilities.

Key results

- In 2024, 2,432 facilities across Canada reported SO_X emissions representing 94% of total national emissions. Of these facilities:
    - 2,025 facilities reported emissions under 25 tonnes (t)
    - 389 facilities reported emissions between 25 to 6,000 t
    - 18 facilities reported emissions of 6,000 t or more located in Quebec (5), Ontario (3), Alberta (3), Saskatchewan (3), Nova Scotia (2), Newfoundland and Labrador (1) and British Columbia (1)

[5] The National Pollutant Release Inventory only collects data for sulphur dioxide (SO_2), which is the predominant member of the SO_X group of gases.

Figure 6. Sulphur oxide emissions by reporting facilities, Canada, 2024



Source: Environment and Climate Change Canada (2026) National Pollutant Release Inventory.

Navigate data using the interactive map

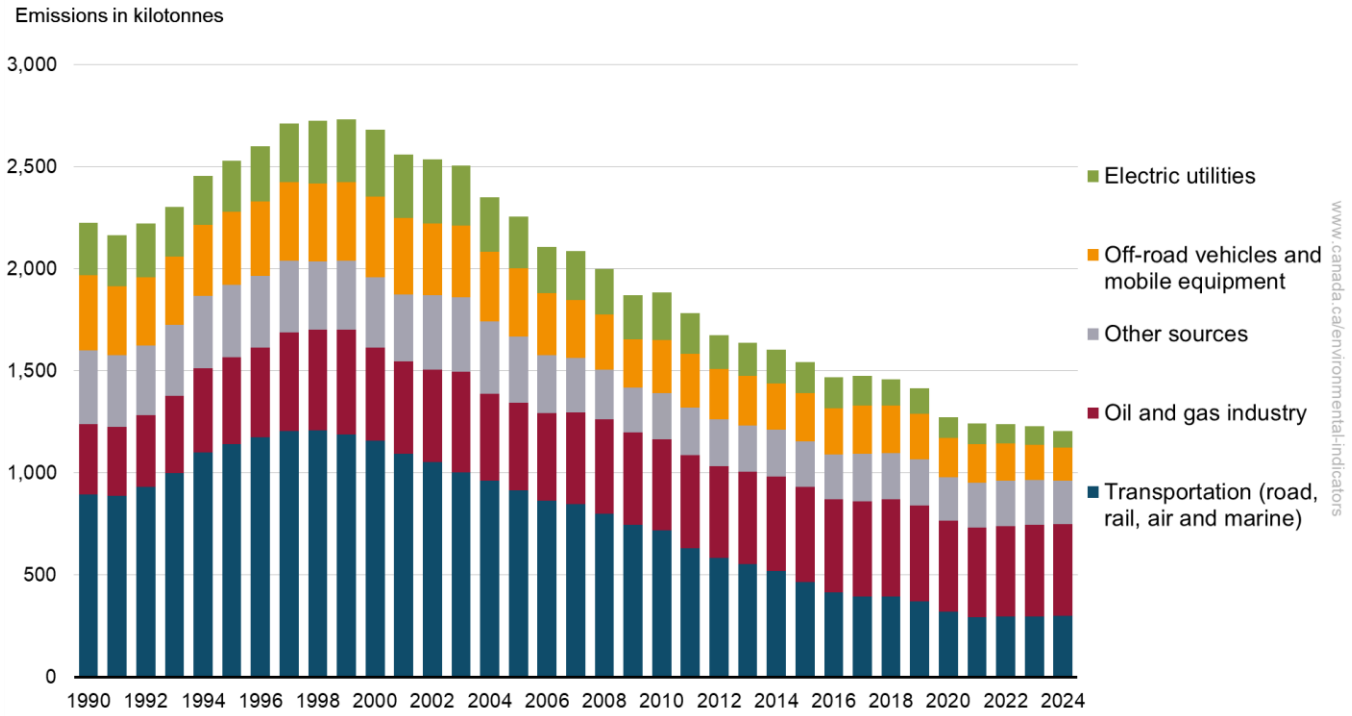
Nitrogen oxide emissions by source

Nitrogen oxides (NO_X) include nitric oxide (NO) and nitrogen dioxide (NO_2). Nitrogen dioxide can have adverse effects on human health and the environment. Nitrogen oxides contribute to acid rain, which can lead to the acidification of aquatic and terrestrial ecosystems. It also contributes to the eutrophication of lakes and to the formation of ground-level ozone (O_3) and fine particulate matter ($PM_{2.5}$).

Key results

- In 2024,
  - NO_X emissions were 1,205 kilotonnes (kt); this is 46% lower than in 1990
  - the oil and gas industry was the largest source of NO_X, representing 37% (447 kt) of total NO_X emissions

Figure 7. Total nitrogen oxide emissions by source, Canada, 1990 to 2024



Data for Figure 7

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. The category "other sources" includes emissions from the ore and mineral industries, manufacturing, building heating and energy generation, home firewood burning, incineration and waste, agriculture (livestock, crop production and fertilizer), dust and fires, paints and solvents, and other miscellaneous sources. Consult Table 1 in the Data sources and methods for a complete list of the air pollutant emissions sources included under each category. The interactive figures provide a dynamic and customizable format to explore the emissions.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

The oil and gas industry was the largest contributor of NO_X emissions in 2024, representing 37% (447 kt) of total national emissions. Emissions of NO_X from this sector increased by 103 kt (30%) between 1990 and 2024.

The transportation (road, rail, air and marine) sector was the second largest contributor of NO_X emissions in 2024, representing 25% (302 kt) of total national emissions. This sector also showed the largest decrease in emissions (592 kt or 66%) between 1990 and 2024.

The decline in NO_X emissions between 1990 and 2024 is mostly attributable to 2 factors:

- the reduction in emissions from transportation after 2000 due to the progressive introduction of cleaner technology and fuels for vehicles as a result of the implementation of federal regulations that set air pollution standards for vehicles and their engines
- lower emissions from fossil-fuel-fired (for example, coal-fired) power-generating utilities as a result of better emission control technologies and certain plant closures (for example, the closure of coal power plants in Ontario)

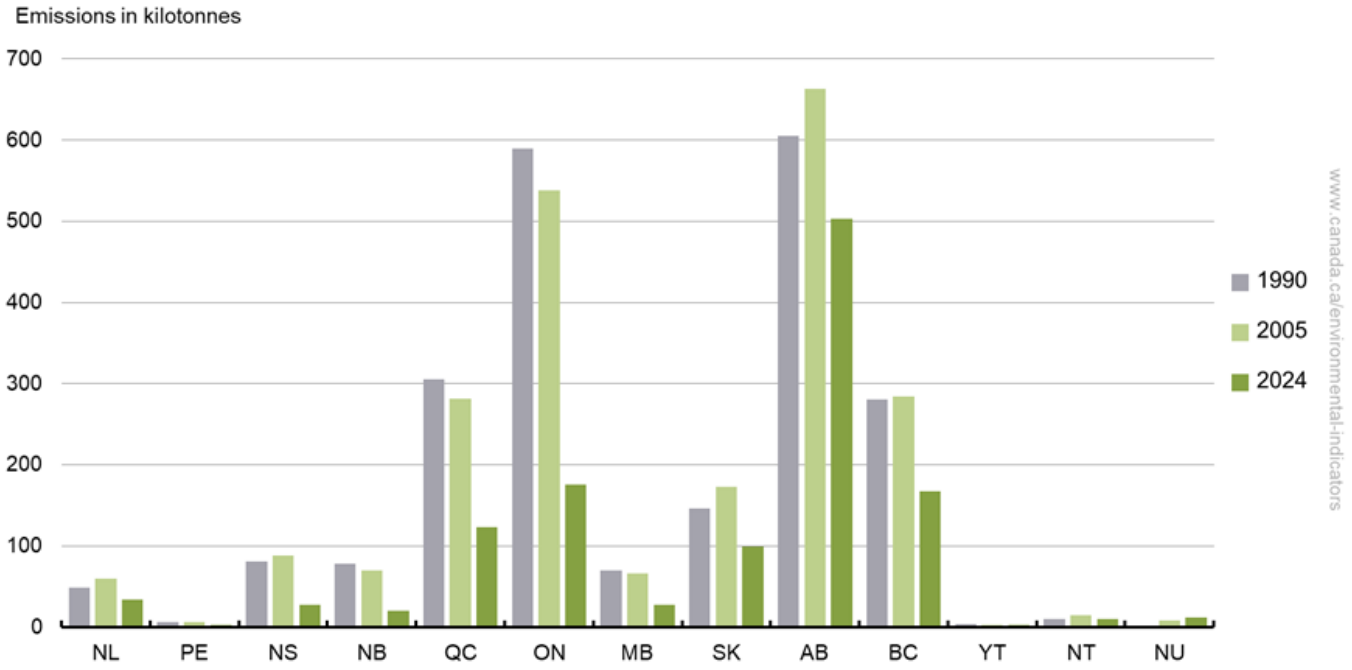
More recently, between 2023 and 2024, NO_X emissions have declined due to decreases in emissions largely from off-road vehicles and mobile equipment (10 kt, 6%) and electric utilities (9 kt, 10%). However, NO_X emissions from transportation (road, rail, air and marine) sources have increased by 4 kt (1%), notably from domestic marine navigation and rail transportation.

Nitrogen oxide emissions by province and territory

Key results

- In 2024, Alberta had the highest NO_X emissions among all provinces and territories. The province accounted for 42% (504 kt) of national emissions
- Between 1990 and 2024,
  - the largest reduction was observed in Ontario. Emissions decreased by 414 kt (70%) in the province
  - NO_X emissions increased in Northwest Territories and Nunavut by 103% (11 kt)[6]

Figure 8. Nitrogen oxide emissions by province and territory, Canada, 1990, 2005 and 2024



Data for Figure 8

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

The oil and gas industry is an important source of NO_X emissions in Alberta, accounting for 69% (349 kt) of the province's NO_X emissions in 2024. The increasing contribution of this sector to the province's emissions between 1990 and 2024 was more than offset by emission reductions from the transport and electric utilities sectors.

Ontario and British Columbia contributed the second and third largest proportions of NO_X emissions in 2024, with Ontario accounting for 15% (176 kt) and British Columbia accounting for 14% (167 kt). The transportation (road, rail, air and marine) sector was the major source in both provinces, followed by the oil and gas industry in British Columbia and off-road vehicles and mobile equipment in Ontario. However, Ontario experienced the largest decrease in emissions (70% or 414 kt) between 1990 and 2024 in large part due to emission reductions from transportation (road, rail, air and marine), electric utilities, off-road vehicles and mobile equipment, manufacturing and the ore and mineral industries. In Ontario, the majority of total NO_X emission reductions occurred between 2005 and 2024 (362 kt).

Quebec ranked fourth, with 10% (123 kt) of total national emissions. Transportation (road, rail, air and marine) was the major source of NO_X emissions in this province. Quebec also experienced a large decrease in emissions

[6] 1990 emissions data for the Northwest Territories include emissions for Nunavut, which was part of the Northwest Territories until 1999. Therefore, emissions for Northwest Territories and Nunavut are measured together and displayed as one value.

(56% or 159 kt) between 2005 and 2024 mainly due to emission reductions from transportation (road, rail, air and marine).

Nitrogen oxide emissions by facilities

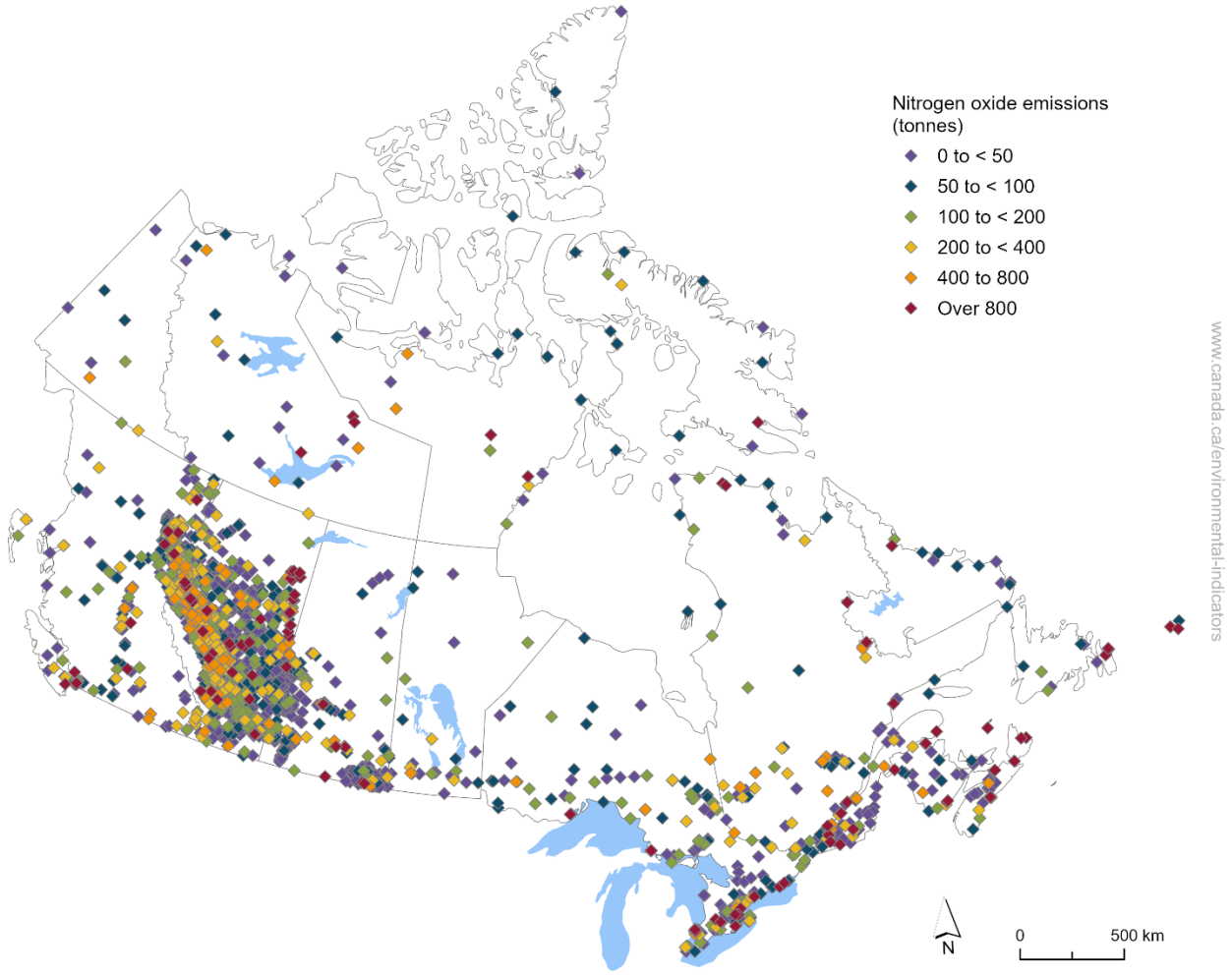
The National Pollutant Release Inventory provides detailed information on air pollutant emissions from industrial and commercial facilities that meet its reporting criteria.

The Canadian Environmental Sustainability Indicators program provides access to this information through an interactive map. The map allows you to explore NO_X emissions from individual facilities.

Key results

- In 2024, 3,616 facilities across Canada reported NO_X emissions representing 41% of total national emissions. Of these facilities:
    - 2,180 facilities reported emissions under 50 tonnes (t)
    - 1,327 facilities reported emissions between 50 to 800 t
    - 109 facilities reported emissions of 800 t or more located in Alberta (42), Ontario (15), Quebec (12), British Columbia (11), Saskatchewan (7), Newfoundland and Labrador (7), Nova Scotia (5), New Brunswick (4), Northwest Territories (3) and Nunavut (3)

Figure 9. Nitrogen oxide emissions by reporting facilities, Canada, 2024



Source: Environment and Climate Change Canada (2026) National Pollutant Release Inventory.

Navigate data using the interactive map

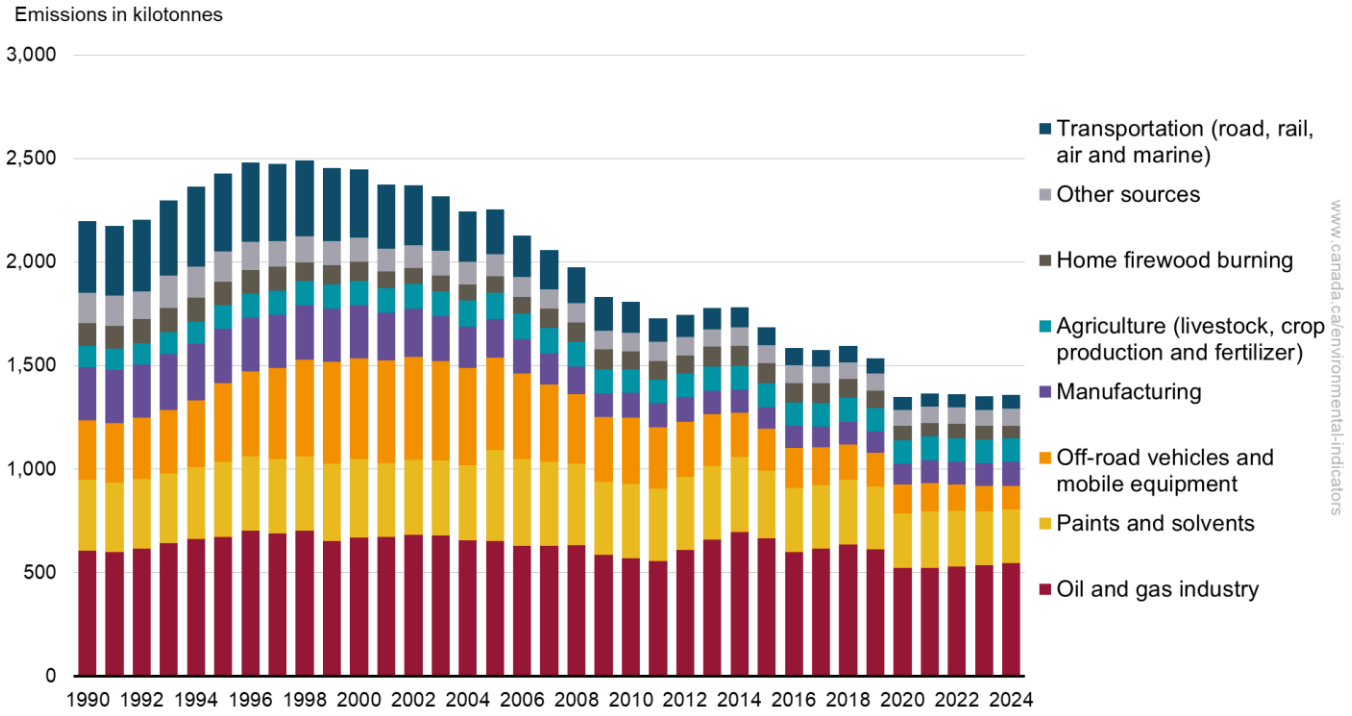
Volatile organic compound emissions by source

Volatile organic compounds (VOCs) are carbon-containing gases and vapours released into the atmosphere by natural sources and human activities.[7] There are hundreds of VOCs that are emitted and that affect the health of people living in Canada and the environment. VOCs are primary precursors to the formation of ground-level ozone and particulate matter, which are the main pollutants contributing to the formation of smog.

Key results

- In 2024, VOC emissions in Canada were 1,358 kilotonnes (kt); this is a 38% (840 kt) decrease from 1990 levels
- Since 1990, the oil and gas industry has been the highest contributor to VOC emissions; in 2024 the sector accounted for 40% (546 kt) of total emissions

Figure 10. Total volatile organic compound emissions by source, Canada, 1990 to 2024



Data for Figure 10

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. The category "other sources" includes emissions from incineration and waste, the ore and mineral industries, dust and fires, building heating and energy generation, electric utilities and other miscellaneous sources. Consult Table 1 in the Data sources and methods for a complete list of the air pollutant emissions sources included under each category. The interactive figures provide a dynamic and customizable format to explore the emissions.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Apart from the oil and gas industry, paints and solvents, manufacturing and off-road vehicles and mobile equipment were also important sources of VOC emissions in 2024, contributing 19% (258 kt), 9% (116 kt) and 9% (116 kt) of total emissions, respectively.

The largest emissions reduction between 1990 and 2024 was from the transportation (road, rail, air and marine) sector, with emissions reductions of 280 kt (81%).

[7] Under the *Canadian Environmental Protection Act*, carbon dioxide, carbon monoxide, methane and chlorofluorocarbons are not considered volatile organic compounds.

The long-term decrease in VOC emissions is mainly attributable to 3 factors:

- the progressive introduction of cleaner technologies and fuels resulting in emission reductions from transportation, off-road vehicles and mobile equipment
- emission reductions from most industrial and non-industrial sources from facility closures, decrease in production and improved emission controls
- lower levels of VOCs in products such as paints, solvents and cleaners

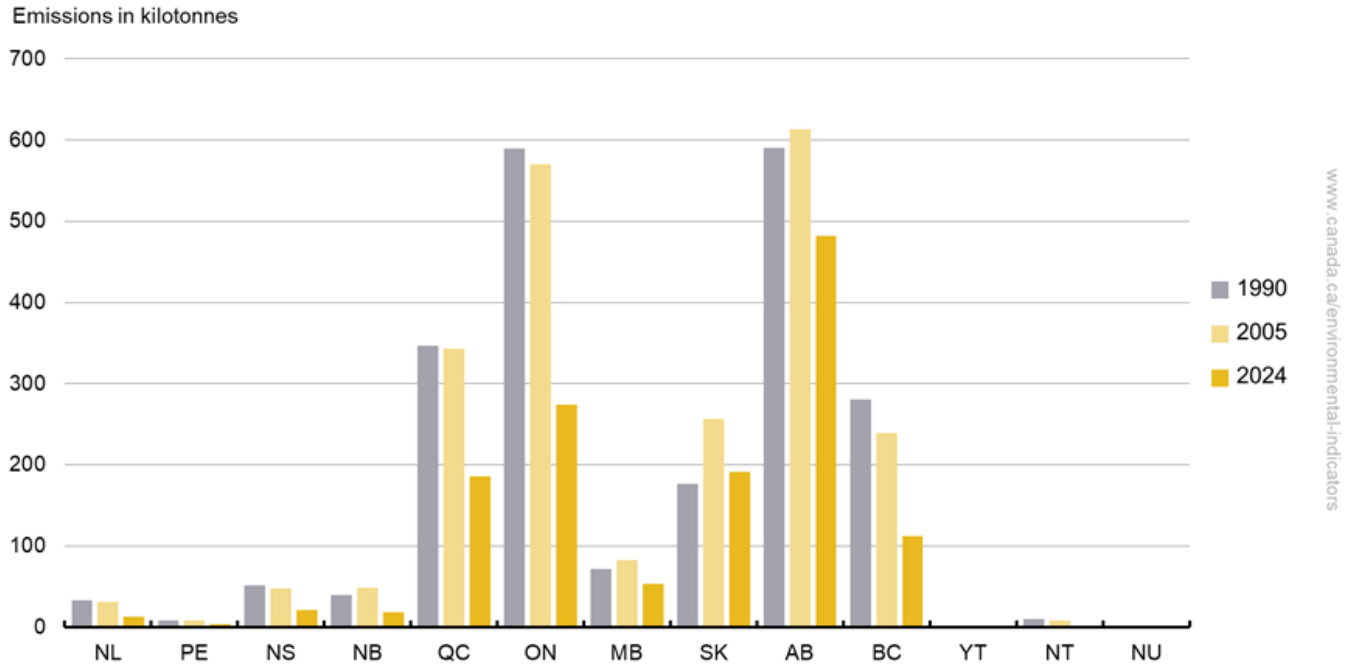
Compared to the previous year, VOC emissions increased by 5 kt (0.4%) in 2024. The largest increase was from the oil and gas industry 12 kt (2%), notably light medium crude oil production, which accounted for 39% of the overall oil and gas sector's increase (4 kt).

Volatile organic compound emissions by province and territory

Key results

- Alberta emitted the highest proportion of VOCs in 2024, representing 35% (482 kt) of national emissions
- Between 1990 and 2024,
  - Ontario experienced the largest reduction in VOC emissions with a decrease of 316 kt (54%)
  - Saskatchewan was the only province that experienced an increase in VOC emissions, rising by 14 kt (8%), primarily due to changes in emissions from the oil and gas industry

Figure 11. Volatile organic compound emissions by province and territory, Canada, 1990, 2005 and 2024



Data for Figure 11

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Alberta was the highest emitting province of VOCs in 2024, contributing 35% of national emissions (482 kt). The oil and gas industry was the main source, contributing 74% (356 kt) of the province's emissions.

Ontario was the second-highest emitter of VOCs, accounting for 20% (274 kt) of total national emissions in 2024. The main emission sources were paints and solvents, off-road vehicles and mobile equipment, and manufacturing. Ontario also experienced the largest reduction in emissions, amounting to 316 kt (54%) between 1990 and 2024, mainly as a result of emission reductions from manufacturing and transportation (road, rail, air and marine). The majority of the reductions in Ontario occurred between 2005 and 2023 (296 kt).

Saskatchewan was the third largest emitter of VOCs, accounting for 14% (191 kt) of total national emissions in 2024. The oil and gas industry accounted for 73% (139 kt) of the emissions in this province.

Volatile organic compound emissions by facilities

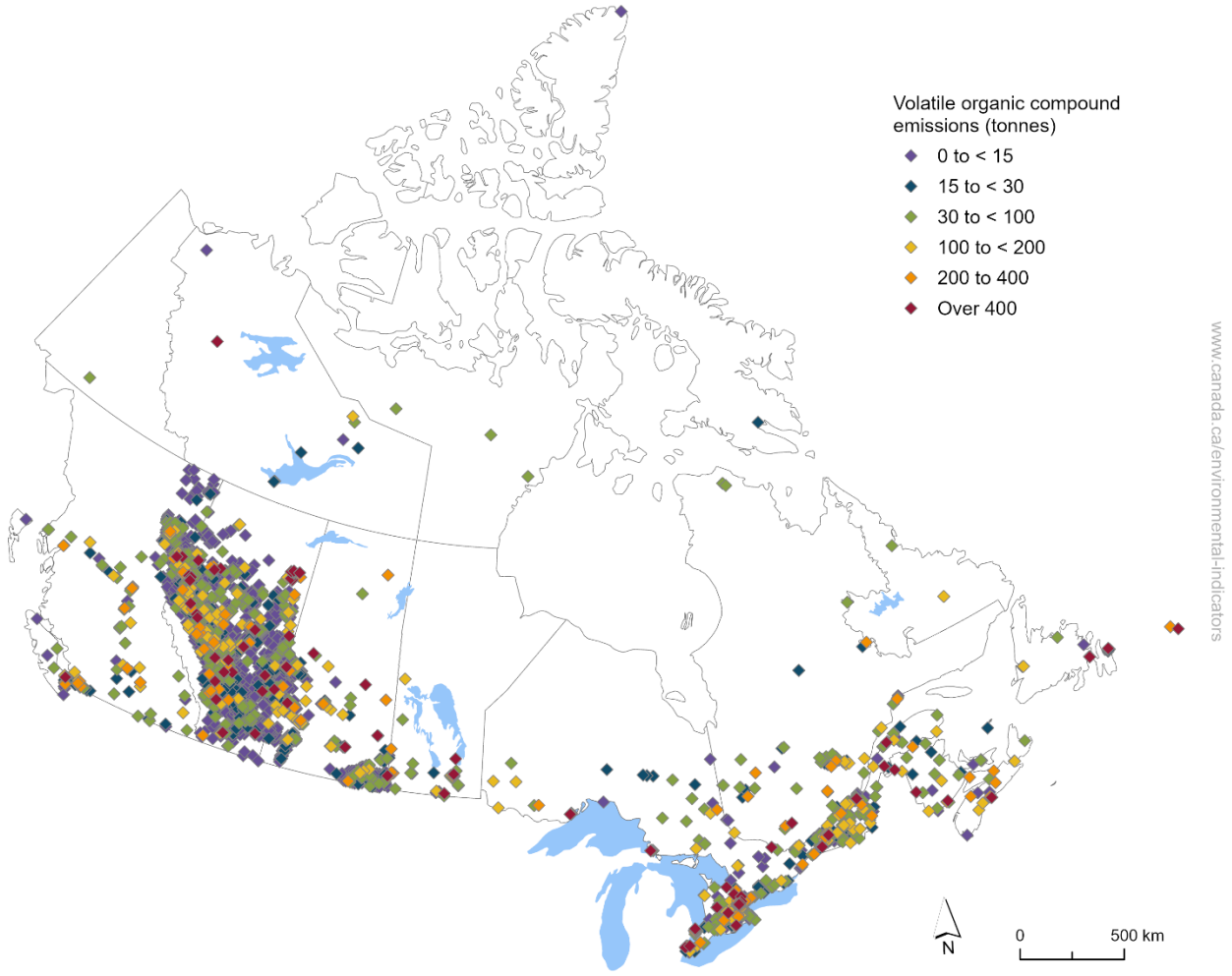
The National Pollutant Release Inventory provides detailed information on air pollutant emissions from industrial and commercial facilities that meet its reporting criteria.

The Canadian Environmental Sustainability Indicators program provides access to this information through an interactive map. The map allows you to explore VOC emissions from individual facilities.

Key results

- In 2024, 4,578 facilities across Canada reported VOC emissions representing 19% of total national emissions. Of these facilities:
  - 2,937 facilities reported emissions under 15 tonnes (t)
  - 1,558 facilities reported emissions between 15 to 400 t
  - 83 facilities reported emissions of 400 t or more located in Alberta (36), Ontario (18), Saskatchewan (7), Quebec (7), Manitoba (4), New Brunswick (3), Newfoundland and Labrador (3), British Columbia (3), Nova Scotia (1) and Northwest Territories (1)

Figure 12. Volatile organic compound emissions by reporting facilities, Canada, 2024



Source: Environment and Climate Change Canada (2026) National Pollutant Release Inventory.

Navigate data using the interactive map

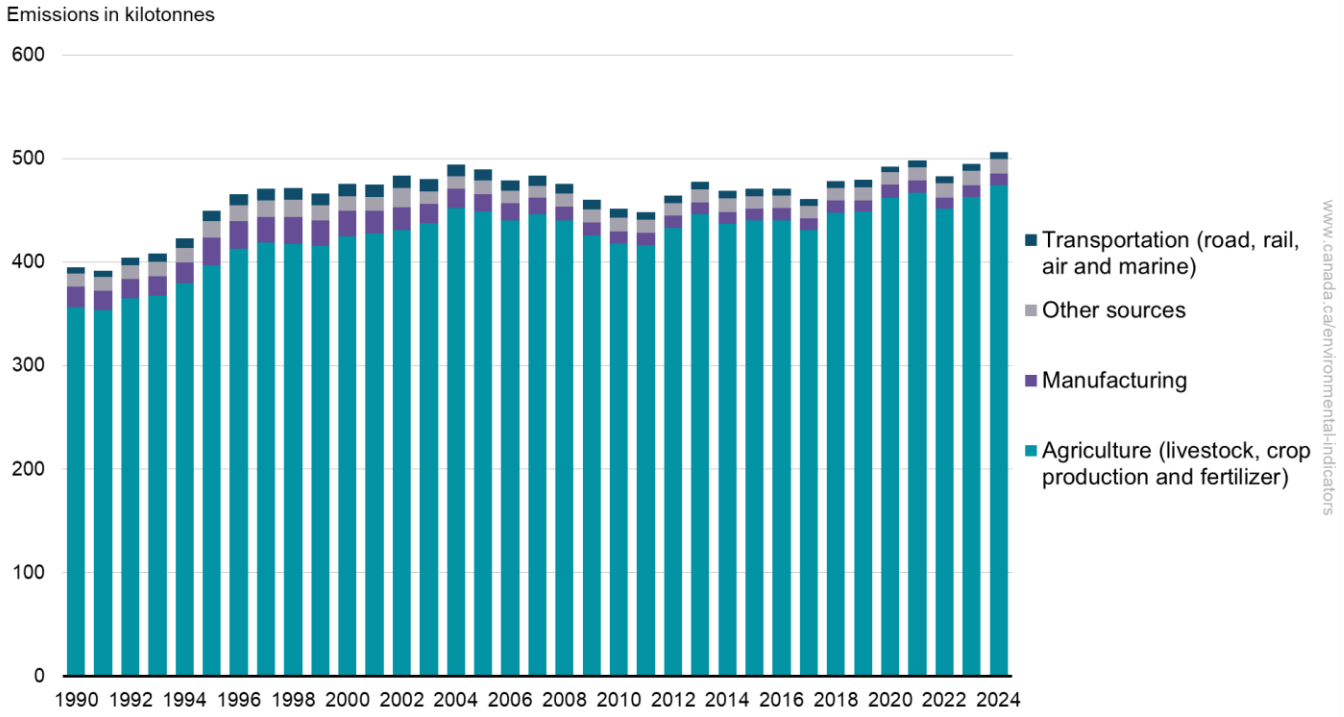
Ammonia emissions by source

Ammonia (NH_3) is a colourless gas with a noticeable odour at high concentrations. It can be poisonous if inhaled in great quantities and is irritating to the eyes, nose and throat. It can also contribute to the nitrification and eutrophication of aquatic systems. In the air, the gas combines with sulphates and nitrates to form secondary fine particulate matter ($PM_{2.5}$).

Key results

- In 2024,
  - NH_3 emissions were 506 kilotonnes (kt), which is 28% higher than in 1990
  - agriculture (livestock, crop production and fertilizer) was the main source of NH_3 emissions, accounting for 94% (474 kt) of total national emissions

Figure 13. Total ammonia emissions by source, Canada, 1990 to 2024



Data for Figure 13

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. The category "other sources" includes emissions from incineration and waste, the oil and gas industry, home firewood burning, the ore and mineral industries, electric utilities, building heating and energy generation, off-road vehicles and mobile equipment, dust and fires, paints and solvents, and other miscellaneous sources. Consult Table 1 in the Data sources and methods for a complete list of the air pollutant emissions sources included under each category. The interactive figures provide a dynamic and customizable format to explore the emissions.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

In 2024, emissions from manufacturing (11 kt), other sources (14 kt) and transportation (road, rail, air and marine) (7 kt) combined represented 6% of national emissions.

Between 1990 and 2024, the agriculture (livestock, crop production and fertilizer) sector experienced the largest increase (118 kt or 33%) in NH_3 emissions. It also remained the key source of NH_3 emissions throughout that period. The growth in NH_3 emissions from agriculture (livestock, crop production and fertilizer) between 1990 and 2024 is mainly due to the increased use of synthetic nitrogen fertilizers in crop production. Up to 2005, increasing livestock populations also added to the growth in NH_3 emissions. However, from 2006 to 2011, livestock

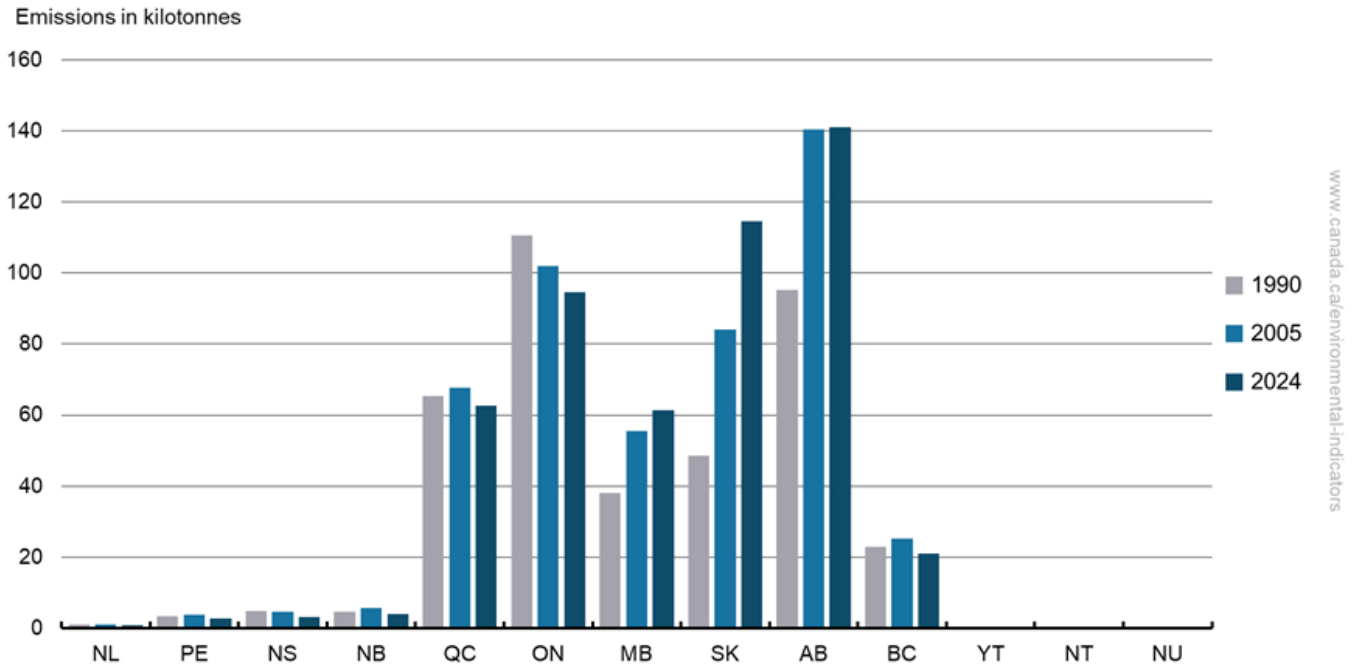
populations decreased and NH_3 emissions from that source have since declined slowly. More recently, emissions from crop production have been steadily increasing since 2006.[8]

Ammonia emissions by province and territory

Key results

- In 2024, Alberta and Saskatchewan accounted for over half (256 kt) of national NH_3 emissions
- Between 1990 and 2024,
  - Ontario experienced the largest emissions reduction with 16 kt (15%)
  - the largest increase in NH_3 emissions was in Saskatchewan with emissions more than doubling (a 66 kt increase)
  - Alberta and Manitoba also showed increases in NH_3 emissions of 46 kt (48%) and 23 kt (61%), respectively

Figure 14. Ammonia emissions by province and territory, Canada, 1990, 2005 and 2024



Data for Figure 14

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

In 2024, Alberta emitted the most NH_3 among all provinces and territories, accounting for 28% (141 kt) of total national emissions. Saskatchewan contributed the second-largest proportion of NH_3, representing 23% (115 kt) of total national emissions. Ontario followed with 19% (95 kt) of total national emissions in 2024. Livestock farms and the application of fertilizers were the most important sources of NH_3 emissions in Alberta, Saskatchewan and Ontario.

Almost all of the increase in national emissions between 1990 and 2024 took place in Saskatchewan, Alberta and Manitoba.

[8] Figure 2.6 in the Air Pollutant Emissions Inventory Report 2026 displays the 3 major contributors to national ammonia emissions; Animal Production, Crop Production and Other.

Ammonia emissions by facilities

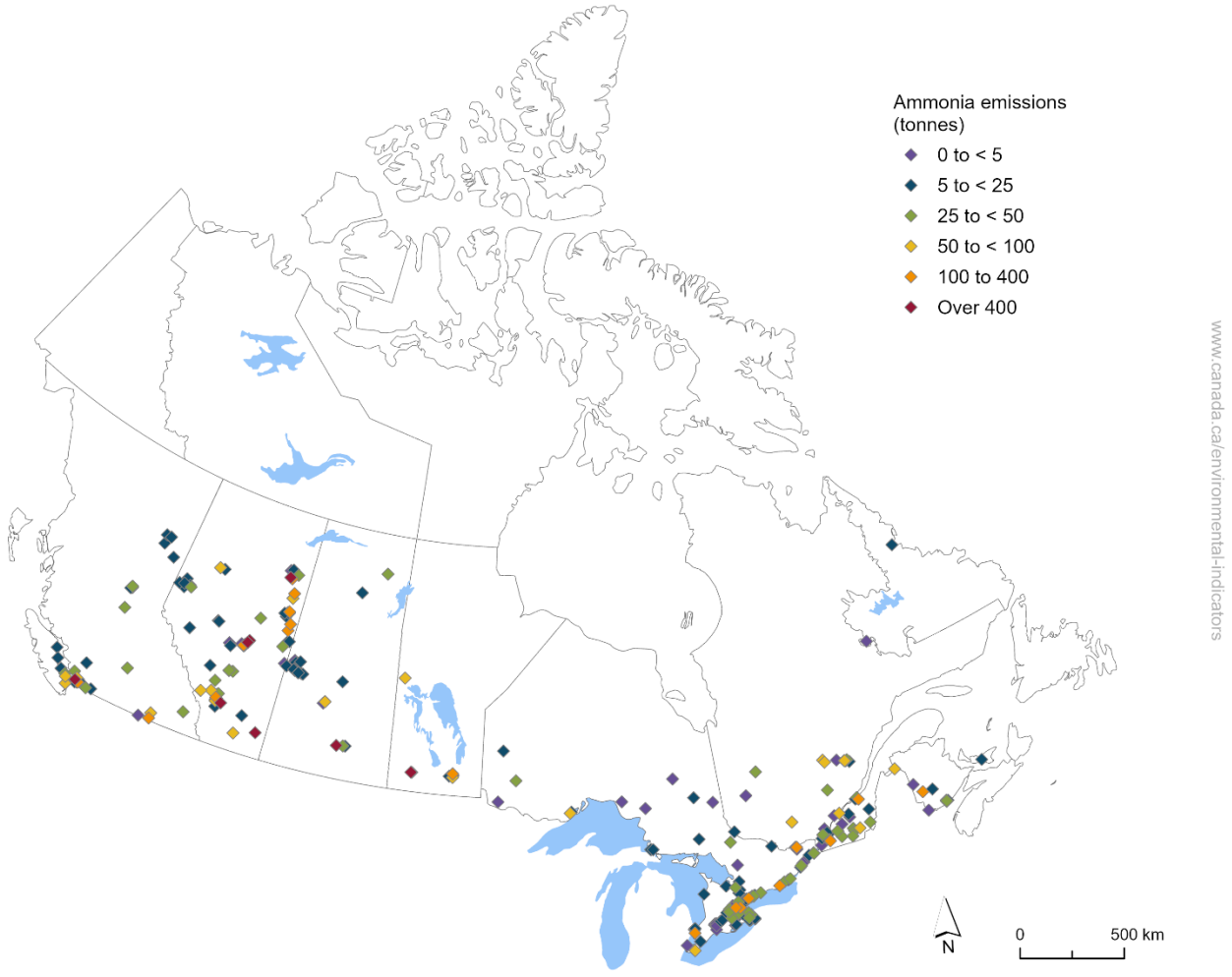
The National Pollutant Release Inventory provides detailed information on air pollutant emissions from industrial and commercial facilities that meet its reporting criteria.

The Canadian Environmental Sustainability Indicators program provides access to this information through an interactive map. The map allows you to explore NH_3 emissions from individual facilities.

Key results

- In 2024, 301 facilities across Canada reported NH_3 emissions representing 4% of total national emissions. Of these facilities:
    - 198 facilities reported emissions under 25 tonnes (t)
    - 95 facilities reported emissions between 25 to 400 t
    - 8 facilities reported emissions of 400 t or more, located in Alberta (5), British Columbia (1), Manitoba (1) and Saskatchewan (1)

Figure 15. Ammonia emissions by reporting facilities, Canada, 2024



Source: Environment and Climate Change Canada (2026) National Pollutant Release Inventory.

Navigate data using the interactive map

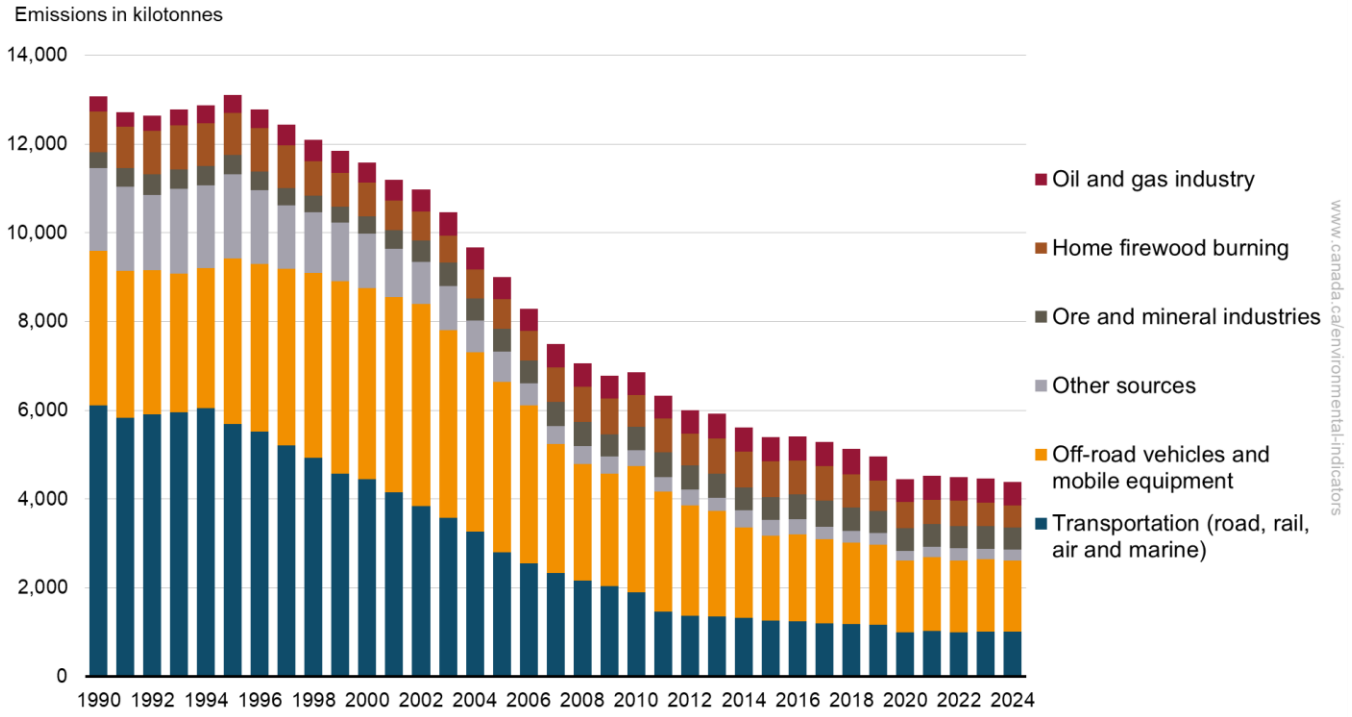
Carbon monoxide emissions by source

Carbon monoxide (CO) is a colourless, odourless, tasteless and poisonous gas. Once inhaled into the bloodstream, it can inhibit the blood's capacity to carry oxygen to organs and tissues, affecting human health and wildlife.

Key results

- In 2024,
  - CO emissions in Canada were 4,390 kilotonnes (kt), a decrease of 66% from 1990 levels
  - the off-road vehicles and mobile equipment sector was the largest source of CO emissions in Canada, representing 36% (1,599 kt) of total emissions
  - the transportation (road, rail, air and marine) sector was the second largest source, representing 23% (1,016 kt) of CO emissions in Canada

Figure 16. Total carbon monoxide emissions by source, Canada, 1990 to 2024



Data for Figure 16

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. The category "other sources" includes emissions from dust and fires, electric utilities, building heating and energy generation, incineration and waste, agriculture (livestock, crop production and fertilizer), paints and solvents, manufacturing and other miscellaneous sources. Consult Table 1 in the Data sources and methods for a complete list of the air pollutant emissions sources included under each category. The interactive figures provide a dynamic and customizable format to explore the emissions.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

In 2024, transportation, and off-road vehicles and mobile equipment were the 2 most important sources of CO. These sources combined represented 60% (2,615 kt) of national emissions.

The largest reduction in emissions between 1990 and 2024 occurred in the transportation (road, rail, air and marine) sector with an emission decrease of 5,090 kt (83%).

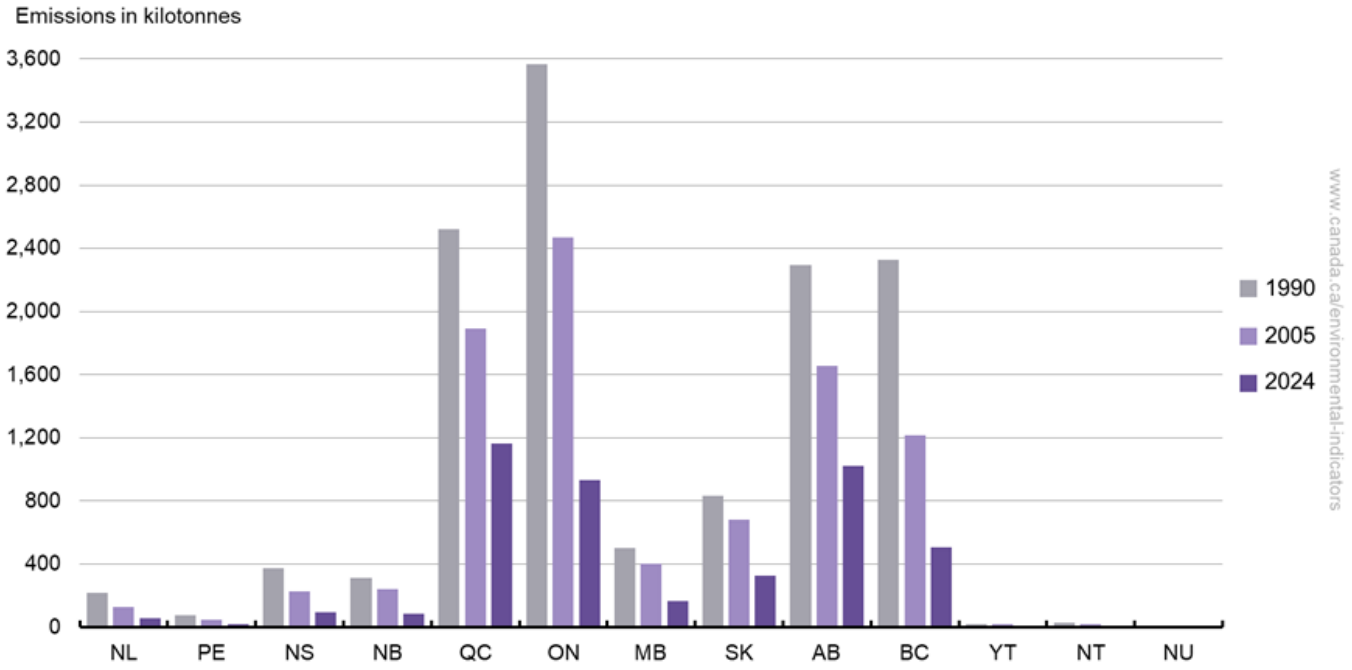
The decline in CO emissions between 1990 and 2024 was mainly due to increasingly stringent engine and vehicle regulations and the progressive introduction of cleaner and more efficient technology in vehicles (for example, catalytic converters).

Carbon monoxide emissions by province and territory

Key results

- In 2024, Quebec, Alberta and Ontario accounted for 71% (3,118 kt) of national CO emissions
- Between 1990 and 2024,
  - all provinces and territories experienced reductions in emissions
  - the largest reductions occurred in Ontario (2,635 kt or 74%), British Columbia (1,822 kt or 78%), Quebec (1,355 kt or 54%) and Alberta (1,273 kt or 56%)

Figure 17. Carbon monoxide emissions by province and territory, Canada, 1990, 2005 and 2024



Data for Figure 17

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

In 2024, Quebec emitted the most CO among all provinces and territories, representing 27% (1,165 kt) of total national emissions. The ore and mineral industries sector was the largest contributor to CO emissions in Quebec, representing 32% (372 kt) of the province's total emissions. Within this sector, the aluminum industry accounted for 91% (339 kt) of emissions in Quebec.

Alberta had the second highest emissions in 2024, with 23% (1,019 kt) of total national emissions. Of these emissions, 78% (796 kt) came from 2 sources: off-road vehicles and mobile equipment (38% or 387 kt) and the oil and gas industry (40% or 409 kt).

Ontario, the third largest CO emitter, accounted for 21% (933 kt) of total national emissions. The off-road vehicles and mobile equipment and the transportation sectors accounted for 41% (382 kt) and 35% (329 kt) of the province's CO emissions, respectively.

The sharp decrease in emissions between 1990 and 2024 in all provinces and territories is mainly attributable to emission reductions from transportation (road, rail, air and marine), largely driven by improvements in fuel efficiency. Some of the largest reductions occurred between 2005 and 2024, notably for Ontario, with emissions decreasing by 1,536 kt (62%).

Carbon monoxide emissions by facilities

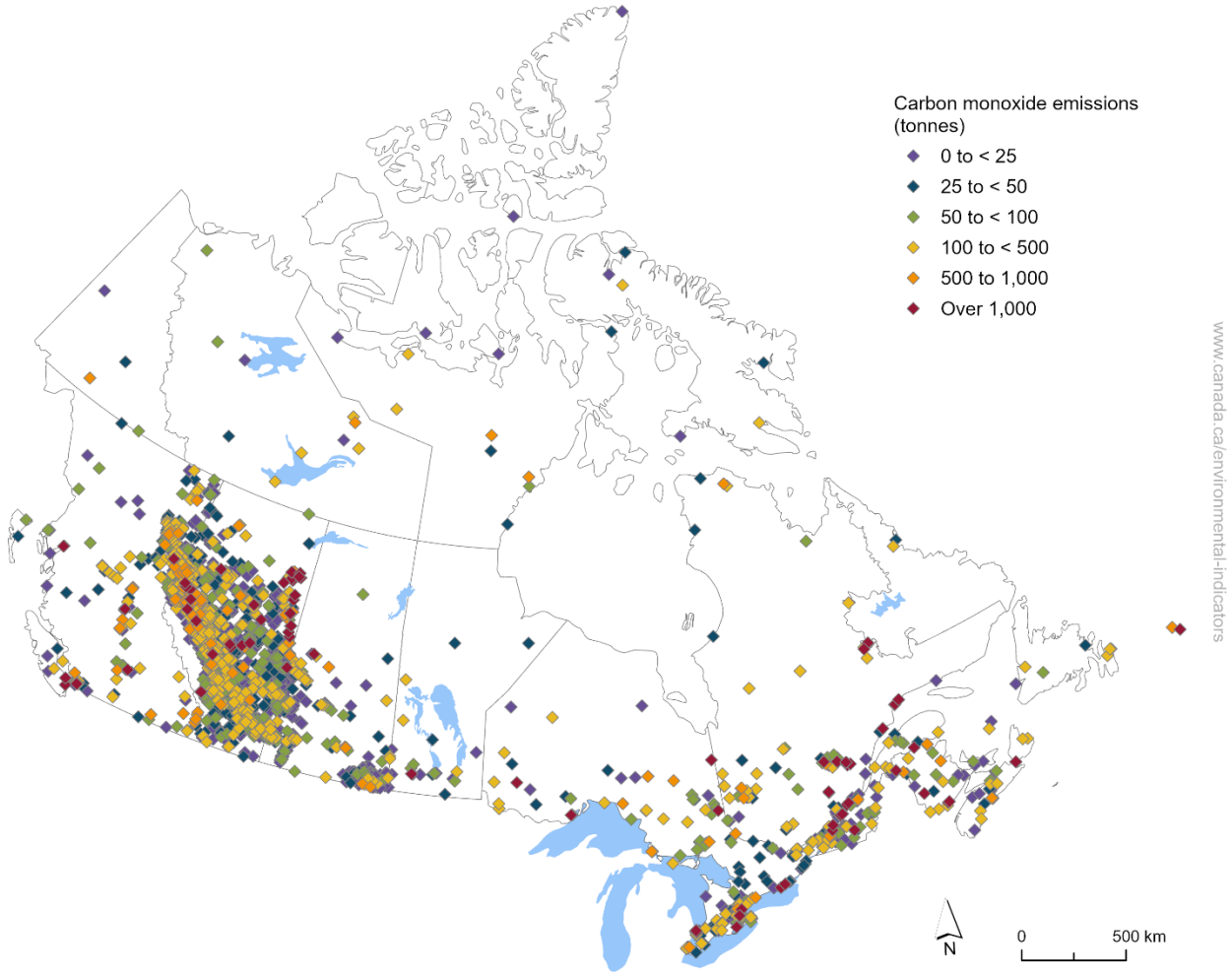
The National Pollutant Release Inventory provides detailed information on air pollutant emissions from industrial and commercial facilities that meet its reporting criteria.

The Canadian Environmental Sustainability Indicators program provides access to this information through an interactive map. The map allows you to explore CO emissions from individual facilities.

Key results

- In 2024, 3,429 facilities across Canada reported CO emissions representing 19% of total national emissions. Of these facilities:
    - 1,574 facilities reported emissions under 25 tonnes (t)
    - 1,775 facilities reported emissions between 25 to 1,000 t
    - 80 facilities reported emissions of 1,000 t or more, located in Alberta (28), Quebec (19), Ontario (15), British Columbia (7), New Brunswick (5), Saskatchewan (2), Newfoundland and Labrador (2), Manitoba (1) and Nova Scotia (1)

Figure 18. Carbon monoxide emissions by reporting facilities, Canada, 2024



Source: Environment and Climate Change Canada (2026) National Pollutant Release Inventory.

Navigate data using the interactive map

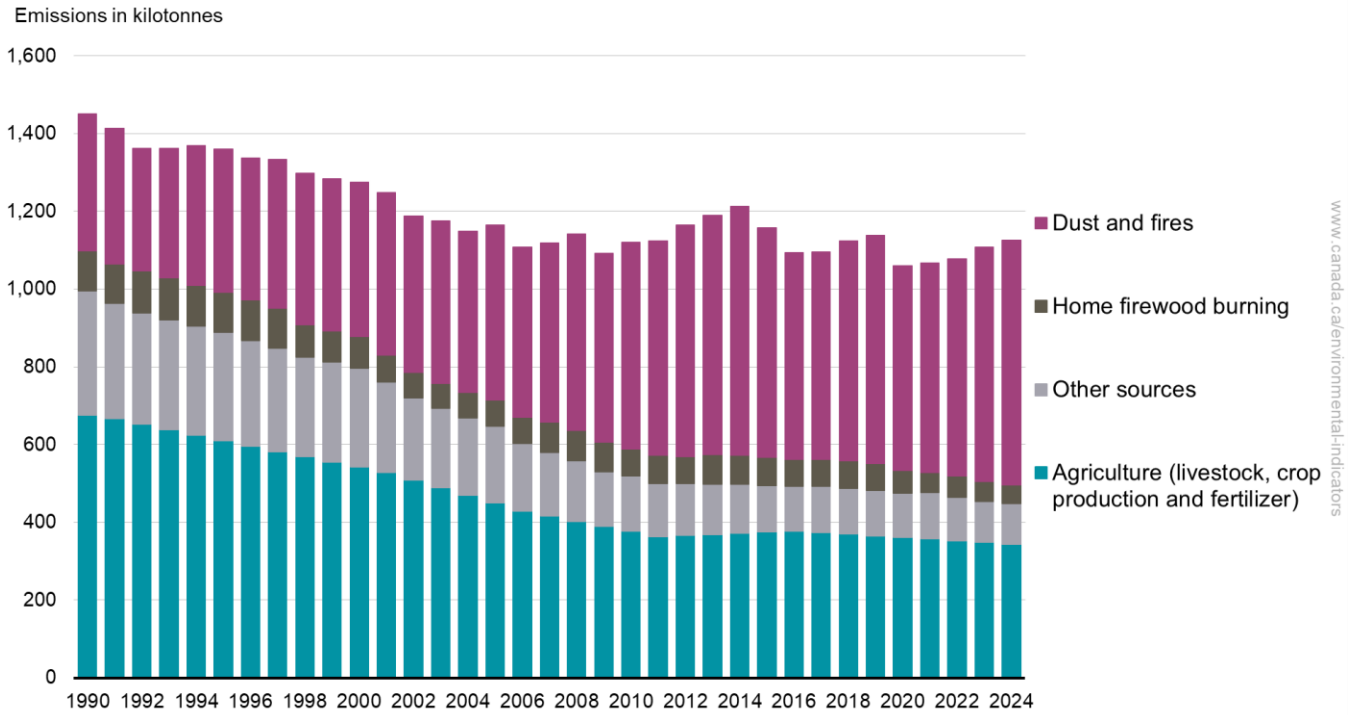
Fine particulate matter emissions by source

Particulate matter (PM) is directly emitted into the air in solid or liquid form. It is also formed in the air from precursor substances such as sulphur oxides, nitrogen oxides, volatile organic compounds and ammonia.[9] Fine particulate matter ($PM_{2.5}$) refers to particulate matter with a size of less than 2.5 micrometres (also called microns). It is one of the major components of smog. When inhaled, $PM_{2.5}$ can travel deeply into the lungs and lead to the onset or development of negative health effects. Even small amounts of $PM_{2.5}$ can cause serious health problems. It can also damage vegetation and structures, contribute to haze and reduce visibility.

Key results

- In 2024,
  - $PM_{2.5}$ emissions were 1,126 kilotonnes (kt); this is 22% lower than in 1990
  - emissions from dust and fires (for example, road dust, dust from construction operations and prescribed burning[10]) accounted for the majority of $PM_{2.5}$ emissions, reaching 56% (630 kt) of total national emissions
    - these emissions increased by 79% (278 kt) between 1990 and 2024; dust from construction operations, specifically non-residential construction, and unpaved roads accounted for the majority of the increase

Figure 19. Total fine particulate matter emissions by source, Canada, 1990 to 2024



Data for Figure 19

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. The category "other sources" includes emissions from ore and mineral industries, transportation (road, rail, air and marine), manufacturing, off-road vehicles and mobile equipment, the oil and gas industry, building heating and energy generation, electric utilities, incineration and wastes, paints and solvents, and other miscellaneous sources. Consult Table 1 in the Data sources and methods for a complete list of the air pollutant emissions sources included under each category. The interactive figures provide a dynamic and

[9] PM formed in the air from chemical and physical reactions involving the precursor substances are not included in the indicator.

[10] Prescribed burning is a technique used to help reduce the intensity or duration of wildfires and can also be used to control problematic insects.

customizable format to explore the emissions.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

In 2024, 86% of $PM_{2.5}$ emissions came from open source emissions, such as dust and fires and agriculture (livestock,[11] crop production and fertilizer). The $PM_{2.5}$ emissions data does not include emissions from natural sources such as wildfires and vegetation. In general, these open source emissions are spread over large geographical areas, are highly dependent on weather conditions (for example, wind and rain) and are located outside of urban areas, where an estimated 25% of the population lives.[12] As such, for most people in Canada, exposure to $PM_{2.5}$ is not driven by emissions from open sources, but rather from direct emissions from other sources and from $PM_{2.5}$ that forms when pollutants react in the atmosphere.

The remaining 14% of $PM_{2.5}$ emissions in 2024 came from home firewood burning (48 kt or 4%) and other sources, including:

- ore and mineral industries, representing 3% (30 kt) of the emissions
- manufacturing and miscellaneous sources, such as emissions from commercial cooking, each representing about 1% (15 kt and 16 kt, respectively) of emissions
- off-road vehicles and mobile equipment, representing about 1% (14 kt) of emissions
- the oil and gas industry, representing about 1% (13 kt) of emissions
- transportation (road, rail, air and marine), representing less than 1% (8 kt) of emissions
- other emissions (less than 1%; 7 kt) coming from building heating and energy generation, electric utilities, incineration and waste, and the use of paints and solvents

Many of the sources above, despite representing a small proportion of national emissions, can have a disproportionate health impact on the population because they are generally concentrated in or near populated areas.

The decreases in $PM_{2.5}$ emissions between 1990 and 2024 are mainly attributable to emission reductions from agriculture (crop production) (332 kt or 49%), manufacturing (99 kt or 87%) and home firewood burning (54 kt or 53%). These reductions outweigh the increase in emissions from dust and fires (278 kt or 79%), specifically road dust and dust from construction operations, over the same period. The adoption of conservation practices in crop production and the use of new fireplace inserts, furnaces and stoves that burn more efficiently to control emissions from home firewood burning were the main drivers leading to the reductions.

Fine particulate matter emissions by province and territory

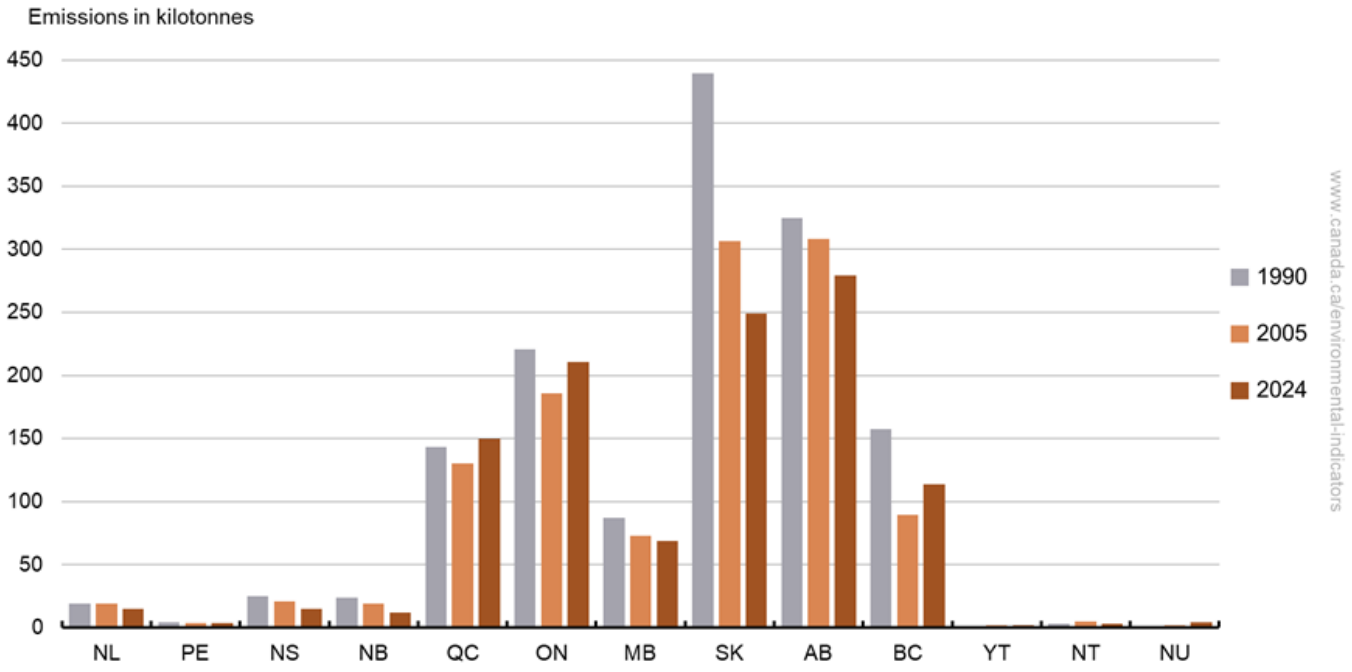
Key results

- In 2024, Alberta had the highest $PM_{2.5}$ emissions, representing 25% (279 kt) of total national emissions
- Between 1990 and 2024,
    - the largest decrease was observed in Saskatchewan, with a reduction of 191 kt (43%)
    - $PM_{2.5}$ emissions increased by 6 kt (4%) in Quebec, 1 kt (40%) in Yukon and 5 kt (154%) in Northwest Territories and Nunavut combined

[11] $PM_{2.5}$ emissions are produced as a result of the aerial transport of feed particles, feather fragments, fecal material, dander, etc. from ventilation systems in livestock buildings.

[12] Data from 2025 population estimates of persons living outside census metropolitan areas. Population estimates, July 1, by census metropolitan area and census agglomeration, 2021 boundaries

Figure 20. Fine particulate matter emissions by province and territory, Canada, 1990, 2005 and 2024



Data for Figure 20

Note: The indicator reports air pollutant emissions from human activities only, including open sources. It does not include emissions from natural sources such as forest fires and from vegetation.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

In 2024, Alberta had the highest $PM_{2.5}$ emissions among all provinces and territories, accounting for 25% (279 kt) of total national emissions. Agriculture (specifically wind erosion) and dust and fires (specifically dust from non-residential construction and unpaved roads) were the largest sources of $PM_{2.5}$ emissions in the province.

Saskatchewan ranked second in 2024, with 22% (249 kt) of total national $PM_{2.5}$ emissions. Agriculture (specifically wind erosion) was the largest source, with dust and fires (specifically dust from non-residential construction and unpaved roads) being the second-largest source of $PM_{2.5}$.

Ontario ranked third, with 19% (210 kt) of total national emissions, and Quebec ranked fourth with 13% (150 kt). For both provinces, dust and fires (specifically dust from unpaved roads) were the largest source of emissions.

The exclusion of emissions from dust and fires and agriculture (livestock, crop production and fertilizer) provides a different breakdown of $PM_{2.5}$ emissions in each province and territory. With these emissions removed, Quebec becomes the largest emitting province of $PM_{2.5}$ in 2024, representing 30% (46 kt) of total emissions (152 kt); home firewood burning was the largest emitting source (28 kt or 60%). Ontario ranks second with 24% (37 kt) of emissions. In this province, ore and mineral industries were the largest sources of emissions (10 kt or 26%) and home firewood burning was the second largest source (9 kt or 24%). Alberta and British Columbia rank third and fourth, representing 15% (23 kt) and 12% (18 kt) of emissions, respectively. In Alberta, the largest source of emissions was the oil and gas industry (9 kt or 39%), while in British Columbia it was the ore and mineral industries sector (5 kt or 31%). Between 1990 and 2024, with dust, fires and agriculture excluded, all provinces and territories experienced emission reductions, ranging from 81% in British Columbia (75 kt, primarily driven by reduction in manufacturing) to 23% in Northwest Territories and Nunavut (0.3 kt, primarily driven by reductions from the off-road vehicles and mobile equipment sector).

Fine particulate matter emissions by facilities

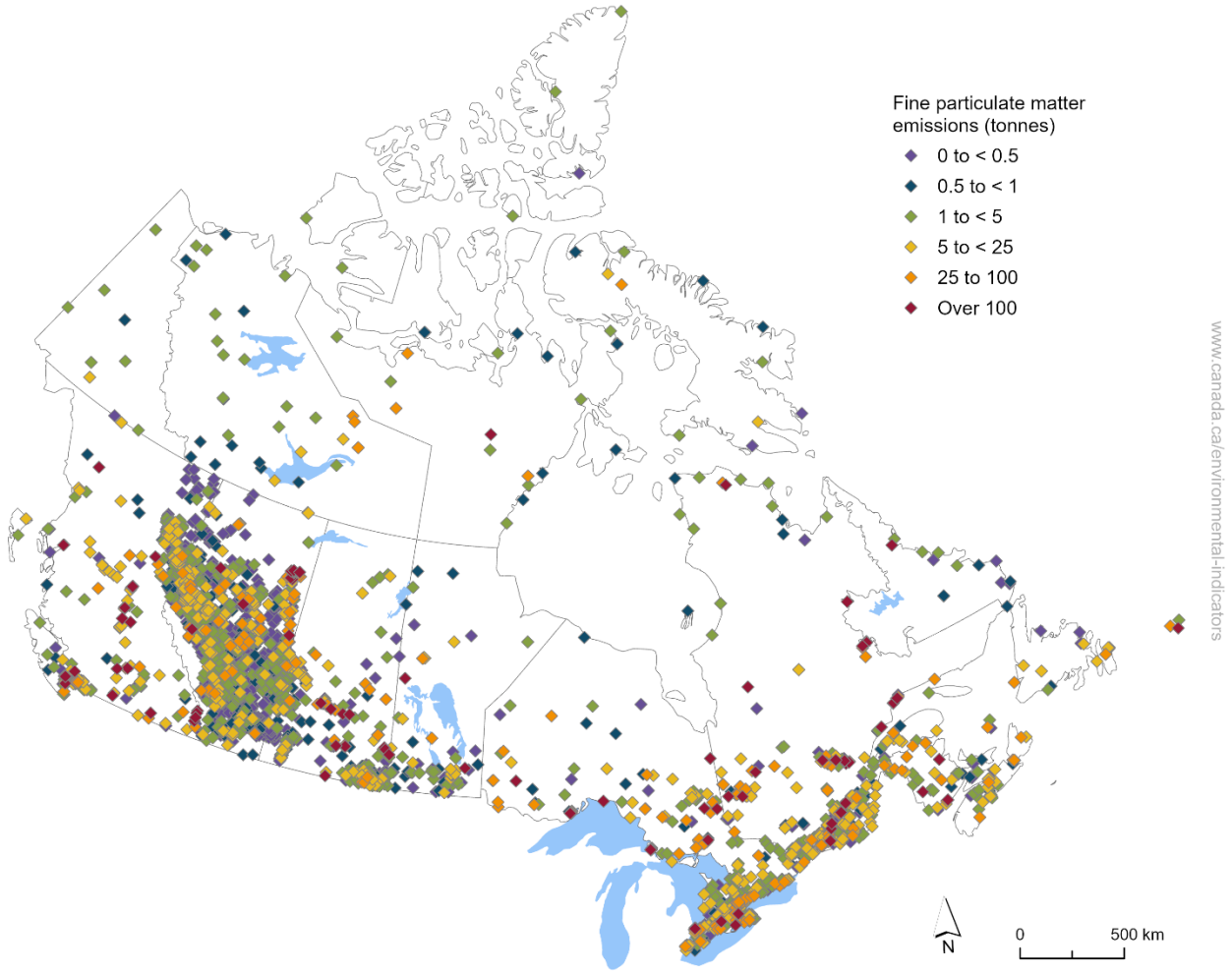
The National Pollutant Release Inventory provides detailed information on air pollutant emissions from industrial and commercial facilities that meet its reporting criteria.

The Canadian Environmental Sustainability Indicators program provides access to this information through an interactive map. The map allows you to explore $PM_{2.5}$ emissions from individual facilities.

Key results

- In 2024, 4,634 facilities across Canada reported $PM_{2.5}$ emissions representing 4% of total national emissions. Of these facilities:
    - 2,484 facilities reported emissions under 1 tonne (t)
    - 2,063 facilities reported emissions between 1 to 100 t
    - 87 facilities reported emissions of 100 t or more, located in Quebec (21), British Columbia (18), Ontario (16), Alberta (11), Saskatchewan (10), Newfoundland and Labrador (5), New Brunswick (3), Manitoba (2), and Nunavut (1)

Figure 21. Fine particulate matter by reporting facilities, Canada, 2024



Source: Environment and Climate Change Canada (2026) National Pollutant Release Inventory.

Navigate data using the interactive map

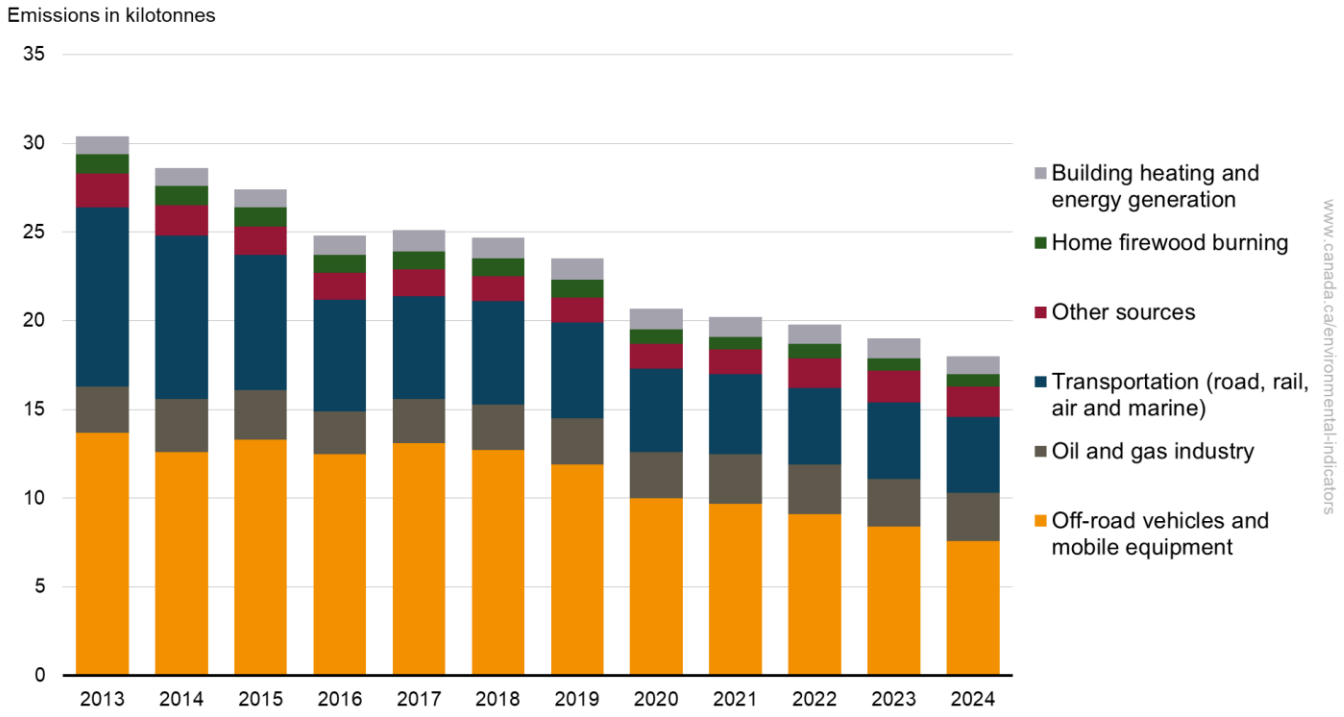
Black carbon emissions by source

Black carbon is a component of $PM_{2.5}$ and is generated by the incomplete combustion of fossil fuels and biomass. It is a short-lived climate pollutant, contributing to climate warming and is linked to adverse human health effects. Reducing black carbon emissions can improve air quality, slow climate warming, reduce snow and ice melts, increase crop yields and reduce negative impacts to ecosystem health and human health.

Key results

- Emissions of black carbon were 18 kt in 2024, a decrease of 40% (12 kt) from 2013
- In 2024, 3 sectors accounted for 81% of national black carbon emissions:
  - off-road vehicles and mobile equipment
  - oil and gas industry
  - transportation (road, rail, air and marine)

Figure 22. Total black carbon emissions by source, Canada, 2013 to 2024



Data for Figure 22

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires. The chart includes emissions from the most significant sources of black carbon. “Other sources” includes emissions from ore and mineral industries, incineration and waste, manufacturing, electric utilities and agriculture. Consult Table 1 in the Data sources and methods for more details. The interactive figures provide a dynamic and customizable format to explore the emissions.
Source: Environment and Climate Change Canada (2026) Canada's Black Carbon Emissions Inventory.

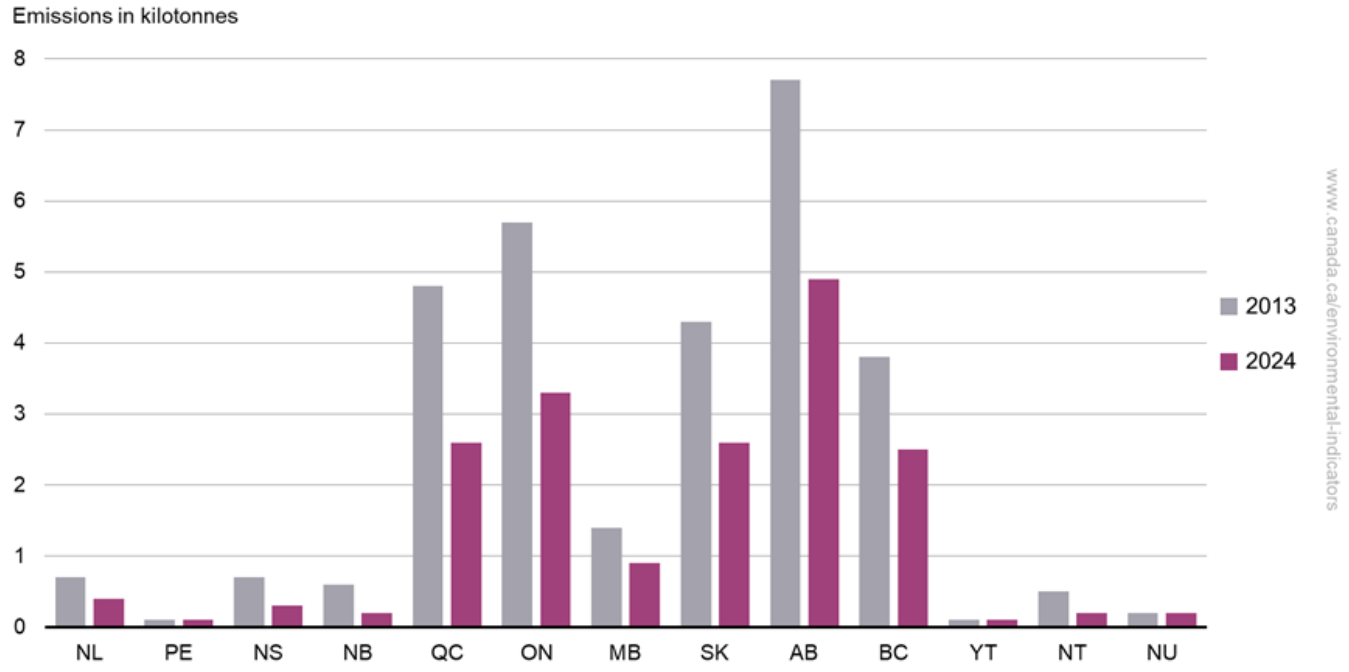
In 2024, off-road vehicles and mobile equipment (for example, agricultural equipment, construction and mining equipment, commercial equipment, recreational vehicles and lawn and garden equipment) accounted for the largest proportion of total national emissions, representing 42% (8 kt) of emissions. Transportation (road, rail, air and marine) and the oil and gas industry were also large contributors, representing 24% (4 kt) and 15% (3 kt) of total national emissions, respectively. The remaining emissions came from home firewood burning, building heating and energy generation and other sources (such as the ore and mineral industries).

Black carbon emissions by province and territory

Key results

- In 2024, 4 provinces, Alberta, Saskatchewan, Ontario and Quebec, accounted for 74% (13 kt) of total national black carbon emissions
- Between 2013 and 2024:
  - all provinces and territories experienced reductions in black carbon emissions between 34% and 68%, with the largest reductions coming from the off-road vehicles and mobile equipment (44%, 6 kt) and transportation (road, rail, air and marine) (57%, 6 kt) sectors
  - Alberta, Ontario and Quebec experienced the largest reductions in emissions, with decreases of 2.8 kt, 2.4 kt and 2.2 kt, respectively. For these 3 provinces, the reductions were mainly attributable to lower emissions from transportation (road, rail, air and marine) and off-road vehicles and mobile equipment

Figure 23. Black carbon emissions by province and territory, Canada, 2013 and 2024



Data for Figure 23

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires.
Source: Environment and Climate Change Canada (2026) Canada's Black Carbon Emissions Inventory.

Alberta, Saskatchewan, Ontario and Quebec had the highest black carbon emissions in 2024:

- Emissions in Alberta primarily came from 3 sources: off-road vehicles and mobile equipment (2 kt, 42%), the oil and gas industry (1.7 kt, 34%) and transportation (road, rail, air and marine) (0.8 kt, 16%), representing 91% (4.5 kt) of the emissions
- In Saskatchewan, over half of its black carbon emissions came from off-road vehicles and mobile equipment (1.4 kt, 53%), with transportation (road, rail, air and marine) being the next largest emitter (0.5 kt, 18%), together representing 71% (1.9 kt) of total emissions
- Ontario's emissions also came primarily from off-road vehicles and mobile equipment (1.4 kt, 41%), and transportation (road, rail, air and marine) (1.0 kt, 29%), together representing 71% (2.4 kt) of total emissions
- In Quebec, emissions came primarily from off-road vehicles and mobile equipment (42%, 1.1 kt), as well as from transportation (road, rail, air and marine) (0.7 kt, 26%), representing 67% (1.7 kt) of emissions

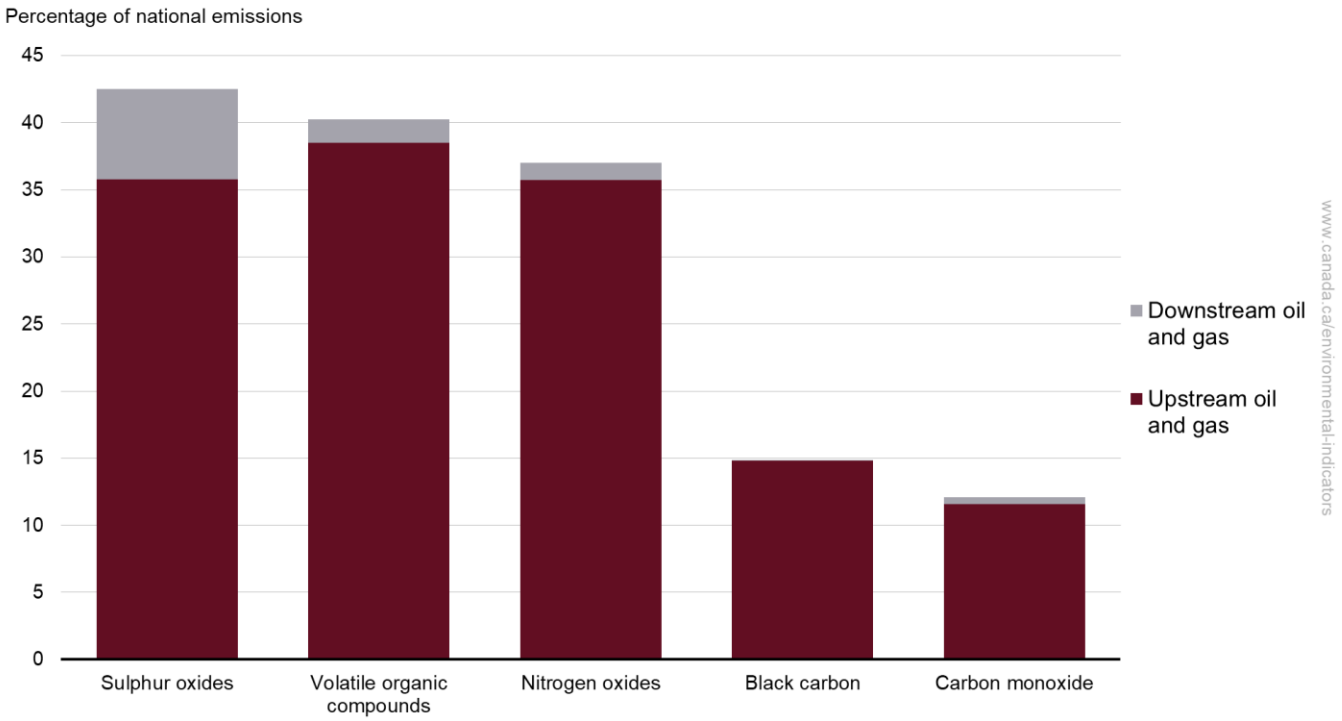
Air pollutant emissions from the oil and gas industry

The oil and gas sector is an important contributor to air pollutant emissions. Most emissions from the oil and gas sector come from upstream activities (including exploration, drilling, production and field processing) and to a lesser extent from downstream activities (including refining, storage and distribution). Air pollutants emitted by this sector contribute to the formation of fine particulate matter ($PM_{2.5}$), ozone (O_3), smog and acid rain. They also adversely affect human health, the environment and the economy.[13]

Key results

- In 2024, the oil and gas industry was a major contributor to total national emissions of sulphur oxides (SO_X) (42%), volatile organic compounds (VOCs) (40%), nitrogen oxides (NO_X) (37%), black carbon (15%), and carbon monoxide (CO) (12%)
- The oil and gas industry is also a source of emissions of fine particulate matter ($PM_{2.5}$) and ammonia (NH_3). However, in 2024, it made up only 1% of the respective total emissions of these pollutants

Figure 24. Contribution of the oil and gas industry to total air pollutant emissions by activity type, Canada, 2024



Data for Figure 24

Note: Fine particulate matter and ammonia are not shown in the chart due to their low share (2%) of total emissions in 2024. In the oil and gas industry, upstream activities include exploration, drilling, production and field processing and downstream activities include refining, storage and distribution.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory and Canada's Black Carbon Emissions Inventory.

In 2024, the oil and gas industry sector was the largest contributor to the total national emissions of SO_X, VOCs and NO_X. It was also the third-largest contributor to emissions of CO and black carbon.

[13] Air pollutant emissions can have both direct and indirect impacts on the economy, including increased healthcare costs from pollution-related illnesses, agricultural losses from reduced crop yields impacting farmers, and higher infrastructure maintenance expenses caused by accelerated weathering of materials and structural damages.

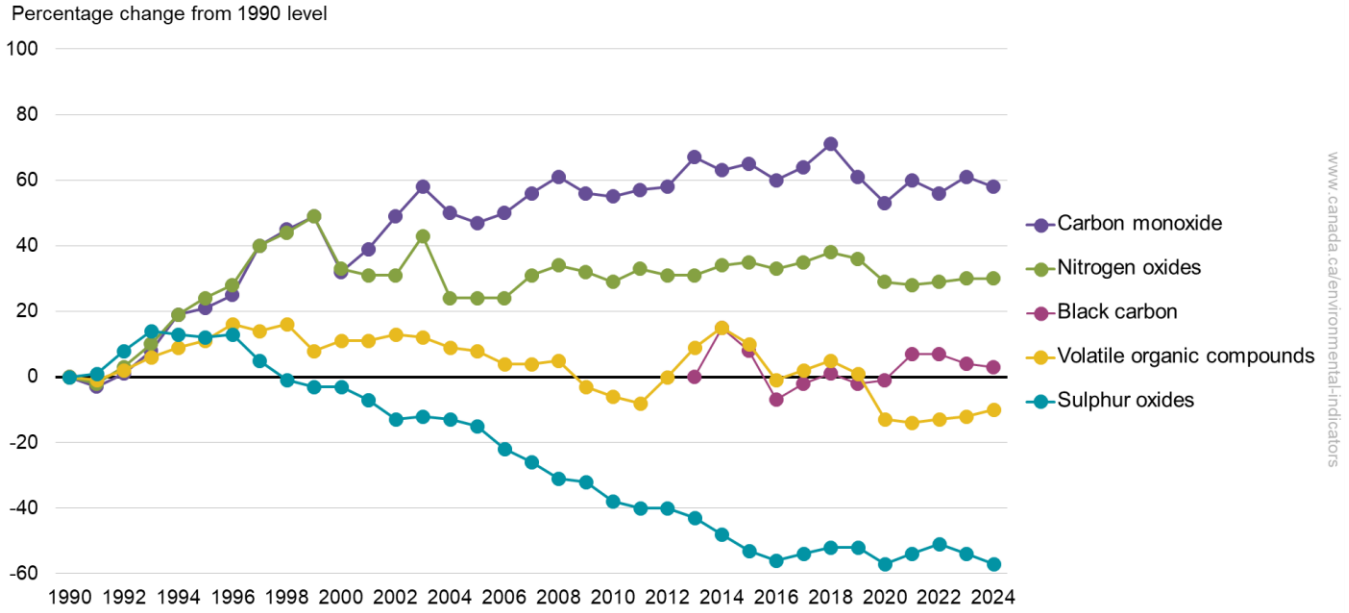
Most emissions from the oil and gas industry came from upstream activities compared to downstream activities. In 2024, 97% of NH_3, 96% of VOC, NO_X and CO, 89% of $PM_{2.5}$, 84% of SO_X and almost 100% of black carbon emissions from the oil and gas sector were from upstream activities.

Changes in emissions from the oil and gas industry

Key results

- Between 1990 and 2024:
  - SO_X and VOC emissions decreased 57% and 10%, respectively
  - CO and NO_X emissions increased by 58% and 30%, respectively
- Black carbon emissions increased by 3% between 2013 and 2024

Figure 25. Changes in emissions of key air pollutants from the oil and gas industry, Canada, 1990 to 2024 and 2013 to 2024



Data for Figure 25

Note: Fine particulate matter and ammonia are not shown in the chart due to their low share (2%) of total emissions in 2024. Black carbon emissions reporting did not begin until 2013, marking the fist year of the Black Carbon Emissions Inventory.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory and Canada's Black Carbon Emissions Inventory.

The increases in CO and NO_X emissions between 1990 and 2024 were due to growth in oil and gas production (the upstream sector of the industry), as emissions from the downstream sector declined due to facility closures during that period.[14] This increase is in part explained by the fact that crude oil production in Canada more than doubled since 1990. The growth was mostly driven by a rapid increase in oil sands production, particularly by in-situ oil sands extraction. During the same period, production of natural gas from unconventional sources, such as those requiring the use of multi-stage fracturing techniques, also increased significantly.

Black carbon emissions have remained somewhat stable between 2013 and 2024.

The decrease in SO_X emissions was mainly due to reductions in emissions from oil sands mining, extraction and upgrading, and natural gas production and processing, attributed to better emission control technologies.

[14] In the oil and gas industry, upstream activities include exploration, drilling, production and field processing and downstream activities include refining, storage and distribution.

For VOCs, the recent decline was partly due to reductions in heavy crude oil production and petroleum refining, storage and distribution. The decrease in VOC emissions was also driven by reduced venting emissions from crude oil production since 2014. During this period, operators took measures to conserve gas under provincial directives, even prior to the implementation of federal and provincial regulations. In addition, federal and provincial regulations to reduce fugitive emissions from the sector came into effect in 2020, further contributing to the decline.

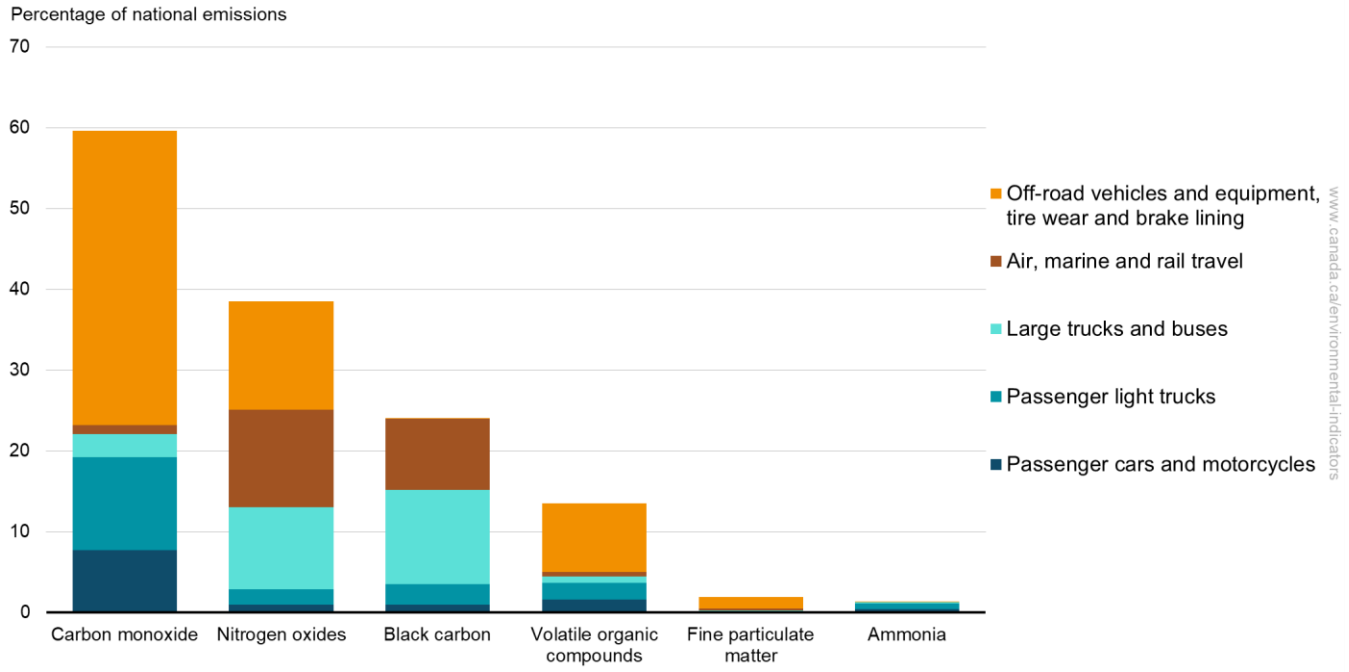
Air pollutant emissions from transportation, off-road vehicles and mobile equipment

Transportation, off-road vehicles and mobile equipment are among the largest sources of air pollutants in Canada. Burning fossil fuels to power vehicles and engines causes emissions of many air pollutants. Some of these air pollutants lead to the formation of fine particulate matter, ozone, smog and acid rain. These pollutants and resulting impacts adversely affect human health, the environment and the economy.

Key results

- In 2024, transportation, off-road vehicles and mobile equipment accounted for more than half (60%) of total national emissions of carbon monoxide (CO), 38% of nitrogen oxides (NO_X), 24% of black carbon and 13% of total emissions of volatile organic compounds (VOCs)
- While also a source of emissions for fine particulate matter ($PM_{2.5}$), ammonia (NH_3) and sulphur oxides (SOx), the sector represented less than 2% of those emissions in 2024, respectively

Figure 26. Contribution of transportation, off-road vehicles and mobile equipment to total air pollutant emissions by transportation mode, Canada, 2024



Data for Figure 26

Note: Sulphur oxides are not shown in the chart due to their low share (≤ 1%) of total emissions in 2024. "Passenger cars and motorcycles" include cars powered by motor gasoline, diesel, liquefied petroleum gas and compressed natural gas engines as well as all types of motorcycles. "Passenger light trucks" include light-duty trucks powered by motor gasoline, diesel, liquefied petroleum gas and compressed natural gas engines. "Large trucks and buses" include heavy-duty trucks powered by motor gasoline, diesel, liquefied petroleum gas and compressed natural gas engines.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory and Canada's Black Carbon Emissions Inventory.

The contribution of each transportation mode to emissions of different air pollutants is in large part explained by the mix of fuels used in these modes.

Large trucks and buses and rail and marine travel rely predominantly on diesel fuel, which emits significantly more $PM_{2.5}$ (most of which is black carbon) and NO_X than gasoline per kilometre traveled. Aviation relies on turbo aviation fuel. These transportation modes are the largest sources of NO_X transportation-related emissions accounting for 22% (267 kilotonnes [kt]) of total NO_X emissions. These sources may be particularly important near transportation hubs (for example airports, major docks, etc.), where they can contribute to localized air pollution.

Passenger cars and light trucks mostly use gasoline and are an important source of multiple pollutants, especially in urban centres. In 2024, emissions from passenger cars, motorcycles and light trucks amounted to 844 kt of CO, 35 kt of NO_X and 49 kt of VOCs. These emissions represented 19%, 3% and 4% of the national total emissions of these pollutants, respectively.

Off-road vehicles and equipment[15] are also a significant source of pollution. Their combined emissions make up 36%, 13% and 9% of the total emissions of CO, NO_X and VOCs, respectively. Emissions mostly come from household use of gasoline- or diesel-powered recreational and lawn and garden equipment, and from the operation of agricultural, construction and mining equipment (commercial use). In 2024, commercial equipment use produced higher emissions of NOx, SOx, NH_3 and CO compared to lawn and garden equipment use. However, emissions of $PM_{2.5}$ and VOCs were greater from recreational and lawn and garden equipment use than from commercial equipment use.

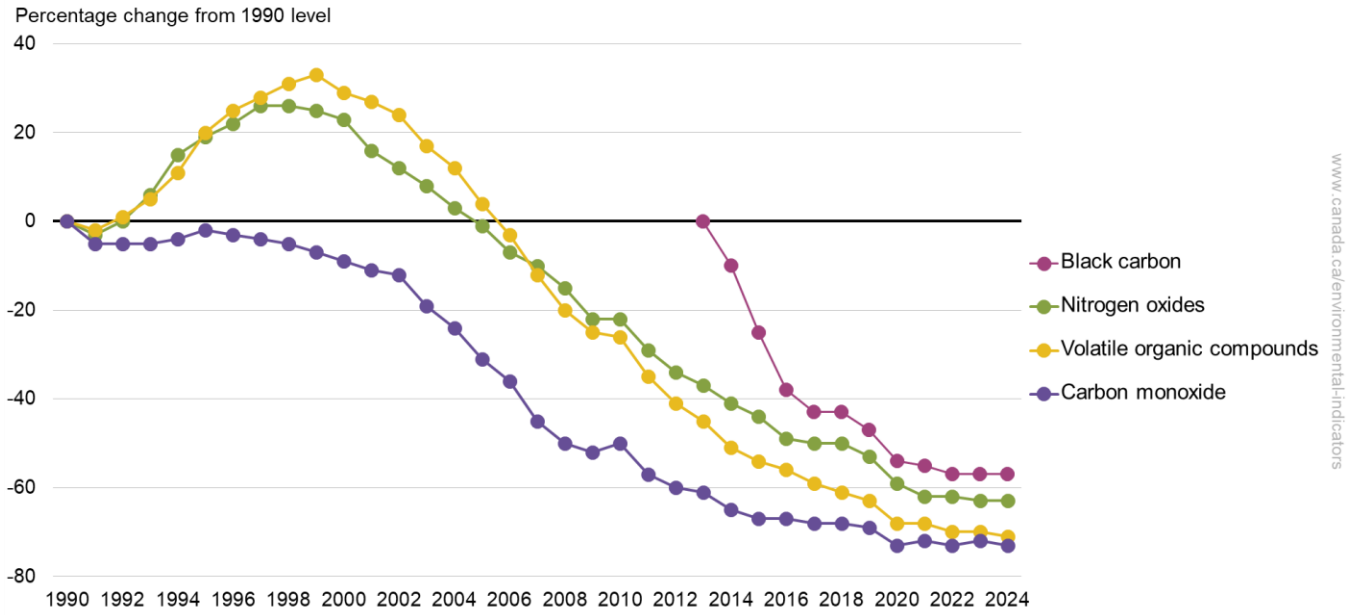
Changes in emissions from transportation, off-road vehicles and mobile equipment

Key results

- Between 1990 and 2024, total emissions of NO_X, VOCs and CO from transportation, off-road vehicles and mobile equipment decreased by 63%, 71% and 73%, respectively
    - Since 2000, all 3 pollutants demonstrated the same downward trend in their emissions levels
- Between 2013 and 2024, total black carbon emissions from transportation, off-road vehicles and mobile equipment decreased by 57%

[15] Off-road vehicles and mobile equipment include airport ground support equipment, commercial equipment (such as forklifts and ice resurfacers), farming, construction, forestry and mining equipment, industrial equipment, lawn and garden equipment, railway maintenance equipment, and recreational equipment and recreational marine equipment.

Figure 27. Changes in emissions of key air pollutants from transportation, off-road vehicles and mobile equipment, Canada, 1990 to 2024 and 2013 to 2024



Data for Figure 27

Note: Fine particulate matter, sulphur oxides and ammonia are not shown in the chart due to their low share (≤ 4%) of total emissions in 2024. Black carbon emissions reporting did not begin until 2013, marking the fist year of the Black Carbon Emissions Inventory.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory and Canada's Black Carbon Emissions Inventory.

Pollutant emissions have decreased despite economic and population growth as well as increased transportation activities for the period between 1990 and 2024. This decrease is mainly attributable to the adoption of new regulations that led to the gradual introduction of emission control technologies and clean fuel for vehicles.

Between 1990 and 2000, NO_X emissions increased by 23% (293 kt). This includes the increase in emissions from light trucks (130 kt or 116%), large trucks and buses (70 kt or 18%), marine transportation (10 kt or 17%) and air transportation (1 kt or 19%), which can be linked to economic and population growth during that time. From 2000 to 2024, new regulations contributed to a decrease in NO_X emissions (617 kt or 68%) from light trucks (91% or 220 kt), large trucks and buses (73% or 327 kt) and emissions from rail travel (50% or 70 kt).

Transportation emissions are influenced by a variety of factors. These include population and economic growth, volume of passenger and freight travel, vehicle type, emission control technologies, transportation infrastructure, fuel efficiency and fuel type.

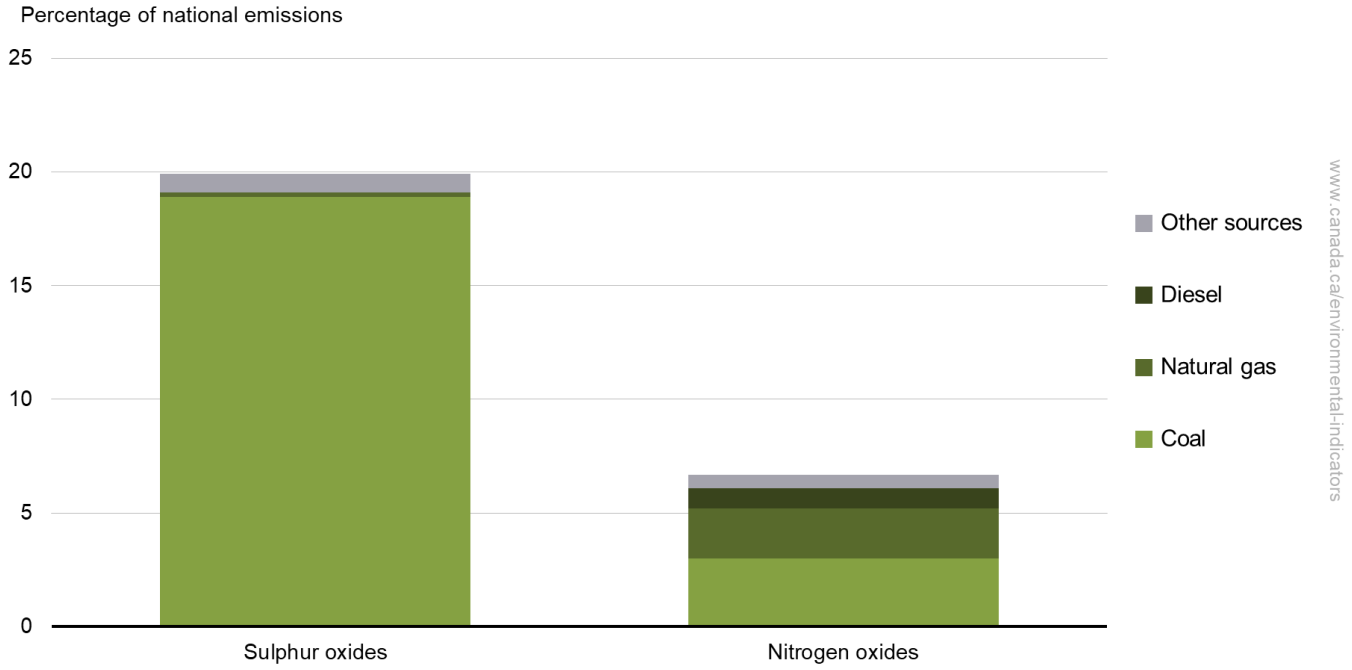
Air pollutant emissions from electric utilities

Electricity generation produces sulphur oxides (SO_X) and nitrogen oxides (NO_X). SO_X and NO_X are mostly emitted from power plants burning fossil fuels such as coal and, to a lesser extent, natural gas and diesel. These air pollutants contribute to the formation of fine particulate matter, ozone, smog and acid rain. They also adversely affect human health, the environment, and the economy.

Key results

- In 2024, electric utilities were the source of 20% and 7% of total national emissions of SO_X and NO_X, respectively
    - Most of the SOx and NOx emissions from electric utilities come from burning coal
- Electric utilities are also a source of carbon monoxide (CO), volatile organic compounds (VOCs), fine particulate matter ($PM_{2.5}$) and ammonia (NH_3) emissions. However, they account for only 1% of the total national emissions of these pollutants

Figure 28. Contribution of electric utilities to total air pollutant emissions by fuel source, Canada, 2024



Data for Figure 28

Note: Carbon monoxide, fine particulate matter, volatile organic compounds, ammonia and black carbon are not shown in the chart due to their low share (1%) of total emissions in 2024. The indicator excludes emissions from industries that generate electricity and heat as a supporting activity rather than as their primary purpose. "Other sources" include fuel sources such as waste material and other uncategorized sources of electricity generation.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

In 2024, 95% of SO_X and 45% of NO_X emissions from electric utilities came from burning coal.

A large share of the electricity generated in Canada comes from sources that do not directly emit air pollutants:

- 62% of electricity comes from hydroelectric power generation
- 13% comes from nuclear power plants
- 8% comes from non-hydroelectric renewable sources, such as wind, solar, tidal power and biomass[16]

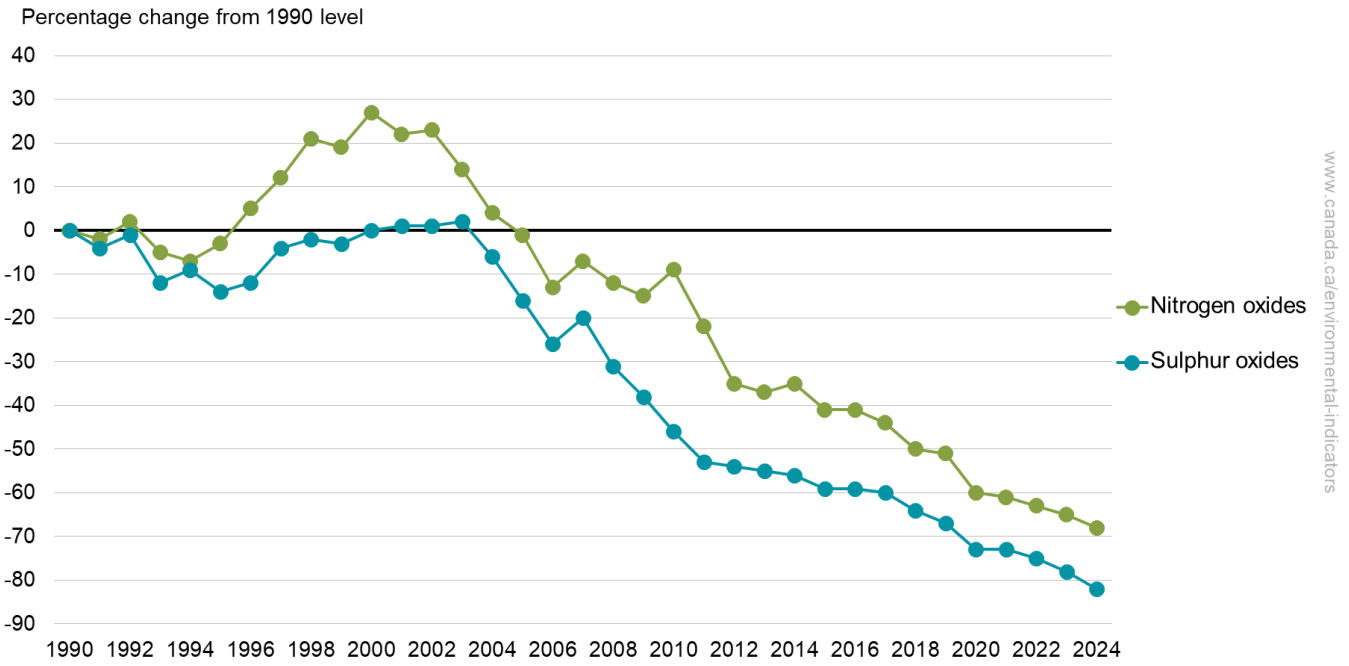
Changes in emissions from electric utilities

Key results

- Between 1990 and 2024
  - emissions of SO_X and NO_X from electric utilities declined by 82% and 68%, respectively
  - most of the decrease in emissions occurred from 2005 onward

[16] Natural Resources Canada (2024) About renewable energy in Canada. Retrieved on March 16, 2026.

Figure 29. Changes in emissions of key air pollutants from electric utilities, Canada, 1990 to 2024



Data for Figure 29

Note: Carbon monoxide, fine particulate matter, volatile organic compounds, ammonia and black carbon are not shown in the chart due to their low share (1%) of total emissions in 2024. Excludes emissions from industries that generate electricity and heat as a supporting activity rather than as their primary purpose.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

The majority of the reductions in SO_X and NO_X emissions between 1990 and 2024 occurred from 2005 onwards. Between 2005 and 2024, the percentage of electricity from burning fossil fuels fell from 25% to 19%. The decrease in emissions since 2005 are mainly due to reductions in the use of coal power plants for electricity generation[17] as a result of:

- the change in the mix of energy sources used to generate electricity
- the introduction of regulations targeting air pollutants and greenhouse gases emitted from electricity generation facilities
- domestic and international agreements
- better pollutant removal technologies used in smokestacks
- power plant closures

[17] Statistics Canada (2025) Table 25-10-0020-01 Electric power, annual generation by class of producer. Retrieved on March 16, 2026.

About the indicators

What the indicators measure

Air pollutant emissions indicators track emissions from human activities of 6 key air pollutants: sulphur oxides (SO_X), nitrogen oxides (NO_X), volatile organic compounds (VOCs), ammonia (NH_3), carbon monoxide (CO) and fine particulate matter ($PM_{2.5}$). Black carbon, which is a component of $PM_{2.5}$ produced by combustion, is also reported.[18] Sectoral indicators provide additional analysis on air pollutant emissions from the oil and gas industry, transportation, off-road vehicles and mobile equipment and electric utilities.

For each air pollutant, the indicators are provided at the national and provincial/territorial levels. They also identify the major sources of emissions and provide links to detailed information on air pollutant emissions from facilities.[19]

The graphs presenting emissions by province/territory, included in each pollutant's section (except black carbon), refer to the year 2005 to allow comparison with the amended Gothenburg Protocol reference year (reductions from 2005 levels to be achieved by 2020 and maintained thereafter).[20] The Gothenburg Protocol is an international treaty that commits countries to reduce their emissions of air pollutants. The Protocol ultimately improves Canadian air quality by reducing the transboundary flow of pollution Canada receives from other countries that are parties to it. The year 1990 is also included in these graphs as it marks the first year these substances were reported by the Air Pollutant Emissions Inventory, while 2024 represents the most recent year for which data is available. The year 2013 is also presented for black carbon, as that marks the first year of the Black Carbon Emissions Inventory.

Why these indicators are important

People living in Canada are exposed to air pollutants on a daily basis, which can cause adverse health and environmental effects. Fine particulate matter ($PM_{2.5}$) and ground-level ozone (O_3) are key components of smog and have been associated with pulmonary and cardiovascular health issues even at very low levels. Nitrogen oxides (NO_X, such as nitrogen dioxide [NO_2]) and volatile organic compounds (VOCs) are the main contributors to the formation of O_3 and have negative health effects on their own. Sulphur oxides (SO_X, such as sulphur dioxide [SO_2]), NH_3 and VOCs also lead to the formation of $PM_{2.5}$ in the air, in addition to the $PM_{2.5}$ that is emitted directly. Sulphur oxides and nitrogen oxides can also lead to acid deposition (e.g. acid rain) that can harm the environment, materials, living organisms, and humans.

The *Canadian Environmental Protection Act (*1999) contains more information on the federal regulations related to addressing air pollution. Additionally, Chapter 1 of Canada's Air Pollutant Emissions Inventory Report outlines relevant regulations and non-regulatory measures.

Black carbon is an air pollutant as well as a powerful climate pollutant. Black carbon is of particular significance in polar regions, where the deposition of particles on ice and snow darkens their surface, increasing the absorption of sunlight, and accelerating melting. Climate modelling shows that reducing emissions of black carbon is one of the most powerful actions to slow the pace of near-term warming in the Arctic,[21] a region that is already warming at a rate more than 3 times the global average.

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[18] Black carbon, a soot-like substance, is emitted from combustion processes as a component of $PM_{2.5}$, along with other components, such as organic carbon and inorganic compounds like sulphates. Fine particulate matter emissions from non-combustion sources, such as dust raised by traffic on paved and unpaved roads or by wind and machinery on open fields or mine sites, are not considered sources of black carbon. Environment and Climate Change Canada (2026) Canada's Black Carbon Emissions Inventory. Retrieved on March 16, 2026.

[19] Only facilities that had air pollutant emissions over a certain reporting threshold were included in the National Pollutant Releases Inventory (NPRI) reported data.

[20] The comparison with the amended Gothenburg protocol reference year (2005) does not apply to all pollutants presented in this indicator. Refer to Annex 4 in the Air Pollutant Emissions Inventory report for more information.

[21] von Salzen, K., Whaley, C.H., Anenberg, S.C. et al. Clean air policies are key for successfully mitigating Arctic warming. Nature Commun Earth Environ 3, 222 (2022). Retrieved on March 16, 2026.

The Air pollutant emissions indicators help track Canada’s progress in reducing air pollutant emissions from human-made sources and to assess how effective these emission reduction measures are in improving ambient air quality in Canada.

Related initiatives

The indicators are relevant to the Sustainable Development Goals of the 2030 Agenda for Sustainable Development. They are linked to the 2030 Agenda's Goal 11: Sustainable Cities and Communities and Target 11.6: "By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management."

The indicators also help Canada report against its international compliance commitments under the Convention on Long-range Transboundary Air Pollution's amended Gothenburg Protocol. Under the amended protocol, Canada has committed to emission reductions by 2020 and beyond for 4 air pollutants:

- sulphur dioxide (SO_2) (55% reduction from 2005 levels by 2020 and beyond)
- nitrogen oxides (NO_X) (35% reduction from 2005 levels by 2020 and beyond)
- volatile organic compounds (VOCs) (20% reduction from 2005 levels by 2020 and beyond)
- fine particulate matter ($PM_{2.5}$) (25% reduction from 2005 levels by 2020 and beyond) (the commitment excludes open source emissions from road dust, construction operations, and crop production)

Canada has met and maintained its emissions reduction commitments. In 2024, emissions were:

- 74% below 2005 levels for SO_2
- 47% below 2005 levels for NO_X
- 40% below 2005 levels for VOCs
- 41% below 2005 levels for $PM_{2.5}$ (the commitment excludes open source emissions from road dust, construction operations, and crop production)

The indicators also demonstrate Canada’s contribution to the Arctic Council’s collective goal for black carbon emissions. Canada and other Arctic States agreed to collectively reduce emissions of black carbon by 25% to 33% of 2013 levels by 2025. Canada is on track to exceed its share of the goal, having reduced emissions by 40% below 2013 levels in 2024.

Related indicators

The Air health trends indicator provides an overview of the public health impacts attributable to outdoor air pollution in Canada.

The Air quality indicators track ambient concentrations of fine particulate matter ($PM_{2.5}$), ozone (O_3), sulphur dioxide (SO_2), nitrogen dioxide (NO_2), and volatile organic compounds (VOCs) at the national and regional levels and at local monitoring stations.

The Emissions of harmful substances to air indicators track human-related emissions to air of 4 toxic substances, namely mercury, lead, cadmium and arsenic, and their compounds. For each substance, data are provided at the national, provincial/territorial and facility level and by source. Global emissions to air are also provided for mercury.

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 Greenhouse gas emissions from large facilities indicator reports GHG emissions from the largest GHG emitters in Canada (industrial and other types of facilities).

The International comparison: air pollutant emissions in selected countries indicators compare Canada's emissions of 5 key air pollutants with those of top emitting member countries of the Organisation for Economic Co-operation and Development (OECD).

The Population exposure to outdoor air pollutants indicator tracks the proportion of the Canadian population living in areas where outdoor concentrations of air pollutants are less than or equal to the 2020 Canadian Ambient Air Quality Standards.

Data sources and methods

Data sources

The Air pollutant emissions indicators track emissions of 6 key air pollutants: sulphur oxides (SO_X), nitrogen oxides (NO_X), volatile organic compounds (VOCs), ammonia (NH_3), carbon monoxide (CO) and fine particulate matter ($PM_{2.5}$). The emissions data used are from Canada's Air Pollutant Emissions Inventory for the years 1990 to 2024 by source at the national level and by province and territory.

Data for the black carbon indicator come from Canada's Black Carbon Emissions Inventory and are reported for the years 2013 to 2024 by source at the national level and by province and territory.

Data on reported air pollutant emissions by facility, shown in interactive maps, come from the National Pollutant Release Inventory and are available for the years 1993 to 2024.

More information

The Air Pollutant Emissions Inventory and the Black Carbon Emissions Inventory provide data and estimates on releases of air pollutants from human activities. These pollutants contribute to smog, acid rain, reduced air quality and climate change. Improvements to data and the methods for trend analysis are made periodically as new emission estimation methodologies are adopted and additional information is made available. Historical emissions are updated based on these improvements.

Air Pollutant Emissions Inventory

The Air Pollutant Emissions Inventory fulfills many of Canada's international obligations for reporting on pollution levels. Specifically, under the 1979 Convention on Long-range Transboundary Air Pollution, Canada has committed to submitting an annual inventory of emissions of key air pollutants to the United Nations Economic Commission for Europe. The inventory is a comprehensive assessment of 17 air pollutants,[22] combining emissions reported by facilities to the National Pollutant Release Inventory with emissions of all other sources estimated by Environment and Climate Change Canada. Estimates are developed using the latest estimation methods and are based on published statistics or other sources of information such as surveys and reports. The Air Pollutant Emission Inventory provides a comprehensive overview of pollutant emissions across Canada.

The national and provincial/territorial inventory data are current as of March 13, 2026 and cover the period from 1990 to 2024. Emissions data are compiled into a database for reporting approximately 1 year after data collection, validation and calculation have been completed. After this process is the interpretation of results and public reporting of the inventory. The Air pollutant emissions indicators are published following the public release of the inventory data.

Black carbon emissions inventory

As a member of the Arctic Council, Canada committed under the Framework for Action on Enhanced Black Carbon and Methane Emissions Reductions (2015) to submit periodic inventories of its black carbon emissions to the Arctic Council Secretariat. Canada also voluntarily reports black carbon emissions to the United Nations Economic Commission for Europe as a Party to the Gothenburg Protocol, which was amended in 2012 to add fine particulate matter (including black carbon). The Black Carbon Emissions Inventory is compiled using $PM_{2.5}$ emissions data from combustion-related sources from the Air Pollutant Emissions Inventory. Black carbon estimates are published separately from the Air Pollutant Emissions Inventory. The data are current as of March 13, 2026.

Black carbon is a short-lived climate pollutant (SLCP), meaning it contributes to warming but has a relatively short lifespan in the atmosphere (from a few days to a few weeks) This lifespan is short compared to carbon dioxide (CO_2), which can persist in the atmosphere for hundreds to thousands of years, and compared to other longer-lived greenhouse gases (GHGs). Although their life spans are short,

[22] Includes the 6 key air pollutants (sulphur oxides, nitrogen oxides, volatile organic compounds, ammonia, carbon monoxide and fine particulate matter) along with cadmium, lead, mercury, dioxins and furans, 4 types of polycyclic aromatic hydrocarbons, hexachlorobenzene, coarse particulate matter and total particulate matter.

SLCPs are potent contributors to warming of the Earth's surface.[23] When black carbon deposits on snow and ice, it darkens the surface, accelerating heating and melting, creating a warming impact that is particularly strong in the Arctic and other snow covered areas (including glaciers).[24] Reducing emissions of SLCPs, including black carbon, can help slow near-term warming – the impacts of reductions are seen quickly because SLCPs have such short lifespans in the atmosphere. The Intergovernmental Panel on Climate Change (IPCC) special report on Global Warming states that reductions in short-lived climate pollutants are required to limit warming to a maximum of 1.5ºC. Also, Canada's Changing Climate Report flags short-lived climate pollutants as an important part of climate policy discussions because mitigation can slow global temperature warming and improve air quality.

National Pollutant Release Inventory

The National Pollutant Release Inventory is a database of pollutant releases (to air, water and land), disposals and transfers for recycling from industrial, commercial and institutional facilities. The data from these facilities is provided by the operators of the facilities as mandated by the *Canadian Environmental Protection Act* (the Act). Under the Act, owners or operators of facilities that manufacture, process or otherwise use or release one or more of the substances tracked by the inventory, and meet substance-specific reporting thresholds and other requirements, must report their pollutant releases, disposals and transfers annually to the department. The inventory data from 1993 to 2024 are current as of May 19, 2026.

Methods

Emissions data from Canada's national inventories are used to produce the indicators for the 6 key air pollutants. Data are grouped to report on the sources that contribute the majority of emissions for each pollutant. Canada's national inventories use the latest advancements in scientific knowledge to estimate or measure emissions for the various air pollutant sources.

More information

Compilation of air pollutant emissions

The Air Pollutant Emissions Inventory is developed using 2 types of information:

- facility-reported data, consisting of emissions from relatively large industrial, commercial and institutional facilities
- in-house estimates, including diffuse sources and other sources that are too numerous to be accounted for individually, such as road and non-road vehicles, agricultural activities, construction and solvent use

The Air Pollutant Emissions Inventory is developed using many sources of information, procedures and emission estimation models. Emissions data reported by individual facilities to the department's National Pollutant Release Inventory are supplemented with documented, science-based estimation tools to quantify total emissions. Together, these data sources provide a comprehensive overview of pollutant emissions across Canada.

A compilation framework has been developed that makes use of the best available data, while ensuring that there are no double-counting or omissions. Additional information on the inventory compilation process is provided in Chapter 3 of the Air Pollutant Emissions Inventory Report.

Facility-reported emissions data

Facility-reported emissions data generally refers to any stationary sources that emit pollutants through stacks or other equipment at specific locations. The major source of facility-reported data is the National Pollutant Release Inventory.

[23] Environment and Climate Change Canada (2019) Short-lived climate pollutants. Retrieved on March 16, 2026.

[24] Climate and Clean Air Coalition (2022) Science: Black carbon. Retrieved on March 16, 2026.

Facility-reported data from the National Pollutant Release Inventory are used in the Air Pollutant Emissions Inventory without modifications, except when data quality issues are detected and not addressed during the quality control exercise. The National Pollutant Release Inventory reporting requirements and thresholds vary by pollutant and, in some cases, by industry. Details on these reporting requirements and thresholds are available on the National Pollutant Release Inventory website.

A distinction has been made between reporting facilities and non-reporting facilities. Reporting facilities meet the threshold required to report to the National Pollutant Release Inventory while non-reporting facilities do not meet these thresholds due to their size or emission levels and therefore are not required to report to the inventory. Some facilities may be required to report emissions of only certain pollutants. Therefore, emissions from the non-reporting facilities or of non-reported pollutants must be estimated in-house to ensure complete coverage of most sources.

In-house emission estimates

In-house emission estimates are calculated with information such as production data and activity data, using various estimation methodologies and emission models. These emission estimates are at the national provincial and territorial levels, rather than at any specific geographic locations. These include emissions from non-industrial, residential, commercial, transportation, and other sources, such as open burning, agricultural activities and construction operations. The Air Pollutant Emissions Inventory uses in-house estimates for the following emission sources:

- any residential, governmental, institutional, or commercial operation that does not report to the National Pollutant Release Inventory
- on-site solid waste disposal facilities
- motor vehicles, aircraft, vessels or other transportation equipment or devices
- other sources, such as open burning, agricultural activities and construction operations

In general, in-house emission estimates are calculated from activity data and emission factors.[25] Activity data usually comprise statistical production or process data at the provincial, territorial or national level. This information is typically provided by provincial/territorial agencies, federal government departments, industry associations, etc. For each source category, activity data are combined with emission factors to produce provincial/territorial-level emission estimates.

The in-house emission estimate methodologies and emission models used in Canada are often based on those developed by the United States Environmental Protection Agency (U.S. EPA) and are adapted to reflect the Canadian climate, fuels, technologies and practices. Methods used in Canada's Air Pollutant Emissions Inventory are therefore generally consistent with those used in the United States or those recommended in the emission inventory guidebook.[26]

The Air Pollutant Emissions Inventory reports air pollutant emissions from mobile sources such as on-road vehicles, off-road vehicles and engines. For the current edition of the Air Pollutant Emissions Inventory, an emissions estimation model developed by the U.S. EPA (MOVES) was used. The emissions for off-road vehicles and engines (such as graders, heavy trucks, outboard motors and lawnmowers) were estimated using the U.S. EPA's NONROAD emission estimation model (see "off-road vehicles and equipment" in Table A2-1 of Annex 2 of the Air Pollutant Emissions Inventory Report). The parameters in both models were modified to take into account variations in the Canadian vehicle fleet, emission control technologies, types of fuels, vehicle standards, and types of equipment engines and their application in various industries. The emission estimates for civil and international aviation, railways and navigation are

[25] The United States Environmental Protection Agency defines an emission factor as "…a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. These factors are usually expressed as the weight of pollutant divided by a unit weight, volume, distance, or duration of the activity emitting the pollutant (for example, kilograms of particulate emitted per megagram of coal burned)."

[26] European Monitoring and Evaluation Programme / European Environment Agency (2023). EMEP/EEA Air Pollutant Emission Inventory Guidebook 2023 Technical Guidance to Prepare National Emission Inventories. Luxembourg: Publications Office of the European Union. Technical Report No. 06/2023.

estimated using detailed vehicle movement statistics coupled with fuel consumption, engine information, and emission rates by vehicle types.

Calculation of black carbon emissions

Emissions of black carbon are calculated by applying factors to estimate the fraction of black carbon in $PM_{2.5}$ emissions from combustion-related sources, with some exceptions, for example, the mobile sources, where models are used. The factors primarily come from the United States Environmental Protection Agency's SPECIATE database. SPECIATE is a repository of particulate matter speciation profiles[27] of air pollution sources. The ratios used for each source are available on the Government of Canada's Open Data Portal. More information on black carbon emission estimation methods can be found in Chapter 3 of Canada's Black Carbon Inventory Report.

Recalculations

Emission recalculation is an essential practice in the maintenance of an up-to-date air pollutant emissions inventory. The Air Pollutant Emissions Inventory is continuously updated with improved estimation methodologies, statistics and more recent and appropriate emission factors. As new information and data become available, previous estimates are updated and recalculated to ensure a consistent and comparable trend in emissions. Recalculations of previously reported emission estimates are common for both in-house estimates and facility-reported emission data. More information on recalculations is provided in Annex 3 of the Air Pollutant Emissions Inventory Report.

Emissions reconciliation

In several sectors, estimation of total emissions involves combining estimates provided by facilities with estimates developed in-house by the department. To prevent double counting of emissions and to confirm that the Air Pollutant Emissions Inventory includes all emissions, a comparison and reconciliation of emission estimates from various sources is performed for each pollutant, industry sector and geographical region, as appropriate. More information on the reconciliation process is provided in section 3.4 of the Air Pollutant Emissions Inventory Report.

Temporal coverage

Historical data are provided at the national level for the period from 1990 to 2024, except for black carbon, which covers the period from 2013 to 2024. For the regional indicators (provincial/territorial), emissions are presented for 1990 (2013 for black carbon) and 2024. Facility level emissions information are available from 2012 to 2024.

Air pollutant emissions by source classification

For the purpose of reporting the indicators, calculated emissions data from the Air Pollutant Emissions Inventory and Black Carbon Emissions Inventory are grouped into the following 13 sources:

1. agriculture (livestock, crop production and fertilizer)
2. building heating and energy generation
3. dust and fires
4. electric utilities
5. home firewood burning
6. incineration and waste
7. manufacturing
8. miscellaneous
9. off-road vehicles and mobile equipment

[27] A speciation profile is the dataset that breaks down $PM_{2.5}$ emitted from a particular source into its different components (black carbon and organic carbon). Environment and Climate Change Canada (2026) Canada's Black Carbon Emissions Inventory 2026. Retrieved on March 16, 2026.

10. oil and gas industry
11. ore and mineral industries
12. paints and solvents
13. transportation (road, rail, air and marine)

Table 1 shows the allocation of air pollutant emission sources reported in the indicators compared with the sources and sectors reported by the Air Pollutant Emissions Inventory.

Table 1. Alignment of sources reported in the indicators with the sources and sectors from the Air Pollutant Emissions Inventory/Black Carbon Emissions Inventory

Sources in the indicators	Sources and sectors in the Air Pollutant Emissions Inventory and Black Carbon Emissions Inventory
Agriculture (livestock, crop production and fertilizer)	Agriculture: Animal production
Agriculture (livestock, crop production and fertilizer)	Agriculture: Crop production
Agriculture (livestock, crop production and fertilizer)	Agriculture: Agricultural fuel combustion
Building heating and energy generation	Commercial/Residential/Institutional: Commercial and institutional fuel combustion
Building heating and energy generation	Commercial/Residential/Institutional: Residential fuel combustion
Dust and fires	Dust: Coal transportation
Dust and fires	Dust: Construction operations
Dust and fires	Dust: Mine tailings
Dust and fires	Dust: Paved roads
Dust and fires	Dust: Unpaved roads
Dust and fires	Fires: Prescribed burning
Dust and fires	Fires: Structural fires
Electric utilities	Electric power generation (utilities): Coal
Electric utilities	Electric power generation (utilities): Diesel
Electric utilities	Electric power generation (utilities): Natural gas
Electric utilities	Electric power generation (utilities): Landfill gas[A]
Electric utilities	Electric power generation (utilities): Other (electric power generation)
Home firewood burning	Commercial/Residential/Institutional: Home firewood burning
Incineration and waste	Incineration and waste: Crematoriums
Incineration and waste	Incineration and waste: Waste incineration
Incineration and waste	Incineration and waste: Waste treatment and disposal
Manufacturing	Manufacturing: Abrasives manufacturing
Manufacturing	Manufacturing: Bakeries
Manufacturing	Manufacturing: Biofuel production
Manufacturing	Manufacturing: Chemicals industry

Sources in the indicators	Sources and sectors in the Air Pollutant Emissions Inventory and Black Carbon Emissions Inventory
Manufacturing	Manufacturing: Construction fuel combustion
Manufacturing	Manufacturing: Electronics
Manufacturing	Manufacturing: Food preparation
Manufacturing	Manufacturing: Glass manufacturing
Manufacturing	Manufacturing: Grain industry
Manufacturing	Manufacturing: Metal fabrication
Manufacturing	Manufacturing: Plastics manufacturing
Manufacturing	Manufacturing: Pulp and paper industry
Manufacturing	Manufacturing: Textiles
Manufacturing	Manufacturing: Vehicle manufacturing (engines, parts, assembly, painting)
Manufacturing	Manufacturing: Wood products
Manufacturing	Manufacturing: Other (manufacturing)
Miscellaneous	Commercial/Residential/Institutional: Commercial cooking
Miscellaneous	Commercial/Residential/Institutional: Human[B]
Miscellaneous	Commercial/Residential/Institutional: Marine cargo handling
Miscellaneous	Commercial/Residential/Institutional: Other (miscellaneous)
Miscellaneous	Commercial/Residential/Institutional: Service stations
Off-road vehicles and mobile equipment	Transportation and mobile equipment: Off-road diesel vehicles and equipment
Off-road vehicles and mobile equipment	Transportation and mobile equipment: Off-road gasoline / liquefied petroleum gas / natural gas vehicles and equipment
Oil and gas industry	Oil and gas industry: Downstream oil and gas industry
Oil and gas industry	Oil and gas industry: Upstream oil and gas industry
Ore and mineral industries	Ore and mineral industries: Aluminum industry
Ore and mineral industries	Ore and mineral industries: Asphalt paving industry
Ore and mineral industries	Ore and mineral industries: Cement and concrete industry
Ore and mineral industries	Ore and mineral industries: Foundries
Ore and mineral industries	Ore and mineral industries: Iron and steel industry
Ore and mineral industries	Ore and mineral industries: Iron ore pelletizing
Ore and mineral industries	Ore and mineral industries: Mineral products industry
Ore and mineral industries	Ore and mineral industries: Mining and rock quarrying
Ore and mineral industries	Ore and mineral industries: Non-ferrous refining and smelting industry
Paints and solvents	Paints and solvents: Dry cleaning
Paints and solvents	Paints and solvents: General solvent use
Paints and solvents	Paints and solvents: Printing

Sources in the indicators	Sources and sectors in the Air Pollutant Emissions Inventory and Black Carbon Emissions Inventory
Paints and solvents	Paints and solvents: Surface coatings
Transportation (road, rail, air and marine)	Transportation and mobile equipment: Air transportation
Transportation (road, rail, air and marine)	Transportation and mobile equipment: Heavy-duty diesel vehicles
Transportation (road, rail, air and marine)	Transportation and mobile equipment: Heavy-duty gasoline vehicles
Transportation (road, rail, air and marine)	Transportation and mobile equipment: Heavy-duty liquefied petroleum gas / natural gas vehicles
Transportation (road, rail, air and marine)	Transportation and mobile equipment: Light-duty diesel trucks
Transportation (road, rail, air and marine)	Transportation and mobile equipment: Light-duty diesel vehicles
Transportation (road, rail, air and marine)	Transportation and mobile equipment: Light-duty gasoline trucks
Transportation (road, rail, air and marine)	Transportation and mobile equipment: Light-duty gasoline vehicles
Transportation (road, rail, air and marine)	Transportation and mobile equipment: Light-duty liquefied petroleum gas / natural gas trucks
Transportation (road, rail, air and marine)	Transportation and mobile equipment: Light-duty liquefied petroleum gas / natural gas vehicles
Transportation (road, rail, air and marine)	Transportation and mobile equipment: Domestic marine navigation, fishing and military
Transportation (road, rail, air and marine)	Transportation and mobile equipment: Motorcycles
Transportation (road, rail, air and marine)	Transportation and mobile equipment: Rail transportation
Transportation (road, rail, air and marine)	Transportation and mobile equipment: Tire wear and brake lining

Note: [A] Includes electric power generation from combustion of waste materials by utilities and by industry for commercial sale and/or private use. [B] Includes human respiration, perspiration and dental amalgams.

For display purposes, smaller emitting sources are sometimes grouped together under the title “Other sources” in the charts of air pollutant emissions by source. The names of the sources grouped as such are listed in the notes of each chart.

Sectoral indicators

Sectoral indicators provide additional analysis on air pollutant emissions from transportation, off-road vehicles and mobile equipment, electric utilities and the oil and gas industry. These indicators rely on calculated emissions data from the Air Pollutant Emissions Inventory and the Black Carbon Emissions Inventory.

These indicators are provided at the national level. They identify the contribution of each sector to the national emissions of air pollutants for the year 2024. They also provide information about emissions of selected pollutants, by sector, for the period from 1990 to 2024.

Tables 2 through 4 below show the alignment of air pollutant emission sources reported in the Air pollutant emissions indicators compared with those reported by the sectoral indicators.

Table 2. Alignment of sources reported in the transportation, off-road vehicles and mobile equipment indicator of Air pollutant emissions with the sources and sectors from the Air Pollutant Emissions Inventory/Black Carbon Emissions Inventory

Air pollutant emissions from transportation, off-road vehicles and mobile equipment	Sources and sectors in the Air Pollutant Emissions Inventory and Black Carbon Emissions Inventory
Air, marine and rail travel	Transportation and mobile equipment: Air transportation
Air, marine and rail travel	Transportation and mobile equipment: Domestic marine navigation, fishing and military
Air, marine and rail travel	Transportation and mobile equipment: Rail transportation
Large trucks and buses	Transportation and mobile equipment: Heavy-duty diesel vehicles
Large trucks and buses	Transportation and mobile equipment: Heavy-duty gasoline vehicles
Large trucks and buses	Transportation and mobile equipment: Heavy-duty liquefied petroleum gas / natural gas vehicles
Off-road vehicles and equipment, tire wear and brake lining	Transportation and mobile equipment: Off-road diesel vehicles and equipment
Off-road vehicles and equipment, tire wear and brake lining	Transportation and mobile equipment: Off-road gasoline / liquefied petroleum gas / natural gas vehicles and equipment
Off-road vehicles and equipment, tire wear and brake lining	Transportation and mobile equipment: Tire wear and brake lining
Passenger cars and motorcycles	Transportation and mobile equipment: Light-duty diesel vehicles
Passenger cars and motorcycles	Transportation and mobile equipment: Light-duty gasoline vehicles
Passenger cars and motorcycles	Transportation and mobile equipment: Light-duty liquefied petroleum gas / natural gas vehicles
Passenger cars and motorcycles	Transportation and mobile equipment: Motorcycles
Passenger light trucks	Transportation and mobile equipment: Light-duty diesel trucks
Passenger light trucks	Transportation and mobile equipment: Light-duty gasoline trucks
Passenger light trucks	Transportation and mobile equipment: Light-duty liquefied petroleum gas / natural gas trucks

Table 3. Alignment of sources reported in the electric utilities indicator of Air pollutant emissions with the sources and sectors from the Air Pollutant Emissions Inventory/Black Carbon Emissions Inventory

Air pollutant emissions from electric utilities	Sources and sectors in the Air Pollutant Emissions Inventory and Black Carbon Emissions Inventory
Coal	Electric power generation (utilities): Coal
Diesel	Electric power generation (utilities): Diesel
Natural gas	Electric power generation (utilities): Natural gas
Other	Electric power generation (utilities): Waste materials[A]
Other	Electric power generation (utilities): Other (electric power generation)

Note: [A] Includes electric power generation from combustion of waste materials by utilities and by industry for commercial sale and/or private use.

Table 4. Alignment of sources reported in the oil and gas industry indicator of Air pollutant emissions with the sources and sectors from the Air Pollutant Emissions Inventory/Black Carbon Emissions Inventory

Air pollutant emissions from the oil and gas industry	Sources and sectors in the Air Pollutant Emissions Inventory and Black Carbon Emissions Inventory
Downstream oil and gas	Oil and gas industry: Downstream oil and gas industry
Upstream oil and gas	Oil and gas industry: Upstream oil and gas industry

Recent changes

The emission estimates reported in Canada's Air Pollutant Emissions Inventory and Canada's Black Carbon Emissions Inventory used in the indicators undergo continuous improvements, leading to recalculations. Annex 3 of the Air Pollutant Emissions Inventory Report and section 3.2 of Canada's Black Carbon Emissions Inventory Report contain more information about the recent changes made.

Caveats and limitations

The methodologies for compiling air pollutant emissions generally improve over time, and revisions are frequently made to the Air Pollution Emissions Inventory. As a result of this, the emissions and trends reported for the indicators may be different from those previously published.

Some area source emissions were not updated for 2024 due to the unavailability of activity-level statistics at the time of compilation. In these cases, the emission estimates from the most recent year available were used.

The Air Pollutant Emissions Inventory (APEI) uses facility information from the National Pollutant Release Inventory and other sources. The version of the data published by the National Pollutant Release Inventory may not be identical to that used in the Air Pollutant Emissions Inventory at a given time because of updates to point source data from National Pollutant Release Inventory reporting. The inventory also uses different rounding protocols in its final report and total emissions reported in the indicators may be slightly different.

The Black Carbon Emissions Inventory generally uses the same sources as the APEI. However, work continues to improve the completeness and accuracy of the inventory, quantifying the emissions that are not yet captured.

Resources

References

Environment and Climate Change Canada (2015) Climate and Clean Air Coalition. Retrieved on March 16, 2026.

Environment and Climate Change Canada (2017) Using and interpreting data from the National Pollutant Release Inventory. Retrieved on May 19, 2026.

Environment and Climate Change Canada (2025) National Pollutant Release Inventory: tools and resources. Retrieved on May 19, 2026.

Environment and Climate Change Canada (2026) National Pollutant Release Inventory. Retrieved on May 19, 2026.

Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory Report. Retrieved on March 16, 2026.

Environment and Climate Change Canada (2026) Canada's Black Carbon Inventory Report. Retrieved on March 16, 2026.

Annex

Annex A. Data tables for the figures presented in this document

Table A. 1. Data for Figure 1. Air pollutant emissions, Canada, 1990 to 2024

Year	Sulphur oxides (percentage change from 1990 level)	Nitrogen oxides (percentage change from 1990 level)	Volatile organic compounds (percentage change from 1990 level)	Ammonia (percentage change from 1990 level)	Carbon monoxide (percentage change from 1990 level)	Fine particulate matter (percentage change from 1990 level)
1990	0	0	0	0	0	0
1991	-8	-3	-1	-1	-3	-3
1992	-11	0	0	2	-3	-6
1993	-15	4	4	3	-2	-6
1994	-21	10	8	7	-2	-6
1995	-17	14	10	14	0	-6
1996	-16	17	13	18	-2	-8
1997	-18	22	13	19	-5	-8
1998	-19	23	13	19	-7	-10
1999	-21	23	12	18	-9	-12
2000	-21	21	11	20	-11	-12
2001	-21	15	8	20	-14	-14
2002	-23	14	8	22	-16	-18
2003	-25	13	5	22	-20	-19
2004	-25	6	2	25	-26	-21
2005	-29	1	3	24	-31	-20
2006	-35	-5	-3	21	-37	-24
2007	-37	-6	-6	23	-43	-23
2008	-44	-10	-10	20	-46	-21
2009	-53	-16	-17	16	-48	-25
2010	-56	-15	-18	14	-48	-23
2011	-59	-20	-21	14	-52	-23
2012	-60	-25	-21	18	-54	-20
2013	-60	-26	-19	21	-55	-18
2014	-62	-28	-19	19	-57	-16
2015	-64	-31	-23	19	-59	-20
2016	-65	-34	-28	19	-59	-25
2017	-68	-34	-28	17	-60	-24
2018	-73	-34	-27	21	-61	-23
2019	-76	-36	-30	21	-62	-22
2020	-78	-43	-39	25	-66	-27
2021	-79	-44	-38	26	-65	-26
2022	-78	-44	-38	22	-66	-26
2023	-80	-45	-38	25	-66	-24

Year	Sulphur oxides (percentage change from 1990 level)	Nitrogen oxides (percentage change from 1990 level)	Volatile organic compounds (percentage change from 1990 level)	Ammonia (percentage change from 1990 level)	Carbon monoxide (percentage change from 1990 level)	Fine particulate matter (percentage change from 1990 level)
2024	-81	-46	-38	28	-66	-22

Note: The indicator reports emissions of 6 key air pollutants from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. Emissions from black carbon, a component of $PM_{2.5}$, are also not included.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 2. Data for Figure 2. Distribution of air pollutant emissions by source, Canada, 2024

Source	Sulphur oxides (percentage of national emissions)	Nitrogen oxides (percentage of national emissions)	Volatile organic compounds (percentage of national emissions)	Ammonia (percentage of national emissions)	Carbon monoxide (percentage of national emissions)	Fine particulate matter (percentage of national emissions)
Oil and gas industry	42.5	37.1	40.2	0.5	12.1	1.2
Manufacturing	6.4	5.5	8.6	2.2	2.6	1.4
Ore and mineral industries	30.0	7.0	0.9	0.3	11.4	2.7
Transportation (road, rail, air and marine)	0.5	25.0	4.9	1.3	23.1	0.7
Off-road vehicles and mobile equipment	<0.1	13.4	8.5	<0.1	36.4	1.2
Building heating and energy generation	0.3	4.7	0.2	<0.1	0.7	0.4
Electric utilities	19.9	6.7	0.1	<0.1	0.7	0.1
Home firewood burning	<0.1	0.3	4.4	0.1	11.3	4.3
Incineration and waste	0.4	0.3	0.8	1.4	0.2	<0.1
Paints and solvents	n/a	<0.1	19.0	n/a	<0.1	<0.1
Agriculture (livestock, crop production and fertilizer)	<0.1	0.2	8.3	93.7	<0.1	30.5
Dust and fires	<0.1	<0.1	0.3	<0.1	1.3	56.0
Miscellaneous	<0.1	<0.1	3.7	0.1	0.2	1.4

Note: n/a = not available. The indicator reports emissions of 6 key air pollutants from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. Emissions from black carbon, a component of $PM_{2.5}$, are also not included. The percentages have been rounded off, and their sum may not add up to 100.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 3. Data for Figure 3. Distribution of air pollutant emissions by province and territory, Canada, 2024

Province or territory	Sulphur oxides (percentage of national emissions)	Nitrogen oxides (percentage of national emissions)	Volatile organic compounds (percentage of national emissions)	Ammonia (percentage of national emissions)	Carbon monoxide (percentage of national emissions)	Fine particulate matter (percentage of national emissions)
Newfoundland and Labrador	1.8	2.9	1.0	0.2	1.3	1.3
Prince Edward Island	<0.1	0.2	0.3	0.5	0.4	0.3

Province or territory	Sulphur oxides (percentage of national emissions)	Nitrogen oxides (percentage of national emissions)	Volatile organic compounds (percentage of national emissions)	Ammonia (percentage of national emissions)	Carbon monoxide (percentage of national emissions)	Fine particulate matter (percentage of national emissions)
Nova Scotia	5.8	2.3	1.5	0.6	2.1	1.3
New Brunswick	1.6	1.7	1.4	0.8	1.9	1.1
Quebec	16.5	10.2	13.7	12.4	26.6	13.3
Ontario	17.1	14.6	20.1	18.7	21.3	18.7
Manitoba	0.3	2.3	3.9	12.1	3.8	6.1
Saskatchewan	20.6	8.2	14.1	22.6	7.5	22.1
Alberta	25.9	41.8	35.5	27.9	23.2	24.8
British Columbia	10.4	13.9	8.2	4.1	11.5	10.1
Yukon	<0.1	0.2	<0.1	<0.1	0.2	0.2
Northwest Territories	<0.1	0.8	0.1	<0.1	0.2	0.3
Nunavut	<0.1	1.0	<0.1	<0.1	0.1	0.4

Note: The indicator reports emissions of 6 key air pollutants from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. Emissions from black carbon, a component of $PM_{2.5}$, are also not included. The percentages have been rounded off, and their sum may not add up to 100.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 4. Data for Figure 4. Total sulphur oxide emissions by source, Canada, 1990 to 2024

Year	Oil and gas industry (emissions in kilotonnes)	Ore and mineral industries (emissions in kilotonnes)	Electric utilities (emissions in kilotonnes)	Other sources (emissions in kilotonnes)	Total emissions (emissions in kilotonnes)
1990	539.5	1,410.5	618.4	371.9	2,940.2
1991	545.6	1,255.8	592.1	324.4	2,717.8
1992	585.1	1,107.0	610.7	310.8	2,613.5
1993	613.5	1,036.0	547.2	315.7	2,512.4
1994	610.7	828.7	559.8	316.3	2,315.5
1995	604.8	1,038.8	532.6	268.3	2,444.5
1996	608.2	1,028.5	542.2	281.6	2,460.4
1997	564.4	978.4	591.3	280.5	2,414.6
1998	534.0	979.6	603.6	273.5	2,390.7
1999	524.8	916.3	601.1	278.2	2,320.4
2000	521.5	910.7	619.2	278.3	2,329.7
2001	503.2	909.0	623.9	273.3	2,309.4
2002	470.4	908.5	624.3	268.2	2,271.4
2003	476.0	816.6	630.4	275.7	2,198.8
2004	467.6	879.8	581.5	282.1	2,211.0
2005	460.5	861.8	521.9	251.0	2,095.2
2006	422.5	833.3	458.9	182.4	1,897.1
2007	400.5	779.8	491.9	169.8	1,841.8
2008	374.3	716.1	427.5	142.7	1,660.6
2009	366.7	523.1	384.0	121.3	1,395.1

Year	Oil and gas industry (emissions in kilotonnes)	Ore and mineral industries (emissions in kilotonnes)	Electric utilities (emissions in kilotonnes)	Other sources (emissions in kilotonnes)	Total emissions (emissions in kilotonnes)
2010	333.9	502.1	333.9	114.7	1,284.6
2011	321.9	467.8	293.2	109.0	1,192.0
2012	324.1	477.5	284.2	94.1	1,180.0
2013	309.2	492.9	278.2	82.9	1,163.3
2014	280.4	487.8	269.2	78.0	1,115.3
2015	253.5	483.5	251.5	65.6	1,054.1
2016	238.7	481.8	253.1	58.5	1,032.1
2017	246.4	389.1	245.4	55.3	936.3
2018	256.5	258.2	220.2	57.0	791.9
2019	257.3	183.2	205.4	52.8	698.7
2020	233.0	195.1	168.2	43.5	639.8
2021	248.9	162.1	169.0	45.7	625.6
2022	262.2	177.2	152.3	46.0	637.7
2023	247.5	169.9	134.8	41.3	593.4
2024	231.5	163.4	108.5	42.0	545.5

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. The category "other sources" includes emissions from transportation (road, rail, air and marine), off-road vehicles and mobile equipment, home firewood burning, incineration and waste, agriculture (livestock, crop production and fertilizer), dust and fires, paints and solvents, building heating and energy generation, manufacturing, and other miscellaneous sources. Consult Table 1 in the Data sources and methods for a complete list of the air pollutant emissions sources included under each category. The numbers have been rounded off, and their sum may not correspond to the total.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 5. Data for Figure 5. Sulphur oxide emissions by province and territory, Canada, 1990, 2005 and 2024

Province or territory	1990 (emissions in kilotonnes)	2005 (emissions in kilotonnes)	2024 (emissions in kilotonnes)
Newfoundland and Labrador	70.9	52.5	9.9
Prince Edward Island	3.7	2.7	0.2
Nova Scotia	202.4	149.3	31.8
New Brunswick	108.0	93.3	8.7
Quebec	251.4	226.2	89.8
Ontario	1,069.2	499.9	93.1
Manitoba	509.0	397.2	1.9
Saskatchewan	107.6	150.9	112.1
Alberta	509.2	458.4	141.1
British Columbia	105.1	61.0	56.6
Yukon	0.7	1.3	<0.1
Northwest Territories	3.3 [A]	0.8	0.2
Nunavut[A]	n/a	1.8	0.2

Note: [A] 1990 emissions data for the Northwest Territories include emissions for Nunavut, which was part of the Northwest Territories until 1999. n/a = not applicable. The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 6. Data for Figure 7. Total nitrogen oxide emissions by source, Canada, 1990 to 2024

Year	Oil and gas industry (emissions in kilotonnes)	Transportation (road, rail, air and marine) (emissions in kilotonnes)	Other sources (emissions in kilotonnes)	Off-road vehicles and mobile equipment (emissions in kilotonnes)	Electric utilities (emissions in kilotonnes)	Total emissions (emissions in kilotonnes)
1990	344.1	894.1	362.4	366.6	257.0	2,224.1
1991	337.5	889.2	349.0	337.7	250.9	2,164.4
1992	353.6	930.7	340.9	332.6	262.9	2,220.7
1993	378.8	998.1	347.5	336.8	243.0	2,304.2
1994	411.0	1,102.4	353.2	348.1	240.0	2,454.7
1995	427.0	1,139.8	353.7	359.8	248.1	2,528.3
1996	439.2	1,175.3	349.5	367.3	269.0	2,600.3
1997	483.0	1,206.5	350.1	385.8	287.7	2,713.1
1998	494.7	1,207.9	333.3	380.4	310.1	2,726.3
1999	512.0	1,189.7	339.4	384.1	306.4	2,731.6
2000	456.4	1,159.0	344.1	394.9	326.8	2,681.2
2001	450.9	1,094.7	328.3	373.8	313.0	2,560.6
2002	451.7	1,053.9	364.5	352.6	314.9	2,537.7
2003	493.2	1,004.2	363.2	352.1	293.0	2,505.7
2004	427.3	961.8	352.5	342.0	267.5	2,351.1
2005	427.7	915.9	323.9	333.9	253.7	2,255.2
2006	427.4	864.3	283.6	307.3	224.3	2,106.9
2007	450.3	846.1	267.4	284.2	238.8	2,086.9
2008	459.8	801.5	246.4	267.8	225.1	2,000.6
2009	454.9	744.9	219.6	234.0	218.0	1,871.4
2010	445.1	718.7	227.4	259.4	233.7	1,884.2
2011	457.2	630.4	231.4	265.4	199.8	1,784.1
2012	449.5	583.1	228.6	248.6	166.3	1,676.1
2013	451.8	553.8	226.4	243.9	162.0	1,637.9
2014	462.1	521.5	227.8	225.6	167.2	1,604.2
2015	464.7	466.2	224.4	236.2	152.3	1,543.8
2016	457.0	413.9	220.4	224.9	152.4	1,468.6
2017	465.1	395.6	232.0	237.4	145.0	1,475.0
2018	475.5	395.2	228.0	232.6	129.0	1,460.5
2019	469.0	372.9	225.7	223.0	124.8	1,415.4
2020	445.0	320.1	214.9	190.5	101.9	1,272.5
2021	439.4	294.2	219.0	189.7	100.1	1,242.5
2022	443.8	297.1	221.9	180.7	95.2	1,238.7
2023	447.4	297.7	220.6	172.1	90.3	1,228.1
2024	446.7	301.7	214.3	161.2	81.1	1,204.9

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. The category "other sources" includes emissions from ore and mineral industries, manufacturing, building heating and energy generation, home firewood burning, incineration and waste, agriculture (livestock, crop production and fertilizer), dust and fires, paints and solvents, and other miscellaneous sources. Consult Table 1 in the Data sources and methods section for a complete list of the air pollutant emissions sources included under each category. The numbers have been rounded off, and their sum may not correspond to the total.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 7. Data for Figure 8. Nitrogen oxide emissions by province and territory, Canada, 1990, 2005 and 2024

Province or territory	1990 (emissions in kilotonnes)	2005 (emissions in kilotonnes)	2024 (emissions in kilotonnes)
Newfoundland and Labrador	49.0	59.6	34.4
Prince Edward Island	6.3	6.8	3.0
Nova Scotia	80.8	87.8	27.7
New Brunswick	77.9	69.8	20.0
Quebec	305.1	281.8	123.1
Ontario	589.4	537.8	175.7
Manitoba	70.1	66.6	27.3
Saskatchewan	146.2	173.1	99.4
Alberta	605.2	663.2	503.5
British Columbia	280.3	284.2	167.1
Yukon	3.3	2.5	2.4
Northwest Territories	10.4 [A]	14.3	9.7
Nunavut[A]	n/a	7.8	11.5

Note: [A] 1990 emissions data for the Northwest Territories include emissions for Nunavut, which was part of the Northwest Territories until 1999. n/a = not applicable. The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 8. Data for Figure 10. Total volatile organic compound emissions by source, Canada, 1990 to 2024

Year	Oil and gas industry (emissions in kilotonnes)	Paints and solvents (emissions in kilotonnes)	Off-road vehicles and mobile equipment (emissions in kilotonnes	Manufacturing (emissions in kilotonnes)	Agriculture (livestock, crop production and fertilizer) (emissions in kilotonnes)	Other sources (emissions in kilotonnes)	Transportation (road, rail, air and marine) (emissions in kilotonnes)	Home firewood burning (emissions in kilotonnes)	Total emissions (emissions in kilotonnes)
1990	605.1	343.3	287.2	257.1	103.6	146.8	346.9	108.0	2,198.0
1991	600.4	336.0	286.9	253.8	103.6	147.8	335.4	109.6	2,173.6
1992	614.6	338.3	296.5	254.7	105.3	132.8	345.6	116.4	2,204.1
1993	643.1	337.1	305.0	271.1	105.1	155.4	362.4	117.6	2,296.8
1994	661.1	348.1	322.1	273.0	107.5	151.9	384.2	115.1	2,363.0
1995	672.9	361.3	382.2	262.8	111.5	146.7	376.9	113.1	2,427.3
1996	702.4	358.7	409.3	262.3	114.5	136.1	380.2	116.0	2,479.5
1997	688.9	359.8	439.5	257.5	115.2	123.7	373.4	115.8	2,473.8
1998	701.5	361.6	466.4	261.5	115.6	125.0	366.3	93.2	2,491.2
1999	654.2	373.1	489.9	259.3	116.0	119.2	351.5	90.7	2,453.8
2000	668.7	379.7	488.5	254.5	116.9	116.2	330.3	92.5	2,447.2
2001	673.0	357.5	494.2	229.4	119.9	111.7	309.8	80.1	2,375.5
2002	684.0	361.2	496.2	232.4	121.0	108.0	290.1	77.8	2,370.7
2003	677.8	364.1	481.0	216.0	120.6	120.0	263.5	73.8	2,316.8
2004	656.8	362.2	469.0	200.9	124.5	108.1	243.8	79.1	2,244.4
2005	652.7	438.9	445.7	187.1	125.6	105.3	215.9	82.0	2,253.2
2006	630.7	417.1	414.2	165.3	123.0	97.0	198.2	80.9	2,126.5
2007	627.8	409.4	372.3	149.8	120.9	92.9	188.3	95.3	2,056.7
2008	633.9	392.3	335.9	133.8	118.9	91.9	172.9	95.2	1,974.9
2009	586.7	353.3	313.6	113.0	116.2	90.9	160.2	96.4	1,830.2
2010	569.2	361.4	319.0	118.2	115.2	90.8	148.7	85.4	1,807.9
2011	557.2	349.7	294.6	115.8	114.1	92.1	115.1	90.9	1,729.6
2012	607.9	354.6	267.6	117.7	114.8	89.3	107.7	86.3	1,745.9
2013	658.6	357.0	248.4	115.9	116.1	83.6	103.4	96.1	1,779.2
2014	694.7	363.6	214.4	110.0	115.3	89.2	96.1	98.7	1,781.9
2015	666.8	327.1	200.2	105.6	114.0	85.9	89.3	97.7	1,686.7
2016	598.3	310.7	194.9	104.5	114.6	85.1	84.0	93.5	1,585.7

Year	Oil and gas industry (emissions in kilotonnes)	Paints and solvents (emissions in kilotonnes)	Off-road vehicles and mobile equipment (emissions in kilotonnes	Manufacturing (emissions in kilotonnes)	Agriculture (livestock, crop production and fertilizer) (emissions in kilotonnes)	Other sources (emissions in kilotonnes)	Transportation (road, rail, air and marine) (emissions in kilotonnes)	Home firewood burning (emissions in kilotonnes)	Total emissions (emissions in kilotonnes)
2017	615.3	307.3	182.1	100.7	114.9	81.2	79.7	94.7	1,575.9
2018	636.1	313.3	170.3	108.6	115.7	81.8	79.0	91.0	1,595.8
2019	611.6	305.4	160.6	103.5	115.4	82.4	76.2	81.7	1,536.7
2020	524.0	262.3	140.1	97.9	115.2	74.7	63.9	70.6	1,348.6
2021	522.6	272.5	136.3	112.1	115.7	76.9	64.6	64.4	1,365.2
2022	528.1	271.3	127.2	107.6	114.9	80.0	65.9	68.4	1,363.4
2023	534.7	260.1	125.2	110.3	113.6	79.7	66.6	63.3	1,353.4
2024	546.3	258.1	116.0	116.4	113.2	82.2	66.8	59.2	1,358.2

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. The category "other sources" includes emissions from incineration and waste, ore and mineral industries, dust and fires, building heating and energy generation, electric utilities and other miscellaneous sources. Consult Table 1 in the Data sources and methods for a complete list of the air pollutant emissions sources included under each category. The numbers have been rounded off, and their sum may not correspond to the total.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 9. Data for Figure 11. Volatile organic compound emissions by province and territory, Canada, 1990, 2005 and 2024

Province or territory	1990 (emissions in kilotonnes)	2005 (emissions in kilotonnes)	2024 (emissions in kilotonnes)
Newfoundland and Labrador	32.6	31.4	13.2
Prince Edward Island	8.4	8.0	3.8
Nova Scotia	51.0	47.7	21.0
New Brunswick	39.9	48.3	18.5
Quebec	346.3	343.3	185.9
Ontario	589.5	570.1	273.7
Manitoba	71.5	83.1	53.5
Saskatchewan	176.9	256.5	191.0
Alberta	590.1	613.5	481.9
British Columbia	280.2	239.4	112.0
Yukon	1.5	2.1	0.9
Northwest Territories	10.0 [A]	8.5	1.8
Nunavut[A]	n/a	1.3	1.0

Note: [A] 1990 emissions data for the Northwest Territories include emissions for Nunavut, which was part of the Northwest Territories until 1999. n/a = not applicable. The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 10. Data for Figure 13. Total ammonia emissions by source, Canada, 1990 to 2024

Year	Agriculture (livestock, crop production and fertilizer) (emissions in kilotonnes)	Other sources (emissions in kilotonnes)	Manufacturing (emissions in kilotonnes)	Transportation (road, rail, air and marine) (emissions in kilotonnes)	Total emissions (emissions in kilotonnes)
1990	356.6	12.7	20.0	5.6	394.9
1991	353.5	12.9	19.1	6.2	391.8
1992	364.8	13.2	19.1	7.2	404.3
1993	367.6	14.0	18.5	8.3	408.4
1994	379.6	14.2	19.9	9.4	423.1
1995	396.8	16.1	26.6	9.9	449.4
1996	413.1	15.8	26.2	10.7	465.8
1997	418.7	15.9	25.2	11.1	470.9
1998	417.9	16.1	26.0	11.5	471.5
1999	415.6	14.2	24.8	11.6	466.3
2000	424.7	14.0	25.0	11.8	475.4
2001	427.9	13.6	21.7	11.9	475.1
2002	431.0	19.2	21.6	11.7	483.5
2003	437.5	12.0	18.9	11.5	479.8
2004	452.4	11.6	18.6	11.3	493.9
2005	448.7	13.2	17.2	10.7	489.8
2006	440.4	12.0	16.2	10.2	478.9
2007	446.2	11.4	16.1	10.1	483.8

Year	Agriculture (livestock, crop production and fertilizer) (emissions in kilotonnes)	Other sources (emissions in kilotonnes)	Manufacturing (emissions in kilotonnes)	Transportation (road, rail, air and marine) (emissions in kilotonnes)	Total emissions (emissions in kilotonnes)
2008	440.1	12.6	13.6	9.5	475.8
2009	425.9	12.3	12.7	9.1	460.0
2010	418.3	12.9	11.6	8.7	451.6
2011	416.2	12.7	11.9	7.7	448.5
2012	433.2	11.7	12.0	7.4	464.3
2013	446.3	12.8	11.3	7.3	477.8
2014	437.1	13.2	11.3	7.0	468.6
2015	440.0	11.9	11.8	6.9	470.6
2016	440.0	12.2	12.1	6.9	471.2
2017	431.1	11.8	11.3	6.8	461.0
2018	447.3	12.1	12.1	6.9	478.3
2019	448.7	12.5	11.2	6.9	479.2
2020	462.5	11.9	12.3	5.8	492.4
2021	467.2	13.1	11.5	6.1	498.0
2022	451.8	13.9	10.6	6.4	482.7
2023	462.7	14.2	11.4	6.5	494.8
2024	474.2	14.0	11.2	6.5	505.9

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. The category "other sources" includes emissions from incineration and waste, the oil and gas industry, home firewood burning, ore and mineral industries, electric utilities, building heating and energy generation, off-road vehicles and mobile equipment, dust and fires, paints and solvents, and other miscellaneous sources. Consult Table 1 in the Data sources and methods section for a complete list of the air pollutant emissions sources included under each category. The numbers have been rounded off, and their sum may not correspond to the total.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 11. Data for Figure 14. Ammonia emissions by province and territory, Canada, 1990, 2005 and 2024

Province or territory	1990 (emissions in kilotonnes)	2005 (emissions in kilotonnes)	2024 (emissions in kilotonnes)
Newfoundland and Labrador	1.0	1.1	0.9
Prince Edward Island	3.4	3.8	2.8
Nova Scotia	4.9	4.6	3.2
New Brunswick	4.6	5.7	3.9
Quebec	65.3	67.7	62.7
Ontario	110.6	101.9	94.6
Manitoba	38.1	55.4	61.4
Saskatchewan	48.6	84.0	114.5
Alberta	95.3	140.4	141.1
British Columbia	23.0	25.3	21.0
Yukon	<0.1	<0.1	<0.1
Northwest Territories	<0.1 [A]	<0.1	<0.1

Province or territory	1990 (emissions in kilotonnes)	2005 (emissions in kilotonnes)	2024 (emissions in kilotonnes)
Nunavut[A]	n/a	<0.1	<0.1

Note: [A] 1990 emissions data for the Northwest Territories include emissions for Nunavut, which was part of the Northwest Territories until 1999. n/a = not applicable. The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 12. Data for Figure 16. 2024

Year	Off-road vehicles and mobile equipment (emissions in kilotonnes)	Transportation (road, rail, air and marine) (emissions in kilotonnes)	Oil and gas industry (emissions in kilotonnes)	Ore and mineral industries (emissions in kilotonnes)	Home firewood burning (emissions in kilotonnes)	Other sources (emissions in kilotonnes)	Total emissions (emissions in kilotonnes)
1990	3,480.8	6,105.5	334.5	368.4	915.7	1,863.6	13,068.5
1991	3,307.7	5,831.7	324.4	421.6	927.9	1,900.5	12,713.9
1992	3,240.8	5,912.0	339.3	458.2	983.1	1,699.6	12,633.0
1993	3,130.2	5,955.5	361.4	446.1	992.5	1,898.8	12,784.4
1994	3,156.4	6,043.5	398.9	437.6	970.6	1,863.8	12,870.8
1995	3,717.1	5,697.0	406.3	429.1	952.5	1,906.0	13,107.9
1996	3,782.0	5,520.4	418.8	417.7	977.5	1,662.4	12,778.9
1997	3,979.3	5,213.0	467.8	383.4	971.8	1,427.7	12,443.0
1998	4,161.2	4,935.6	485.9	375.4	781.0	1,357.3	12,096.4
1999	4,341.9	4,569.8	498.3	367.5	759.2	1,312.2	11,848.9
2000	4,316.4	4,441.6	441.9	390.3	772.0	1,217.0	11,579.3
2001	4,410.8	4,145.0	466.0	417.6	667.4	1,081.4	11,188.1
2002	4,551.4	3,840.2	499.5	493.0	646.7	945.5	10,976.3
2003	4,236.7	3,569.8	529.1	523.1	612.2	990.9	10,461.8
2004	4,043.5	3,258.7	501.1	498.2	653.5	717.0	9,672.0
2005	3,843.9	2,796.7	492.7	503.7	675.8	685.6	8,998.3
2006	3,570.4	2,546.8	502.0	512.8	665.1	486.5	8,283.7
2007	2,907.9	2,332.7	521.6	532.0	783.8	409.0	7,487.0
2008	2,632.3	2,157.4	538.4	546.6	785.3	402.1	7,062.2
2009	2,526.3	2,037.3	522.9	512.5	795.8	388.5	6,783.4
2010	2,855.7	1,892.7	517.5	537.0	706.8	345.9	6,855.6
2011	2,702.6	1,460.0	526.8	560.2	753.6	330.6	6,333.8
2012	2,486.7	1,369.8	527.8	552.0	717.1	352.0	6,005.4
2013	2,371.6	1,358.0	557.7	546.2	794.6	293.6	5,921.7
2014	2,043.4	1,320.8	543.9	515.0	812.5	380.8	5,616.4
2015	1,910.7	1,264.8	553.2	513.3	799.8	357.6	5,399.4
2016	1,955.3	1,249.7	534.5	559.3	764.4	342.0	5,405.1
2017	1,894.4	1,197.7	548.9	588.9	773.9	281.7	5,285.5
2018	1,837.0	1,187.1	573.0	526.6	754.2	253.8	5,131.8
2019	1,801.6	1,163.3	538.0	507.9	686.2	263.6	4,960.6
2020	1,606.9	999.5	510.5	512.0	592.0	228.3	4,449.3

Year	Off-road vehicles and mobile equipment (emissions in kilotonnes)	Transportation (road, rail, air and marine) (emissions in kilotonnes)	Oil and gas industry (emissions in kilotonnes)	Ore and mineral industries (emissions in kilotonnes)	Home firewood burning (emissions in kilotonnes)	Other sources (emissions in kilotonnes)	Total emissions (emissions in kilotonnes)
2021	1,668.0	1,025.1	536.3	511.7	539.1	237.3	4,517.4
2022	1,617.3	995.1	522.1	501.1	572.2	279.2	4,486.9
2023	1,638.9	1,010.9	539.0	515.5	529.6	222.6	4,456.4
2024	1,599.3	1,015.7	530.0	499.9	495.5	249.3	4,389.6

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. The category "other sources" includes emissions from dust and fires, electric utilities, building heating and energy generation, incineration and waste, agriculture (livestock, crop production and fertilizer), paints and solvents, manufacturing and other miscellaneous sources. Consult Table 1 in the Data sources and methods for a complete list of the air pollutant emissions sources included under each category. The numbers have been rounded off, and their sum may not correspond to the total.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 13. Data for Figure 17. Carbon monoxide emissions by province and territory, Canada, 1990, 2005 and 2024

Province or territory	1990 (emissions in kilotonnes)	2005 (emissions in kilotonnes)	2024 (emissions in kilotonnes)
Newfoundland and Labrador	217.7	127.5	55.4
Prince Edward Island	76.5	45.1	17.7
Nova Scotia	375.4	226.0	92.7
New Brunswick	314.0	243.1	83.1
Quebec	2,520.5	1,889.9	1,165.5
Ontario	3,567.7	2,469.2	933.1
Manitoba	500.1	403.5	167.3
Saskatchewan	830.4	682.2	327.7
Alberta	2,292.9	1,655.4	1,019.4
British Columbia	2,328.4	1,214.8	506.6
Yukon	17.3	17.6	7.0
Northwest Territories	27.7 [A]	17.7	8.0
Nunavut[A]	n/a	6.3	6.2

Note: [A] 1990 emissions data for the Northwest Territories include emissions for Nunavut, which was part of the Northwest Territories until 1999. n/a = not applicable. The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 14. Data for Figure 19. Total fine particulate matter emissions by source, Canada, 1990 to 2024

Year	Dust and fires (emissions in kilotonnes)	Agriculture (livestock, crop production and fertilizer) (emissions in kilotonnes)	Other sources (emissions in kilotonnes)	Home firewood burning (emissions in kilotonnes)	Total emissions (emissions in kilotonnes)
1990	352.3	675.2	321.0	101.6	1,450.1
1991	347.4	667.8	295.4	102.4	1,413.1
1992	314.7	653.0	286.5	107.9	1,362.0
1993	333.7	638.7	281.5	108.5	1,362.4
1994	358.5	624.3	280.2	105.6	1,368.7

Year	Dust and fires (emissions in kilotonnes)	Agriculture (livestock, crop production and fertilizer) (emissions in kilotonnes)	Other sources (emissions in kilotonnes)	Home firewood burning (emissions in kilotonnes)	Total emissions (emissions in kilotonnes)
1995	368.0	610.1	278.7	103.3	1,360.0
1996	364.0	596.3	270.8	105.7	1,336.9
1997	382.3	582.5	265.2	104.0	1,334.0
1998	389.4	568.9	256.6	83.2	1,298.1
1999	390.6	555.3	256.7	80.3	1,283.0
2000	396.6	541.9	254.7	81.0	1,274.3
2001	416.7	528.7	233.1	69.5	1,248.1
2002	400.9	508.9	210.6	66.9	1,187.2
2003	418.5	489.2	205.2	62.7	1,175.5
2004	413.9	469.0	199.9	66.2	1,148.9
2005	448.7	449.5	197.5	67.9	1,163.5
2006	437.3	429.9	173.8	66.2	1,107.3
2007	459.7	416.6	164.2	77.5	1,118.1
2008	504.9	403.1	155.6	77.4	1,141.0
2009	484.0	389.8	139.6	78.1	1,091.4
2010	530.8	376.8	142.6	69.1	1,119.2
2011	550.0	363.5	136.9	73.3	1,123.6
2012	595.1	366.6	133.6	69.3	1,164.7
2013	615.4	369.4	129.2	75.4	1,189.5
2014	639.0	372.3	125.7	75.6	1,212.6
2015	588.5	375.3	120.0	72.8	1,156.7
2016	531.1	378.3	115.1	68.8	1,093.3
2017	533.2	374.1	119.7	69.0	1,095.9
2018	564.2	369.9	118.0	71.2	1,123.4
2019	586.6	365.8	116.7	68.3	1,137.4
2020	526.7	361.8	113.1	58.2	1,059.7
2021	537.0	357.5	119.0	52.4	1,065.9
2022	556.7	353.0	111.8	55.6	1,077.0
2023	602.4	348.3	105.7	51.4	1,107.8
2024	630.1	343.6	104.1	48.1	1,125.9

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. The category "other sources" includes emissions from ore and mineral industries, transportation (road, rail, air and marine), manufacturing, off-road vehicles and mobile equipment, the oil and gas industry, building heating and energy generation, electric utilities, incineration and wastes, paints and solvents, and other miscellaneous sources. Consult Table 1 in the Data sources and methods for a complete list of the air pollutant emissions sources included under each category. The numbers have been rounded off, and their sum may not correspond to the total.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 15. Additional information for Figure 19. Total fine particulate matter emissions by source, Canada, 1990 to 2024

Year	Dust and fires (emissions in kilotonnes)	Agriculture (livestock, crop production and fertilizer) (emissions in kilotonnes)	Home firewood burning (emissions in kilotonnes)	Ore and mineral industries (emissions in kilotonnes)	Miscell-aneous (emissions in kilotonnes)	Manu-facturing (emissions in kilotonnes)	Off-road vehicles and mobile equipment (emissions in kilotonnes)	Oil and gas industry (emissions in kilotonnes)	Trans-portation (road, rail, air and marine) (emissions in kilotonnes)	Building heating and energy generation (emissions in kilotonnes)	Electric utilities (emissions in kilotonnes)	Incinerator and waste (emissions in kilotonnes)	Paints and solvents (emissions in kilotonnes)
1990	352.3	675.2	101.6	55.3	13.9	113.9	35.9	11.9	33.4	4.6	48.5	3.5	n/a
1991	347.4	667.8	102.4	52.1	12.0	103.0	32.5	12.4	31.8	4.6	43.5	3.6	n/a
1992	314.7	653.0	107.9	49.3	12.0	99.8	31.4	12.7	32.2	4.7	40.7	3.7	n/a
1993	333.7	638.7	108.5	49.7	12.3	100.5	32.7	12.8	32.3	4.9	32.6	3.8	n/a
1994	358.5	624.3	105.6	52.1	12.7	100.3	33.9	13.7	33.8	4.9	25.0	3.8	n/a
1995	368.0	610.1	103.3	51.8	13.2	101.4	34.2	14.0	34.5	4.9	20.9	3.7	n/a
1996	364.0	596.3	105.7	52.7	13.2	93.1	35.3	14.0	34.4	5.2	19.1	3.7	n/a
1997	382.3	582.5	104.0	53.2	13.6	85.2	37.2	14.4	34.1	5.0	20.2	2.2	n/a
1998	389.4	568.9	83.2	50.2	14.4	80.1	36.8	16.1	32.4	4.6	19.9	2.2	n/a
1999	390.6	555.3	80.3	48.9	15.0	79.7	37.6	13.7	33.1	4.8	21.6	2.2	n/a
2000	396.6	541.9	81.0	49.7	15.5	74.7	38.8	13.5	31.9	5.3	23.2	2.2	n/a
2001	416.7	528.7	69.5	46.3	15.8	63.9	37.1	13.4	30.0	5.0	19.3	2.2	n/a
2002	400.9	508.9	66.9	38.0	16.0	55.2	35.5	13.8	29.4	5.2	15.3	2.2	0.0
2003	418.5	489.2	62.7	39.0	16.3	52.9	34.6	12.5	31.0	5.6	11.1	2.2	0.0
2004	413.9	469.0	66.2	38.1	16.8	50.5	33.5	11.8	31.4	5.3	10.3	2.0	0.0
2005	448.7	449.5	67.9	42.9	17.1	44.8	32.4	12.2	31.9	5.2	9.1	1.8	0.0
2006	437.3	429.9	66.2	43.4	17.3	28.8	29.8	11.5	30.5	4.9	6.0	1.5	0.0
2007	459.7	416.6	77.5	37.7	17.4	27.0	27.5	11.3	29.8	5.2	7.0	1.5	0.0
2008	504.9	403.1	77.4	35.9	17.8	24.1	26.0	9.7	28.7	5.1	6.8	1.4	0.0
2009	484.0	389.8	78.1	30.1	17.9	20.1	23.2	8.9	27.0	5.0	6.1	1.3	0.0
2010	530.8	376.8	69.1	33.9	17.6	19.4	25.2	8.7	26.0	4.8	5.7	1.2	0.0
2011	550.0	363.5	73.3	32.9	16.8	19.8	25.5	9.2	22.2	5.0	4.3	1.0	0.0
2012	595.1	366.6	69.3	35.1	16.9	19.2	24.0	9.8	19.8	4.6	3.2	0.9	0.0
2013	615.4	369.4	75.4	31.9	16.7	19.5	23.3	10.6	18.3	4.8	3.2	0.8	0.0
2014	639.0	372.3	75.6	31.6	16.1	18.6	21.3	12.4	16.4	4.9	3.6	0.8	0.0

Year	Dust and fires (emissions in kilotonnes)	Agriculture (livestock, crop production and fertilizer) (emissions in kilotonnes)	Home firewood burning (emissions in kilotonnes)	Ore and mineral industries (emissions in kilotonnes)	Miscell-aneous (emissions in kilotonnes)	Manu-facturing (emissions in kilotonnes)	Off-road vehicles and mobile equipment (emissions in kilotonnes)	Oil and gas industry (emissions in kilotonnes)	Trans-portation (road, rail, air and marine) (emissions in kilotonnes)	Building heating and energy generation (emissions in kilotonnes)	Electric utilities (emissions in kilotonnes)	Inciner-ation and waste (emissions in kilotonnes)	Paints and solvents (emissions in kilotonnes)
2015	588.5	375.3	72.8	30.3	15.2	18.6	21.9	11.3	13.7	4.8	3.5	0.8	0.0
2016	531.1	378.3	68.8	30.4	15.2	17.1	21.2	10.4	11.7	4.9	3.4	0.8	0.0
2017	533.2	374.1	69.0	33.8	15.3	17.2	21.7	11.7	10.9	5.1	3.3	0.8	0.0
2018	564.2	369.9	71.2	32.7	15.3	17.2	21.0	11.7	10.9	5.3	3.2	0.8	0.0
2019	586.6	365.8	68.3	34.5	15.4	16.3	19.9	11.6	10.0	5.4	2.8	0.8	0.0
2020	526.7	361.8	58.2	35.1	15.5	16.4	17.0	12.1	8.6	5.0	2.4	0.8	0.0
2021	537.0	357.5	52.4	36.3	15.6	19.8	16.9	14.3	8.4	4.8	2.0	0.8	0.0
2022	556.7	353.0	55.6	34.6	15.7	14.9	15.9	14.4	8.2	5.1	2.1	0.8	0.0
2023	602.4	348.3	51.4	31.3	15.8	14.8	15.1	13.0	8.2	4.7	1.8	0.8	0.1
2024	630.1	343.6	48.1	30.3	15.9	15.2	14.0	13.3	8.3	4.6	1.5	0.9	0.1

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation. n/a = not applicable. Consult Table 1 in the Data sources and methods for a complete list of the air pollutant emissions sources included under each category. The numbers have been rounded off, and their sum may not correspond to the total.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 16. Data for Figure 20. Fine particulate matter emissions by province and territory, Canada, 1990, 2005 and 2024

Province or territory	1990 (emissions in kilotonnes)	2005 (emissions in kilotonnes)	2024 (emissions in kilotonnes)	1990, excluding open sources [A] (emissions in kilotonnes)	2005, excluding open sources [A] (emissions in kilotonnes)	2024, excluding open sources [A] (emissions in kilotonnes)
Newfoundland and Labrador	18.9	18.8	14.7	12.9	9.7	3.2
Prince Edward Island	4.3	3.7	3.6	1.9	1.6	0.9
Nova Scotia	25.2	20.6	15.2	17.1	11.7	4.0
New Brunswick	24.0	18.9	11.9	15.8	12.0	4.1
Quebec	143.4	130.2	149.8	82.7	64.5	46.3
Ontario	220.6	186.0	210.4	97.8	65.9	37.2
Manitoba	87.2	72.6	68.8	12.7	9.2	4.5
Saskatchewan	439.3	306.3	248.8	21.8	17.8	10.0
Alberta	325.0	308.5	279.2	65.7	32.5	23.4
British Columbia	157.6	89.2	113.8	92.5	38.8	17.6
Yukon	1.5	1.7	2.1	0.5	0.3	0.2
Northwest Territories	2.9 [B]	5.1	3.0	1.1 [B]	0.8	0.4
Nunavut[B]	n/a	2.1	4.5	n/a	0.6	0.4

Note: [A] Open sources include emissions associated with dust and fires and agriculture (livestock, crop production and fertilizer). [B] 1990 emissions data for the Northwest Territories include emissions for Nunavut, which was part of the Northwest Territories until 1999. n/a = not applicable. The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires and from vegetation.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 17. Data for Figure 22. Total black carbon emissions by source, Canada, 2013 to 2024

Year	Off-road vehicles and mobile equipment (emissions in kilotonnes)	Transportation (road, rail, air and marine) (emissions in kilotonnes)	Oil and gas industry (emissions in kilotonnes)	Other sources (emissions in kilotonnes)	Building heating and energy generation (emissions in kilotonnes)	Home firewood burning (emissions in kilotonnes)	Total emissions (emissions in kilotonnes)
2013	13.7	10.1	2.6	1.9	1.0	1.1	30.5
2014	12.6	9.2	3.0	1.7	1.0	1.1	28.6
2015	13.3	7.6	2.8	1.6	1.0	1.1	27.4
2016	12.5	6.3	2.4	1.5	1.1	1.0	24.8
2017	13.1	5.8	2.5	1.5	1.2	1.0	25.2
2018	12.7	5.8	2.6	1.4	1.2	1.0	24.9
2019	11.9	5.4	2.6	1.4	1.2	1.0	23.6
2020	10.0	4.7	2.6	1.4	1.2	0.8	20.7
2021	9.7	4.5	2.8	1.4	1.1	0.7	20.3
2022	9.1	4.3	2.8	1.7	1.1	0.8	19.9

Year	Off-road vehicles and mobile equipment (emissions in kilotonnes)	Transportation (road, rail, air and marine) (emissions in kilotonnes)	Oil and gas industry (emissions in kilotonnes)	Other sources (emissions in kilotonnes)	Building heating and energy generation (emissions in kilotonnes)	Home firewood burning (emissions in kilotonnes)	Total emissions (emissions in kilotonnes)
2023	8.4	4.3	2.7	1.8	1.1	0.7	19.1
2024	7.6	4.3	2.7	1.7	1.0	0.7	18.2

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires. "Other sources" includes emissions from ore and mineral industries, incineration and waste, manufacturing, electric utilities and agriculture (livestock, crop production and fertilizer). Consult Table 1 in the Data sources and methods for more details. The numbers have been rounded off, and their sum may not correspond to the total.
Source: Environment and Climate Change Canada (2026) Canada's Black Carbon Emissions Inventory.

Table A. 18. Data for Figure 23. Black carbon emissions by province and territory, Canada, 2013 and 2024

Province or territory	2013 (emissions in kilotonnes)	2024 (emissions in kilotonnes)
Newfoundland and Labrador	0.7	0.4
Prince Edward Island	0.1	0.1
Nova Scotia	0.7	0.3
New Brunswick	0.6	0.2
Quebec	4.8	2.6
Ontario	5.7	3.3
Manitoba	1.4	0.9
Saskatchewan	4.3	2.6
Alberta	7.7	4.9
British Columbia	3.8	2.5
Yukon	0.1	0.1
Northwest Territories	0.5	0.2
Nunavut	0.2	0.2

Note: The indicator reports air pollutant emissions from human activities only. It does not include emissions from natural sources such as forest fires.
Source: Environment and Climate Change Canada (2026) Canada's Black Carbon Emissions Inventory.

Table A.19. Data for Figure 24. Contribution of the oil and gas industry to total air pollutant emissions by activity type, Canada, 2024

Activity type	Sulphur oxides (percentage of national emissions)	Volatile organic compounds (percentage of national emissions)	Nitrogen oxides (percentage of national emissions)	Black carbon (percentage of national emissions)	Carbon monoxide (percentage of national emissions)	Fine particulate matter (percentage of national emissions)	Ammonia (percentage of national emissions)
Upstream oil and gas	35.8	38.5	35.7	14.8	11.6	1.0	0.5
Downstream oil and gas	6.7	1.7	1.3	<0.1	0.5	0.1	<0.1

Note: In the oil and gas industry, upstream activities include exploration, drilling, production and field processing and downstream activities include refining, storage and distribution.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Additional information for Figure 24. Contribution of the oil and gas industry to total air pollutant emissions by activity type, Canada, 2024

Activity type	Sulphur oxides (emissions in kilotonnes)	Volatile organic compounds (emissions in kilotonnes)	Nitrogen oxides (emissions in kilotonnes)	Black carbon (emissions in kilotonnes	Carbon monoxide (emissions in kilotonnes)	Fine particulate matter (emissions in kilotonnes)	Ammonia (emissions in kilotonnes)
Upstream oil and gas	195.0	522.5	430.6	2.7	509.7	11.8	2.5
Downstream oil and gas	36.5	23.8	16.1	<0.1	20.3	1.5	<0.1

Note: In the oil and gas industry, upstream activities include exploration, drilling, production and field processing and downstream activities include refining, storage and distribution.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 20. Data for Figure 25. Changes in emissions of key air pollutants from the oil and gas industry, Canada, 1990 to 2024

Year	Carbon monoxide (percentage change from 1990 level)	Nitrogen oxides (percentage change from 1990 level)	Volatile organic compounds (percentage change from 1990 level)	Sulphur oxides (percentage change from 1990 level)	Black carbon (percentage change from 2013 level)
1990	0	0	0	0	n/a
1991	-3	-2	-1	1	n/a
1992	1	3	2	8	n/a
1993	8	10	6	14	n/a
1994	19	19	9	13	n/a
1995	21	24	11	12	n/a
1996	25	28	16	13	n/a
1997	40	40	14	5	n/a
1998	45	44	16	-1	n/a
1999	49	49	8	-3	n/a
2000	32	33	11	-3	n/a
2001	39	31	11	-7	n/a
2002	49	31	13	-13	n/a
2003	58	43	12	-12	n/a
2004	50	24	9	-13	n/a
2005	47	24	8	-15	n/a
2006	50	24	4	-22	n/a
2007	56	31	4	-26	n/a
2008	61	34	5	-31	n/a
2009	56	32	-3	-32	n/a
2010	55	29	-6	-38	n/a
2011	57	33	-8	-40	n/a
2012	58	31	0	-40	n/a
2013	67	31	9	-43	0
2014	63	34	15	-48	15
2015	65	35	10	-53	8
2016	60	33	-1	-56	-7

Year	Carbon monoxide (percentage change from 1990 level)	Nitrogen oxides (percentage change from 1990 level)	Volatile organic compounds (percentage change from 1990 level)	Sulphur oxides (percentage change from 1990 level)	Black carbon (percentage change from 2013 level)
2017	64	35	2	-54	-2
2018	71	38	5	-52	1
2019	61	36	1	-52	-2
2020	53	29	-13	-57	-1
2021	60	28	-14	-54	7
2022	56	29	-13	-51	7
2023	61	30	-12	-54	4
2024	58	30	-10	-57	3

Note: n/a = not available. Fine particulate matter and ammonia are not shown in the table due to their low share (≤ 1%) of total emissions in 2024. Black carbon emissions reporting did not begin until 2013, marking the fist year of the Black Carbon Emissions Inventory.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Additional information for Figure 25. Changes in emissions of key air pollutants from the oil and gas industry, Canada, 1990 to 2024

Year	Carbon monoxide (emissions in kilotonnes)	Nitrogen oxides (emissions in kilotonnes)	Volatile organic compounds (emissions in kilotonnes)	Sulphur oxides (emissions in kilotonnes)	Black carbon (emissions in kilotonnes)
1990	334.5	344.1	605.1	539.5	n/a
1991	324.4	337.5	600.4	545.6	n/a
1992	339.3	353.6	614.6	585.1	n/a
1993	361.4	378.8	643.1	613.5	n/a
1994	398.9	411.0	661.1	610.7	n/a
1995	406.3	427.0	672.9	604.8	n/a
1996	418.8	439.2	702.4	608.2	n/a
1997	467.8	483.0	688.9	564.4	n/a
1998	485.9	494.7	701.5	534.0	n/a
1999	498.3	512.0	654.2	524.8	n/a
2000	441.9	456.4	668.7	521.5	n/a
2001	466.0	450.9	673.0	503.2	n/a
2002	499.5	451.7	684.0	470.4	n/a
2003	529.1	493.2	677.8	476.0	n/a
2004	501.1	427.3	656.8	467.6	n/a
2005	492.7	427.7	652.7	460.5	n/a
2006	502.0	427.4	630.7	422.5	n/a
2007	521.6	450.3	627.8	400.5	n/a
2008	538.4	459.8	633.9	374.3	n/a
2009	522.9	454.9	586.7	366.7	n/a
2010	517.5	445.1	569.2	333.9	n/a
2011	526.8	457.2	557.2	321.9	n/a
2012	527.8	449.5	607.9	324.1	n/a
2013	557.7	451.8	658.6	309.2	2.6
2014	543.9	462.1	694.7	280.4	3.0

Year	Carbon monoxide (emissions in kilotonnes)	Nitrogen oxides (emissions in kilotonnes)	Volatile organic compounds (emissions in kilotonnes)	Sulphur oxides (emissions in kilotonnes)	Black carbon (emissions in kilotonnes)
2015	553.2	464.7	666.8	253.5	2.8
2016	534.5	457.0	598.3	238.7	2.4
2017	548.9	465.1	615.3	246.4	2.5
2018	573.0	475.5	636.1	256.5	2.6
2019	538.0	469.0	611.6	257.3	2.6
2020	510.5	445.0	524.0	233.0	2.6
2021	536.3	439.4	522.6	248.9	2.8
2022	522.1	443.8	528.1	262.2	2.8
2023	539.0	447.4	534.7	247.5	2.7
2024	530.0	446.7	546.3	231.5	2.7

Note: n/a = not available. Fine particulate matter and ammonia are not shown in the table due to their low share (≤ 1%) of total emissions in 2024. Black carbon emissions reporting did not begin until 2013, mark**ing** the fist year of the Black Carbon Emissions Inventory.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 21. Data for Figure 26. Contribution of transportation, off-road vehicles and mobile equipment to total air pollutant emissions by transportation mode, Canada, 2024

Transportation mode	Carbon monoxide (percentage of national emissions)	Nitrogen oxides (percentage of national emissions)	Black carbon (percentage of national emissions)	Volatile organic compounds (percentage of national emissions)	Fine particulate matter (percentage of national emissions)	Ammonia (percentage of national emissions)	Sulphur oxides (percentage of national emissions)
Passenger cars and motorcycles	7.7	1.0	1.0	1.6	<0.1	0.4	<0.1
Passenger light trucks	11.5	1.9	2.5	2.0	<0.1	0.7	<0.1
Large trucks and buses	2.9	10.2	11.7	0.8	0.3	0.2	<0.1
Air, marine and rail travel	1.1	12.0	8.8	0.6	0.2	<0.1	0.4
Off-road vehicles and equipment, tire wear and brake lining	36.4	13.4	<0.1	8.5	1.4	<0.1	<0.1

Note: "Passenger cars and motorcycles" include light-duty vehicles powered by motor gasoline, diesel, liquefied petroleum gas and compressed natural gas engines as well as all types of motorcycles. "Passenger light trucks" include light-duty trucks powered by motor gasoline, diesel, liquefied petroleum gas and compressed natural gas engines. "Large trucks and buses" include heavy-duty trucks powered by motor gasoline, diesel, liquefied petroleum gas and compressed natural gas engines.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Additional information for Figure 26. Contribution of transportation, off-road vehicles and mobile equipment to total air pollutant emissions by transportation mode, Canada, 2024

Transportation mode	Carbon monoxide (emissions in kilotonnes)	Nitrogen oxides (emissions in kilotonnes)	Black carbon (emissions in kilotonnes)	Volatile organic compounds (emissions in kilotonnes)	Fine particulate matter (emissions in kilotonnes)	Ammonia (emissions in kilotonnes)	Sulphur oxides (emissions in kilotonnes)
Passenger cars and motorcycles	339.9	11.8	0.2	22.0	0.4	2.0	0.2
Passenger light trucks	503.7	23.0	0.4	26.5	0.8	3.4	0.4
Large trucks and buses	125.3	122.5	2.1	10.3	3.5	1.2	0.2
Air, marine and rail travel	46.8	144.3	1.6	8.0	2.3	<0.1	2.2
Off-road vehicles and equipment, tire wear and brake lining	1,599.3	161.2	<0.1	116.0	15.3	0.4	0.2

Note: "Passenger cars and motorcycles" include light-duty vehicles powered by motor gasoline, diesel, liquefied petroleum gas and compressed natural gas engines as well as all types of motorcycles. "Passenger light trucks" include light-duty trucks powered by motor gasoline, diesel, liquefied petroleum gas and compressed natural gas engines. "Large trucks and buses" include heavy-duty trucks powered by motor gasoline, diesel, liquefied petroleum gas and compressed natural gas engines.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 22. Data for Figure 27. Changes in emissions of key air pollutants from transportation, off-road vehicles and mobile equipment, Canada, 1990 to 2024

Year	Nitrogen oxides (percentage change from 1990 level)	Carbon monoxide (percentage change from 1990 level)	Black carbon (percentage change from 2013 level)	Volatile organic compounds (percentage change from 1990 level)
1990	0	0	n/a	0
1991	-3	-5	n/a	-2
1992	0	-5	n/a	1
1993	6	-5	n/a	5
1994	15	-4	n/a	11
1995	19	-2	n/a	20
1996	22	-3	n/a	25
1997	26	-4	n/a	28
1998	26	-5	n/a	31
1999	25	-7	n/a	33
2000	23	-9	n/a	29
2001	16	-11	n/a	27
2002	12	-12	n/a	24
2003	8	-19	n/a	17
2004	3	-24	n/a	12
2005	-1	-31	n/a	4

Year	Nitrogen oxides (percentage change from 1990 level)	Carbon monoxide (percentage change from 1990 level)	Black carbon (percentage change from 2013 level)	Volatile organic compounds (percentage change from 1990 level)
2006	-7	-36	n/a	-3
2007	-10	-45	n/a	-12
2008	-15	-50	n/a	-20
2009	-22	-52	n/a	-25
2010	-22	-50	n/a	-26
2011	-29	-57	n/a	-35
2012	-34	-60	n/a	-41
2013	-37	-61	0	-45
2014	-41	-65	-10	-51
2015	-44	-67	-25	-54
2016	-49	-67	-38	-56
2017	-50	-68	-43	-59
2018	-50	-68	-43	-61
2019	-53	-69	-47	-63
2020	-59	-73	-54	-68
2021	-62	-72	-55	-68
2022	-62	-73	-57	-70
2023	-63	-72	-57	-70
2024	-63	-73	-57	-71

Note: n/a = not available. Fine particulate matter, sulphur oxides and ammonia are not shown in the table due to their low share (≤ 5%) of total emissions in 2024. Black carbon emissions reporting did not begin until 2013, mark**ing** the fist year of the Black Carbon Emissions Inventory.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Additional information for Figure 27. Changes in emissions of key air pollutants from transportation, off-road vehicles and mobile equipment, Canada, 1990 to 2024

Year	Nitrogen oxides (emissions in kilotonnes)	Carbon monoxide (emissions in kilotonnes)	Black carbon (emissions in kilotonnes)	Volatile organic compounds (emissions in kilotonnes)
1990	1,260.6	9,586.3	n/a	634.1
1991	1,226.9	9,139.4	n/a	622.3
1992	1,263.3	9,152.8	n/a	642.0
1993	1,334.9	9,085.7	n/a	667.4
1994	1,450.5	9,199.9	n/a	706.3
1995	1,499.6	9,414.1	n/a	759.1
1996	1,542.6	9,302.4	n/a	789.5
1997	1,592.3	9,192.3	n/a	813.0
1998	1,588.3	9,096.8	n/a	832.8
1999	1,573.8	8,911.7	n/a	841.5
2000	1,554.0	8,758.0	n/a	818.8
2001	1,468.5	8,555.8	n/a	804.0

Year	Nitrogen oxides (emissions in kilotonnes)	Carbon monoxide (emissions in kilotonnes)	Black carbon (emissions in kilotonnes)	Volatile organic compounds (emissions in kilotonnes)
2002	1,406.5	8,391.6	n/a	786.3
2003	1,356.3	7,806.5	n/a	744.5
2004	1,303.8	7,302.2	n/a	712.8
2005	1,249.8	6,640.6	n/a	661.5
2006	1,171.6	6,117.2	n/a	612.4
2007	1,130.4	5,240.5	n/a	560.6
2008	1,069.3	4,789.7	n/a	508.8
2009	978.9	4,563.7	n/a	473.8
2010	978.1	4,748.4	n/a	467.7
2011	895.8	4,162.5	n/a	409.8
2012	831.8	3,856.5	n/a	375.4
2013	797.7	3,729.7	23.8	351.8
2014	747.0	3,364.2	21.8	310.5
2015	702.4	3,175.5	20.9	289.5
2016	638.7	3,204.9	18.8	278.9
2017	632.9	3,092.1	18.9	261.7
2018	627.8	3,024.2	18.5	249.3
2019	595.9	2,964.8	17.3	236.8
2020	510.6	2,606.5	14.7	203.9
2021	483.9	2,693.1	14.3	200.9
2022	477.8	2,612.4	13.4	193.1
2023	469.7	2,649.8	12.7	191.8
2024	462.9	2,615.0	12.0	182.8

Note: Fine particulate matter, sulphur oxides and ammonia are not shown in the table due to their low share (≤ 5%) of total emissions in 2024.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A.23. Data for Figure 28. Contribution of electric utilities to total air pollutant emissions by fuel source, Canada, 2024

Fuel source	Sulphur oxides (percentage of national emissions)	Nitrogen oxides (percentage of national emissions)	Carbon monoxide (percentage of national emissions)	Fine particulate matter (percentage of national emissions)	Volatile organic compounds (percentage of national emissions)	Ammonia (percentage of national emissions)
Coal	18.9	3.0	0.1	0.1	<0.1	<0.1
Natural gas	0.2	2.2	0.4	<0.1	0.1	<0.1
Landfill gas	<0.1	<0.1	<0.1	<0.1	n/a	n/a
Diesel	<0.1	0.9	0.1	<0.1	<0.1	n/a
Other sources	0.8	0.6	0.1	<0.1	<0.1	<0.1

Note: n/a = not available. Excludes emissions from industries that generate electricity and heat as a supporting activity rather than as their primary purpose. "Other" fuel sources include waste material and other uncategorized sources of electricity generation.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Additional information for Figure 28. Contribution of electric utilities to total air pollutant emissions by fuel source, Canada, 2024

Fuel source	Sulphur oxides (emissions in kilotonnes)	Nitrogen oxides (emissions in kilotonnes)	Carbon monoxide (emissions in kilotonnes)	Fine particulate matter (emissions in kilotonnes)	Volatile organic compounds (emissions in kilotonnes)	Ammonia (emissions in kilotonnes)
Coal	103.1	36.4	4.8	0.6	0.2	<0.1
Natural gas	1.1	26.2	16.8	0.3	1.2	0.2
Landfill gas	<0.1	0.1	0.4	<0.1	n/a	n/a
Diesel	<0.1	11.1	2.8	0.2	0.1	n/a
Other sources	4.3	7.2	5.7	0.4	0.2	0.1

Note: n/a = not available. Excludes emissions from industries that generate electricity and heat as a supporting activity rather than as their primary purpose. "Other" fuel sources include waste material and other uncategorized sources of electricity generation.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Table A. 24. Data for Figure 29. Changes in emissions of key air pollutants from electric utilities, Canada, 1990 to 2024

Year	Sulphur oxides (percentage change from 1990 level)	Nitrogen oxides (percentage change from 1990 level)
1990	0	0
1991	-4	-2
1992	-1	2
1993	-12	-5
1994	-9	-7
1995	-14	-3
1996	-12	5
1997	-4	12
1998	-2	21
1999	-3	19
2000	0	27
2001	1	22
2002	1	23
2003	2	14
2004	-6	4
2005	-16	-1
2006	-26	-13
2007	-20	-7
2008	-31	-12
2009	-38	-15
2010	-46	-9
2011	-53	-22
2012	-54	-35
2013	-55	-37

Year	Sulphur oxides (percentage change from 1990 level)	Nitrogen oxides (percentage change from 1990 level)
2014	-56	-35
2015	-59	-41
2016	-59	-41
2017	-60	-44
2018	-64	-50
2019	-67	-51
2020	-73	-60
2021	-73	-61
2022	-75	-63
2023	-78	-65
2024	-82	-68

Note: Carbon monoxide, fine particulate matter, volatile organic compounds and ammonia are not shown in the table due to their low share (≤ 1%) of total emissions in 2024. The indicator excludes emissions from industries that generate electricity and heat as a supporting activity rather than as their primary purpose.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.

Additional information for Figure 29. Changes in emissions of key air pollutants from electric utilities, Canada, 1990 to 2024

Year	Sulphur oxides (emissions in kilotonnes)	Nitrogen oxides (emissions in kilotonnes)
1990	618.4	257.0
1991	592.1	250.9
1992	610.7	262.9
1993	547.2	243.0
1994	559.8	240.0
1995	532.6	248.1
1996	542.2	269.0
1997	591.3	287.7
1998	603.6	310.1
1999	601.1	306.4
2000	619.2	326.8
2001	623.9	313.0
2002	624.3	314.9
2003	630.4	293.0
2004	581.5	267.5
2005	521.9	253.7
2006	458.9	224.3
2007	491.9	238.8
2008	427.5	225.1
2009	384.0	218.0
2010	333.9	233.7

Year	Sulphur oxides (emissions in kilotonnes)	Nitrogen oxides (emissions in kilotonnes)
2011	293.2	199.8
2012	284.2	166.3
2013	278.2	162.0
2014	269.2	167.2
2015	251.5	152.3
2016	253.1	152.4
2017	245.4	145.0
2018	220.2	129.0
2019	205.4	124.8
2020	168.2	101.9
2021	169.0	100.1
2022	152.3	95.2
2023	134.8	90.3
2024	108.5	81.1

Note: Carbon monoxide, fine particulate matter, volatile organic compounds and ammonia are not shown in the table due to their low share (≤ 1%) of total emissions in 2024. The indicator excludes emissions from industries that generate electricity and heat as a supporting activity rather than as their primary purpose.
Source: Environment and Climate Change Canada (2026) Air Pollutant Emissions Inventory.