Environment and Climate Change Canada
Environnement et Changement climatique Canada

2019 National Inventory Report 1990–2017: Greenhouse Gas Sources and Sinks in Canada

Canada's Submission to the United Nations Framework Convention on Climate Change

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Canada

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1. Greenhouse gases—Canada—Measurement—Periodicals
2. Methane—Environmental aspects—Canada—Periodicals
3. Nitrous oxide—Environmental aspects—Canada—Periodicals
4. Carbon dioxide—Environmental aspects—Canada—Periodicals
5. Pollution—Canada—Measurement—Periodicals
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Aussi disponible en français

TABLE OF CONTENTS

LIST OF COMMON ABBREVIATIONS AND UNITS

Abbreviations

CAC	Criteria Air Contaminant
CANSIM	Statistics Canada's key socioeconomic database
CEPA 1999	*Canadian Environmental Protection Act, 1999*
CESI	Canadian Environmental Sustainability Indicators
CFC	chlorofluorocarbon
CFS	Canadian Forest Service
ECCC	Environment and Climate Change Canada
EF	emission factor
GDP	gross domestic product
GHG	greenhouse gas
GHGRP	Greenhouse Gas Reporting Program
HFC	hydrofluorocarbon
HWP	harvested wood products
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial Proccesses and Product Use
LULUCF	Land Use, Land-use Change and Forestry
N/A	not available
MSW	municipal solid waste
NIR	National Inventory Report
NMVOC	non-methane volatile organic compound
NPRI	National Pollutant Release Inventory
ODS	ozone-depleting substance
OECD	Organisation for Economic Co-operation and Development
PFC	perfluorocarbon
POP	persistent organic pollutant
QA	quality assurance
QC	quality control
RESD	Report on Energy Supply and Demand in Canada
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change

Chemical Formulas

Al	aluminium
Al_2O_3	alumina
CaC_2	calcium carbide
$CaCO_3$	calcium carbonate; limestone
$CaMg(CO_3)_2$	dolomite (also $CaCO_3 \cdot MgCO_3$)
CaO	lime; quicklime; calcined limestone
CF_4	carbon tetrafluoride
C_2F_6	carbon hexafluoride
CH_3OH	methanol
CH_4	methane
C_2H_6	ethane
C_3H_8	propane
C_4H_{10}	butane
C_2H_4	ethylene
C_6H_6	benzene
$CHCl_3$	chloroform
CO	carbon monoxide

CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
H_2	hydrogen
H_2O	water
H_2S	hydrogen sulphide
HCFC	hydrochlorofluorocarbon
HCl	hydrochloric acid
HF	hydrogen fluoride
HNO_3	nitric acid
K_2CO_3	potassium carbonate
Mg	magnesium
$MgCO_3$	magnesite; magnesium carbonate
MgO	magnesia; dolomitic lime
N	nitrogen
N_2	nitrogen gas
Na_2CO_3	sodium carbonate; soda ash
Na_3AlF_6	cryolite
NF_3	nitrogen trifluoride
NH_3	ammonia
NH_4+	ammonium
NH_4NO_3	ammonium nitrate
N_2O	nitrous oxide
N_2O-N	Nitrous oxide emissions represented in terms of nitrogen
NO	nitric oxide
NO_2	nitrogen dioxide
NO_3-	nitrate
NO_x	nitrogen oxides
O_2	oxygen
SF_6	sulphur hexafluoride
SiC	silicon carbide
SO_2	sulphur dioxide
SO_x	sulphur oxides

Notation Keys

IE	included elsewhere
NA	not applicable
NE	not estimated
NO	not occurring

Units

g	gram
Gg	gigagram
Gt	gigatonne
ha	hectare
kg	kilogram
kha	kilohectare
km	kilometre
kt	kilotonne
kWh	kilowatt-hour
m	metre
Mg	megagram
Mha	megahectare
mm	millimetre
Mt	megatonne
MW	megawatt
PJ	petajoule
t	tonne
TWh	terrawatt-hour

LIST OF TABLES

ANNEX 8

IPCC SECTOR ROUNDING PROTOCOL

A rounding protocol has been developed for the emission and removal estimates presented by activity sectors defined by the Intergovernmental Panel on Climate Change (IPCC) (Annexes 9 & 11) in order to reflect their uncertainty levels. The accuracy of a value is reflected by presenting the emission and removal estimates rounded to an appropriate number of significant figures based on the uncertainty of the category in question. The number of significant figures to which each source and sink category has been rounded, using the rounding rules provided in this protocol, can be found in Table A8–1.

A large number of the uncertainty ranges that are used for the various categories were developed using Monte Carlo analysis, as performed by ICF Consulting (ICF Consulting 2004, 2005), using the 2001 inventory estimates submitted in the NIR 2003. Default uncertainty values published by the IPCC (IPCC/OECD/IEA 1997; IPCC 2001; IPCC 2006) and those resulting from expert elicitation were also utilized for some ranges. Since 2004–2005, many methodological changes, refinements and updates, including updates to the uncertainty parameters themselves, have been made. The uncertainty ranges have been calculated around the mean values established by these analyses.

For a more complete description of the analysis of uncertainty in Canada's emission estimates, please refer to Annex 2, which includes tables of current uncertainty values. Recent updates to uncertainty estimates are provided in the respective sectoral chapters.

The following uncertainty values have been used to establish the number of significant figures (up to a maximum of 2 decimal places) to which the estimates have been rounded:

- uncertainty greater than 50%: one significant figure;
- uncertainty between 10% and 50%: two significant figures; and
- uncertainty less than 10%: three significant figures.

This rounding protocol does not apply to estimates presented by Canadian Economic Sectors (Annexes 10 & 12) which have been rounded to the nearest 1 Mt and 0.1 Mt for National-level estimates (Annex 10) and provincial/territorial-level estimates (Annex 12), respectively.

All calculations, including the summing of emission totals, were made using unrounded data. The rounding protocol was applied only after the calculations had been completed. The reader should also note that formatting this report limits the maximum number of decimal places and, therefore, even though a zero entry is recorded, some emissions may exist in that category (zero emissions are identified with a dash "-"). As a result of these procedures, individual values in the emission tables may not add up to the subtotals and/or overall totals.

Table A8–1 Number of Significant Figures Applied to IPCC Sector GHG Summary Tables

Greenhouse Gas Categories	Number of Significant Figures							
	CO_2	CH_4	N_2O	HFCs	PFCs	SF_6	NF_3	TOTAL
TOTAL	**3**	**2**	**2**	**2**	**2**	**2**	**1**	**3**
ENERGY	**3**	**2**	**1**					**3**
a. Stationary Combustion Sources	**3**	**1**	**1**					**3**
Public Electricity and Heat Production	3	2	1					3
Petroleum Refining Industries	2	1	1					2
Oil and Gas Extraction	3	1	1					3
Mining	3	1	1					3
Manufacturing Industries	3	2	2					3
Iron and Steel	3	1	1					3
Non Ferrous Metals	3	2	1					3
Chemical	3	2	1					3
Pulp and Paper	3	1	1					3
Cement	3	1	1					3
Other Manufacturing	3	2	1					3
Construction	3	2	2					3
Commercial & Institutional	3	2	1					3
Residential	3	1	1					3
Agriculture & Forestry	3	1	1					3
b. Transport	**3**	**2**	**2**					**3**
Domestic Aviation	3	1	1					3
Road Transportation	3	1	2					3
Light-Duty Gasoline Vehicles	3	1	2					3
Light-Duty Gasoline Trucks	3	1	2					3
Heavy-Duty Gasoline Vehicles	3	1	2					3
Motorcycles	3	1	2					3
Light-Duty Diesel Vehicles	3	1	2					3
Light-Duty Diesel Trucks	3	1	2					3
Heavy-Duty Diesel Vehicles	3	1	2					3
Propane & Natural Gas Vehicles	3	1	2					3
Railways	3	1	1					3
Domestic Navigation	3	2	1					3
Other Transportation	3	2	1					3
Off-road Agriculture & Forestry	3	2	1					3
Off-road Commercial & Institutional	3	2	1					3
Off-road Manfacturing, Mining & Construction	3	2	1					3
Off-road Residential	3	2	1					3
Off-road Other Transportation	3	2	1					3
Pipeline Transport	3	2	1					3
c. Fugitive Sources	**2**	**2**	**2**					**2**
Coal Mining		1						1
Oil and Natural Gas	2	2	1					2
Oil	2	2	1					2
Natural Gas	2	2	1					2
Venting	2	2	1					2
Flaring	3	2	1					3
d. CO_2 Transport and Storage	**1**							**1**
INDUSTRIAL PROCESSES AND PRODUCT USE	**3**	**2**	**3**	**2**	**3**	**2**	**1**	**3**
a. Mineral Products	**2**							**2**
Cement Production	2							2
Lime Production	2							2
Mineral Product Use	2							2
b. Chemical Industry	**3**	**2**	**3**					**3**
Ammonia Production	3							3
Nitric Acid Production			3					3
Adipic Acid Production			2					2
Petrochemical and Carbon Black Production	3	2	3					3
c. Metal Production	**3**	**1**			**3**	**3**		**3**
Iron and Steel Production	3	1						3
Aluminium Production	3				3	3		3
SF_6 Used in Magnesium Smelters and Casters						3		3
d. Production and Consumption of Halocarbons, SF_6 and NF_3				**2**	**2**	**2**	**1**	**2**
e. Non-Energy Products from Fuels and Solvent Use	**2**							**2**
f. Other Product Manufacture and Use	**2**		**2**		**2**	**2**		**2**
AGRICULTURE	**1**	**2**	**2**		**2**	**2**		**2**
a. Enteric Fermentation		**2**						**2**
b. Manure Management		**2**	**1**					**2**
c. Agricultural Soils			**2**					**2**
Direct Sources			2					2
Indirect Sources			1					1
d. Field Burning of Agricultural Residues		**1**	**1**					**1**
e. Liming, Urea Application and Other Carbon-Containing Fertilizers	**1**							**1**
WASTE	**1**	**2**	**1**					**2**
a. Solid Waste Disposal		**2**						**2**
b. Biological Treatment of Solid Waste		**1**	**1**					**1**
c. Wastewater Treatment and Discharge		**2**	**1**					**2**
d. Incineration and Open Burning of Waste	**1**	**1**	**1**					**1**
LAND USE, LAND-USE CHANGE AND FORESTRY	**2**	**2**	**2**					**2**
a. Forest Land	**2**	**1**	**1**					**2**
b. Cropland	**2**	**2**	**2**					**2**
c. Grassland		**1**	**1**					**1**
d. Wetlands	**2**	**2**	**2**					**2**
e. Settlements	**2**	**2**	**2**					**2**
f. Harvested Wood Products	**2**							**2**

ANNEX 9

CANADA'S GREENHOUSE GAS EMISSION TABLES BY IPCC SECTOR, 1990–2017

In this National Inventory Report, emission estimates are primarily presented for each of the activity sectors defined by the Intergovernmental Panel on Climate Change (IPCC): Energy, Industrial Processes and Product Use, Agriculture, Land Use, Land-use Change and Forestry, and Waste. This is consistent with the categorization outlined in the UNFCCC reporting guidelines on annual inventories for Parties included in Annex I to the Convention (Decision 24/CP.19).[1]

This annex contains summary tables (Table A9–1 to Table A9–3) illustrating national GHG emissions by year, by gas and by IPCC sector. National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Canada's greenhouse gas emission tables are also available in electronic file format online at https://open.canada.ca.

1 Available online at http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf.

Table A9–1 GHG Source/Sink Category Description

GHG Source/Sink Categories	
ENERGY	
a. Stationary Combustion Sources	
Public Electricity and Heat Production	Emissions from fuel consumed by utility electricity generation and steam production (for sale)
Petroleum Refining Industries	Emissions from fuel consumed by petroleum refining industries
Oil and Gas Extraction	Emissions from fuel consumed by oil and gas extraction industries
Mining	Emissions from fuel consumed by:
	– Metal and non-metal mines, coal mines, stone quarries, and gravel pits
	– Mineral exploration and contract drilling operations
Manufacturing Industries	Emissions from fuel consumed by the following industries:
	– Iron and Steel (steel foundries, casting and rolling mills)
	– Non-ferrous metals (aluminium, magnesium and other production)
	– Chemical (fertilizer manufacturing, organic and inorganic chemical manufacturing)
	– Pulp and Paper (primarily pulp, paper, and paper product manufacturers)
	– Cement and other non-metallic mineral production
	– Other manufacturing industries not listed (such as automobile manufacturing, textiles, food and beverage industries)
Construction	Emissions from fuels consumed by the construction industry—buildings, highways etc.
Commercial & Institutional	Emissions from fuel consumed by:
	– Service industries related to mining, communication, wholesale and retail trade, finance and insurance, real estate, education, etc.)
	– Federal, provincial and municipal establishments
	– National Defence and Canadian Coast Guard
	– Train stations, airports and warehouses
Residential	Emissions from fuel consumed for personal residences (homes, apartment hotels, condominiums and farm houses)
Agriculture & Forestry	Emissions from fuel consumed by:
	– Forestry and logging service industry
	– Agricultural, hunting and trapping industry (excluding food processing, farm machinery manufacturing and repair)
b. Transportation	**Emissions resulting from the:**
Domestic Aviation	– Consumption of fossil fuels by aircrafts flying domestically with Canadian purchased fuel
Road Transportation	– Consumption of fossil fuels (including non-CO_2 emissions from ethanol and biodiesel) by vehicles licensed to operate on roads
Railways	– Consumption of fossil fuels (including non-CO_2 emissions from biodiesel) by Canadian railways
Domestic Navigation	– Consumption of fossil fuels (including non-CO_2 emissions from ethanol and biodiesel) by Canadian registered marine vessels fuelled domestically
Others—Off-road	– Consumption of fossil fuels (including non-CO_2 emissions from ethanol and biodiesel) by moblie combustion devices not licensed to operate on roads
Others—Pipeline Transport	– Transportation and distribution of crude oil, natural gas and other products
c. Fugitive Sources	**Intentional and unintentional releases of greenhouse gases from the following activities:**
Coal Mining	– Underground and surface mining, abandoned underground coal mines
Oil and Natural Gas	– Conventional and unconventional oil and gas exploration, production, transportation and distribution
d. CO_2 Transport and Storage	**Intentional and unintentional releases of greenhouse gases from the transport and storage of carbon dioxide**
INDUSTRIAL PROCESSES AND PRODUCT USE	Emissions resulting from the following process activities:
a. Mineral Products	**– Cement production, lime production, and mineral product use (which includes glass production, other uses of soda ash, magnesite use, and limestone and dolomite use)**
b. Chemical Industry	**– Production of ammonia, nitric acid, adipic acid, carbide and petrochemicals. Petrochemical production includes production of carbon black, ethylene dichloride, ethylene, methanol and styrene**
c. Metal Production	**– Aluminum production, iron and steel production, and magnesium production and casting**
d. Production and Consumption of Halocarbons, SF_6 and NF_3	**– By-product production of HFC-23; use of HFCs and/or PFCs in air conditioning units, refrigeration units, fire extinguishers, aerosol cans, solvents, foam blowing, semiconductor manufacturing and electronics industry, and use of SF_6 and NF_3 in semiconductor manufacturing**
e. Non-Energy Products from Fuels and Solvent Use	**– Non-energy use of fossil fuels (including solvents and lubricants) that are not accounted for elsewhere under the Industrial Processes and Product Use Sector**
f. Other Product Manufacture and Use	**– Use of N_2O as an anaesthetic and propellant; use of urea in selective catalytic reduction (SCR) equipped vehicles; use of SF_6 in electrical equipment; and PFCs in electronics industry**
AGRICULTURE	Emissions resulting from the:
a. Enteric Fermentation	**– Eructation of CH_4 during the digestion of plant material by (mainly) ruminants**
b. Manure Management	**– Release of CH_4 and N_2O due to microbial activity during the storage of feces, urine and bedding materials from the cleaning of barns and pens**
	– Indirect N_2O emissions from volatilization and leaching of nitrogen from animal manure during storage
c. Agricultural Soils	
Direct sources	**– Direct N_2O emissions from Synthetic fertilizer, manure on cropland, pasture range and paddock, crop residue, tillage, summerfallow, irrigation and cultivation of organic soils**
Indirect Sources	**– Indirect N_2O emissions from volatilization and leaching of animal manure nitrogen, synthetic fertilizer nitrogen and crop residue nitrogen**
d. Field Burning of Agricultural Residues	**– CH_4 and N_2O emissions from crop residue burning**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**– Direct emissions of CO_2 from the application of lime, urea and other fertilizers containing carbon**
WASTE	Emissions resulting from:
a. Solid Waste Disposal	**– Municipal solid waste management sites (landfills) and dedicated wood waste landfills**
b. Biological Treatment of Solid Waste	**– Composting of municipal solid waste**
c. Wastewater Treatment and Discharge	**– Municipal and industrial wastewater treatment**
d. Incineration and Open Burning of Waste	**– Municipal solid, hazardous and clinical waste, and sewage sludge incineration**
LAND USE, LAND-USE CHANGE AND FORESTRY	Emissions and removals resulting from:
a. Forest Land	**– Managed forests and lands converted to forests; reports emissions and removals from forest growth and anthropogenic disturbances related to forest management but tracks seperately emissions and removals from fire and most insect disturbances**
b. Cropland	**– Management practices on lands in annual crops, summerfallow and perennial crops (forage, specialty crops, orchards); immediate and residual emissions from lands converted to cropland**
c. Grassland	**– Managed agricultural grassland**
d. Wetlands	**– Peatlands disturbed for peat extraction, or land flooded from hydro reservoir development**
e. Settlements	**– Forest and grassland converted to built-up land (settlements, transport infrastructure, oil & gas infrastructure, mining, etc); urban tree growth**
f. Harvested Wood Products	**– Use and disposal of harvested wood products manufactured from wood coming from forest harvest and forest conversion activities in Canada**

Table A9–2 Canada's 1990–2017 GHG Emissions by Sector

Greenhouse Gas Categories	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
	kt CO_2 eq																											
TOTAL[1]	**602 000**	**593 000**	**610 000**	**612 000**	**634 000**	**651 000**	**672 000**	**687 000**	**695 000**	**707 000**	**731 000**	**720 000**	**724 000**	**741 000**	**743 000**	**730 000**	**721 000**	**744 000**	**723 000**	**682 000**	**693 000**	**703 000**	**711 000**	**722 000**	**723 000**	**722 000**	**708 000**	**716 000**
ENERGY	**479 000**	**469 000**	**487 000**	**488 000**	**505 000**	**519 000**	**538 000**	**553 000**	**563 000**	**578 000**	**600 000**	**593 000**	**595 000**	**608 000**	**604 000**	**595 000**	**586 000**	**610 000**	**591 000**	**560 000**	**569 000**	**576 000**	**578 000**	**589 000**	**594 000**	**592 000**	**575 000**	**583 000**
a. Stationary Combustion Sources	**284 000**	**278 000**	**288 000**	**283 000**	**290 000**	**297 000**	**306 000**	**313 000**	**318 000**	**330 000**	**352 000**	**348 000**	**352 000**	**361 000**	**353 000**	**342 000**	**333 000**	**354 000**	**338 000**	**316 000**	**318 000**	**324 000**	**323 000**	**327 000**	**331 000**	**330 000**	**320 000**	**327 000**
Public Electricity and Heat Production	94 300	95 700	102 000	92 900	95 200	98 500	98 100	110 000	123 000	120 000	132 000	133 000	128 000	133 000	126 000	125 000	119 000	124 000	116 000	99 900	102 000	94 200	91 000	87 200	84 300	87 000	81 300	78 600
Petroleum Refining Industries	17 000	16 000	17 000	17 000	16 000	16 000	19 000	19 000	18 000	17 000	17 000	18 000	19 000	20 000	22 000	20 000	20 000	21 000	19 000	19 000	19 000	18 000	19 000	18 000	18 000	18 000	18 000	18 000
Oil and Gas Extraction	34 700	31 700	34 300	37 300	38 900	39 900	40 000	38 200	41 900	54 000	57 800	60 800	64 200	67 200	65 500	62 700	66 000	73 900	69 800	72 000	73 400	80 000	86 300	92 300	97 100	98 800	99 700	106 000
Mining	4 610	4 300	3 660	3 990	4 530	4 950	5 000	5 210	4 660	4 450	4 860	4 880	4 510	4 910	4 780	4 310	5 100	5 710	6 060	5 610	5 700	5 700	6 030	5 440	5 050	4 580	4 330	3 950
Manufacturing Industries	56 200	54 000	53 000	50 800	54 300	56 100	57 700	57 800	54 800	55 900	56 000	51 700	51 400	49 300	51 000	48 100	46 300	47 200	44 600	39 900	41 200	44 200	43 700	44 800	45 100	43 600	41 800	42 600
Iron and Steel	4 950	4 960	5 290	5 390	6 020	5 780	6 150	6 160	6 230	6 330	6 210	5 010	5 860	5 530	5 830	5 550	5 550	6 000	5 770	4 290	4 980	5 290	5 500	5 580	6 030	5 700	5 560	5 890
Non Ferrous Metals	3 310	2 700	2 940	2 830	3 430	3 220	4 010	3 890	3 880	3 690	3 580	3 780	3 520	3 530	3 540	3 660	3 490	3 850	3 830	2 930	3 070	3 430	2 970	3 100	2 920	3 110	3 190	3 450
Chemical	8 260	8 650	8 600	8 530	10 000	10 300	9 920	10 200	10 800	11 200	10 700	9 470	9 020	8 150	8 970	8 330	8 890	8 720	8 800	8 880	9 920	11 100	11 000	11 600	12 400	12 000	10 700	9 960
Pulp and Paper	14 600	14 100	13 000	13 000	13 000	12 900	13 500	13 300	12 200	12 600	12 600	11 600	11 000	10 400	10 200	8 720	7 550	7 800	6 320	6 440	6 020	6 270	6 050	6 280	6 150	6 120	6 020	6 190
Cement	3 970	3 440	3 400	3 470	4 070	4 160	4 130	4 040	4 190	4 460	4 640	4 600	4 970	4 990	5 460	5 420	5 730	5 030	4 890	4 480	4 060	4 300	4 020	3 850	4 020	3 940	3 770	4 080
Other Manufacturing	21 200	20 200	19 700	17 600	17 800	19 700	20 000	20 200	17 500	17 600	18 200	17 200	17 000	16 700	16 900	16 400	15 100	15 800	15 000	12 900	13 200	13 800	14 200	14 400	13 500	12 800	12 600	13 000
Construction	1 880	1 630	1 760	1 390	1 400	1 180	1 270	1 260	1 120	1 170	1 080	1 030	1 270	1 350	1 420	1 450	1 410	1 410	1 390	1 230	1 520	1 370	1 390	1 290	1 300	1 300	1 280	1 310
Commercial and Institutional	26 300	26 900	27 600	28 500	27 800	29 400	30 000	30 400	27 900	29 400	33 400	32 800	34 300	35 400	34 100	32 700	29 700	30 800	30 400	30 200	28 800	30 700	28 700	29 700	31 300	30 100	30 100	31 300
Residential	46 500	45 000	45 900	48 100	49 000	47 500	52 200	48 600	43 700	45 300	47 400	44 200	46 700	48 300	46 600	45 600	43 500	47 800	47 200	45 200	42 700	45 800	42 300	43 800	45 600	43 100	39 200	40 900
Agriculture and Forestry	2 410	2 740	3 250	3 050	2 540	2 770	2 930	2 920	2 600	2 680	2 570	2 240	2 160	2 300	2 210	2 190	2 110	2 690	2 750	2 760	3 110	3 680	3 780	3 790	3 840	3 630	3 810	3 670
b. Transport	**146 000**	**141 000**	**145 000**	**148 000**	**155 000**	**159 000**	**163 000**	**169 000**	**173 000**	**178 000**	**179 000**	**177 000**	**178 000**	**183 000**	**188 000**	**192 000**	**191 000**	**195 000**	**194 000**	**189 000**	**197 000**	**197 000**	**197 000**	**202 000**	**200 000**	**202 000**	**201 000**	**201 000**
Domestic Aviation	7 180	6 310	6 320	5 980	6 260	6 630	7 100	7 150	7 440	7 810	7 720	7 090	6 910	7 000	7 490	7 620	7 690	7 750	7 320	6 420	6 440	6 330	7 300	7 570	7 220	7 140	7 080	7 100
Road Transportation	83 800	79 900	80 400	81 900	85 600	86 600	90 400	96 400	103 000	108 000	111 000	116 000	118 000	122 000	125 000	130 000	130 000	133 000	133 000	132 000	137 000	139 000	140 000	144 000	141 000	143 000	145 000	144 000
Light-Duty Gasoline Vehicles	41 600	39 900	40 200	40 700	41 100	40 400	40 000	40 100	40 400	40 500	40 400	41 500	41 900	41 800	41 200	41 400	40 400	39 700	38 500	38 100	37 800	36 500	35 400	35 600	34 200	34 500	34 600	33 000
Light-Duty Gasoline Trucks	20 300	19 700	20 100	20 600	22 500	23 900	25 300	27 100	28 900	30 800	31 800	33 400	34 700	36 000	37 100	38 100	38 600	39 200	39 000	39 900	41 300	41 400	41 900	43 300	43 400	45 200	48 100	48 300
Heavy-Duty Gasoline Vehicles	6 320	6 360	6 680	7 170	7 350	7 170	7 940	8 810	9 850	10 300	10 500	11 600	11 700	12 000	12 600	11 700	11 900	12 000	12 100	12 200	12 500	12 100	12 800	13 400	12 400	12 300	13 000	13 000
Motorcycles	90	87	85	83	81	78	75	74	72	110	123	144	161	176	189	203	216	225	231	239	248	251	260	262	260	271	287	289
Light-Duty Diesel Vehicles	467	403	383	379	397	400	409	455	500	537	600	603	643	710	762	605	658	669	619	574	663	793	798	856	857	901	842	807
Light-Duty Diesel Trucks	153	138	134	138	150	156	182	222	259	294	338	363	370	408	442	344	329	347	366	368	421	482	473	531	641	813	903	1 040
Heavy-Duty Diesel Vehicles	13 600	12 200	11 800	12 100	13 100	13 600	15 700	18 900	21 900	24 700	26 500	27 900	27 800	30 300	32 100	36 900	38 100	40 500	42 000	40 300	44 200	47 600	48 700	50 000	49 800	48 600	46 900	47 100
Propane and Natural Gas Vehicles	1 160	1 140	1 070	724	913	903	797	762	795	643	522	574	465	429	430	381	293	199	126	62	38	40	30	18	9	8	9	10
Railways	6 920	6 410	6 700	6 680	6 910	6 260	6 120	6 210	5 980	6 330	6 530	6 470	5 950	6 010	6 180	6 580	6 890	7 380	7 800	6 670	6 540	7 390	7 560	7 290	7 470	7 120	6 540	6 570
Domestic Navigation	4 780	4 990	4 840	4 230	4 390	4 090	4 210	4 290	4 930	4 760	4 930	5 380	5 400	6 270	6 660	6 370	5 870	6 500	6 270	6 490	6 760	5 590	5 580	5 210	4 790	4 660	3 580	4 380
Other Transportation	43 600	43 500	46 600	49 300	52 100	55 600	55 600	55 400	52 100	51 000	48 800	42 200	42 500	42 400	42 900	41 900	40 500	40 600	39 800	37 600	39 500	38 400	36 100	37 700	39 000	40 500	38 900	39 500
Off-Road Agriculture & Forestry	9 040	9 090	9 180	10 200	11 500	12 400	12 600	12 900	12 400	11 700	11 600	10 500	10 300	11 200	11 400	11 400	10 700	11 000	10 600	10 200	11 100	11 000	10 400	10 500	10 400	10 400	9 660	9 840
Off-Road Commercial & Institutional	1 520	1 490	1 570	1 690	1 830	1 990	2 010	2 090	2 070	2 020	2 080	2 130	2 060	2 290	2 420	2 400	2 390	2 540	2 550	2 460	2 680	2 730	2 520	2 720	2 760	2 720	2 550	2 740
Off-Road Manufacturing, Mining & Construction	9 160	9 100	9 720	10 400	11 300	12 500	12 500	12 600	10 800	10 700	11 300	9 910	10 100	11 000	11 200	10 400	10 200	11 100	11 700	11 200	12 600	13 200	12 000	12 300	12 200	13 100	12 200	13 000
Off-Road Residential	241	238	248	284	327	380	451	531	615	705	775	913	1 030	1 150	1 250	1 250	1 230	1 240	1 190	1 160	1 160	1 300	1 220	1 180	1 210	1 220	1 170	1 160
Off-Road Other Transportation	16 700	16 000	16 000	16 300	16 400	16 300	15 600	14 700	13 700	13 300	11 700	8 440	8 110	7 600	7 990	6 390	6 260	6 320	6 220	6 150	6 290	4 450	4 310	4 300	4 540	4 820	4 920	5 010
Pipeline Transport	6 910	7 650	9 890	10 400	10 800	12 000	12 500	12 600	12 500	12 600	11 300	10 300	10 900	9 120	8 550	10 200	9 700	8 450	7 520	6 360	5 720	5 650	5 730	6 720	7 890	8 160	8 420	7 800
c. Fugitive Sources	**49 000**	**50 000**	**54 000**	**57 000**	**60 000**	**64 000**	**68 000**	**71 000**	**72 000**	**70 000**	**69 000**	**67 000**	**65 000**	**63 000**	**63 000**	**61 000**	**61 000**	**61 000**	**59 000**	**55 000**	**55 000**	**55 000**	**59 000**	**61 000**	**63 000**	**60 000**	**55 000**	**56 000**
Coal Mining	3 000	3 000	2 000	3 000	3 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	2 000	1 000	1 000	1 000	1 000
Oil and Natural Gas	46 000	47 000	52 000	55 000	58 000	61 000	66 000	68 000	70 000	68 000	68 000	65 000	63 000	62 000	62 000	60 000	60 000	59 000	58 000	54 000	53 000	54 000	57 000	59 000	61 000	59 000	54 000	54 000
Oil	5 000	5 200	5 600	5 600	5 700	6 100	6 300	6 600	6 500	6 400	6 500	6 800	6 500	6 300	6 300	5 900	5 800	5 700	5 400	5 100	5 000	4 900	5 700	5 700	5 600	5 400	5 200	5 200
Natural Gas	13 000	14 000	15 000	15 000	16 000	17 000	19 000	18 000	20 000	19 000	18 000	16 000	14 000	14 000	14 000	14 000	14 000	13 000	13 000	13 000	12 000	12 000	12 000	13 000	13 000	12 000	12 000	13 000
Venting	23 000	24 000	27 000	29 000	31 000	33 000	35 000	37 000	37 000	37 000	38 000	38 000	37 000	37 000	36 000	35 000	35 000	35 000	35 000	32 000	31 000	32 000	33 000	34 000	36 000	35 000	30 000	30 000
Flaring	4 630	4 390	4 490	4 840	5 050	5 330	5 630	5 910	7 360	5 640	5 740	5 160	5 730	5 160	5 360	5 370	5 650	5 320	4 760	4 200	4 700	5 010	5 840	7 120	7 260	6 990	6 010	6 730
d. CO_2 Transport and Storage	-	-	-	-	-	-	-	-	-	-	**0.09**	**0.09**	**0.09**	**0.09**	**0.09**	**0.09**	**0.09**	**0.09**	**0.09**	**0.09**	**0.09**	**0.09**	**0.09**	**0.09**	**0.10**	**0.20**	**0.30**	**0.30**
INDUSTRIAL PROCESSES AND PRODUCT USE	**56 600**	**58 000**	**55 800**	**55 100**	**57 000**	**57 800**	**59 700**	**59 600**	**56 000**	**53 700**	**53 200**	**50 800**	**53 200**	**54 900**	**59 100**	**55 600**	**56 000**	**54 800**	**54 000**	**47 300**	**50 600**	**54 100**	**58 200**	**55 300**	**52 700**	**52 900**	**54 500**	**53 800**
a. Mineral Products	**8 400**	**7 500**	**7 300**	**7 300**	**8 400**	**9 100**	**8 800**	**9 500**	**9 600**	**9 800**	**10 000**	**9 400**	**9 700**	**9 700**	**10 000**	**10 000**	**10 000**	**10 000**	**9 300**	**7 200**	**7 800**	**8 000**	**8 500**	**7 800**	**7 800**	**8 100**	**7 900**	**8 500**
Cement Production	5 800	4 700	4 800	4 800	5 700	6 500	6 100	6 600	6 800	7 000	7 200	7 000	7 100	7 200	7 500	7 600	7 700	7 700	7 000	5 400	6 000	6 100	6 600	6 000	5 900	6 300	6 200	6 800
Lime Production	1 800	1 800	1 800	1 800	1 900	1 900	1 800	1 900	1 900	2 000	1 900	1 700	1 700	1 700	1 800	1 700	1 700	1 600	1 600	1 200	1 400	1 500	1 500	1 400	1 500	1 400	1 400	1 400
Mineral Product Use	860	980	670	660	820	750	890	990	940	790	910	770	820	790	880	910	880	810	750	610	410	450	440	380	380	410	390	380
b. Chemical Industry	**17 300**	**16 600**	**16 400**	**16 100**	**18 300**	**18 000**	**18 500**	**17 100**	**12 400**	**9 200**	**7 990**	**7 520**	**8 250**	**8 130**	**10 400**	**9 470**	**8 070**	**7 520**	**8 420**	**5 870**	**5 470**	**6 090**	**6 410**	**6 400**	**5 990**	**6 510**	**6 560**	**5 850**
Ammonia Production	2 770	2 750	2 530	2 920	3 030	2 940	2 800	2 800	3 100	3 000	2 960	2 600	2 630	2 630	2 930	2 710	2 780	2 580	2 810	2 400	2 490	2 880	3 000	2 950	2 540	2 850	2 790	2 560
Nitric Acid Production	973	1 020	1 040	1 010	919	965	1 060	1 020	995	1 120	1 180	1 230	1 210	1 220	1 180	1 200	1 190	1 090	1 230	1 110	1 060	1 120	1 070	988	1 020	1 120	1 040	935
Adipic Acid Production	10 000	9 600	9 600	8 700	11 000	10 000	11 000	9 500	4 900	1 700	870	770	1 200	1 000	3 000	2 500	1 200	1 400	2 300	640	-	-	-	-	-	-	-	-
Petrochemical and Carbon Black Production	3 260	3 250	3 310	3 460	3 840	3 790	3 620	3 740	3 480	3 390	2 990	2 910	3 210	3 240	3 350	3 020	2 940	2 420	2 070	1 730	1 920	2 090	2 330	2 470	2 430	2 540	2 730	2 360
c. Metal Production	**23 800**	**26 800**	**25 600**	**25 400**	**23 900**	**23 500**	**23 200**	**23 000**	**24 000**	**23 200**	**23 400**	**21 400**	**21 300**	**21 000**	**20 500**	**20 200**	**20 700**	**19 300**	**19 000**	**15 900**	**16 200**	**17 100**	**16 900**	**14 800**	**15 000**	**14 500**	**15 500**	**15 600**
Iron and Steel Production	10 500	12 100	12 400	11 900	11 000	11 500	11 300	11 100	11 400	11 600	11 800	10 800	10 600	10 500	10 600	10 300	11 300	11 100	10 800	8 140	9 170	10 100	10 200	8 040	8 930	8 520	9 270	9 380
Aluminum Production	10 300	11 200	10 900	11 400	10 700	10 000	10 400	10 300	10 500	9 340	8 890	8 260	7 930	8 130	7 770	8 680	8 080	7 630	7 760	7 540	6 870	6 810	6 470	6 530	5 830	5 720	5 990	6 010
SF_6 Used in Magnesium Smelters and Casters	2 960	3 420	2 290	2 110	2 180	2 010	1 560	1 600	2 100	2 160	2 660	2 250	2 800	2 370	2 090	1 230	1 340	489	435	184	198	207	248	209	286	259	271	254
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**980**	**1 100**	**830**	**5**	**5**	**500**	**840**	**1 100**	**1 600**	**2 200**	**2 800**	**3 200**	**3 600**	**4 000**	**4 600**	**5 100**	**5 400**	**6 000**	**6 100**	**6 800**	**7 800**	**8 600**	**9 100**	**9 400**	**10 000**	**11 000**	**12 000**	**13 000**
e. Non-Energy Products from Fuels and Solvent Use	**5 800**	**5 600**	**5 300**	**5 900**	**6 000**	**6 300**	**7 900**	**8 500**	**7 800**	**8 700**	**8 400**	**8 600**	**9 900**	**12 000**	**13 000**	**10 000**	**11 000**	**11 000**	**11 000**	**11 000**	**13 000**	**14 000**	**17 000**	**16 000**	**13 000**	**12 000**	**12 000**	**10 000**
f. Other Product Manufacture and Use	**370**	**370**	**340**	**360**	**370**	**410**	**350**	**390**	**580**	**590**	**630**	**660**	**510**	**640**	**610**	**530**	**490**	**540**	**540**	**430**	**430**	**400**	**530**	**560**	**490**	**580**	**660**	**710**
AGRICULTURE	**47 000**	**47 000**	**48 000**	**50 000**	**52 000**	**54 000**	**55 000**	**55 000**	**56 000**	**56 000**	**57 000**	**56 000**	**56 000**	**58 000**	**59 000**	**60 000**	**58 000**	**58 000**	**58 000**	**56 000**	**55 000**	**55 000**	**57 000**	**59 000**	**58 000**	**58 000**	**59 000**	**60 000**
a. Enteric Fermentation	**22 000**	**23 000**	**24 000**	**24 000**	**25 000**	**27 000**	**27 000**	**27 000**	**27 000**	**27 000**	**28 000**	**29 000**	**29 000**	**29 000**	**30 000**	**31 000**	**30 000**	**29 000**	**28 000**	**26 000**	**25 000**	**25 000**	**25 000**	**25 000**	**24 000**	**24 000**	**24 000**	**24 000**
b. Manure Management	**6 100**	**6 200**	**6 500**	**6 600**	**6 900**	**7 300**	**7 400**	**7 400**	**7 600**	**7 800**	**8 000**	**8 300**	**8 400**	**8 500**	**8 700**	**8 800**	**8 700**	**8 400**	**8 200**	**7 900**	**7 800**	**7 700**	**7 700**	**7 800**	**7 700**	**7 800**	**7 900**	**8 000**
c. Agricultural Soils	**17 000**	**16 000**	**17 000**	**17 000**	**18 000**	**18 000**	**19 000**	**19 000**	**19 000**	**19 000**	**19 000**	**18 000**	**17 000**	**19 000**	**19 000**	**19 000**	**18 000**	**19 000**	**21 000**	**20 000**	**20 000**	**20 000**	**22 000**	**24 000**	**23 000**	**24 000**	**24 000**	**25 000**
Direct Sources	14 000	14 000	14 000	14 000	15 000	15 000	16 000	16 000	16 000	16 000	16 000	15 000	14 000	15 000	16 000	15 000	15 000	16 000	17 000	16 000	17 000	17 000	18 000	20 000	19 000	20 000	20 000	**21 000**
Indirect Sources	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	**4 000**
d. Field Burning of Agricultural Residues	**200**	**200**	**200**	**200**	**200**	**200**	**200**	**200**	**200**	**100**	**100**	**100**	**100**	**100**	**30**	**40**	**50**	**40**	**50**	**50**	**30**	**30**	**40**	**50**	**50**	**60**	**50**	**50**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**1 000**	**1 000**	**1 000**	**1 000**	**1 000**	**2 000**	**1 000**	**2 000**	**2 000**	**2 000**	**2 000**	**1 000**	**2 000**	**2 000**	**1 000**	**1 000**	**1 000**	**2 000**	**2 000**	**2 000**	**2 000**	**2 000**	**2 000**	**3 000**	**2 000**	**3 000**	**3 000**	**3 000**
WASTE	**19 000**	**19 000**	**19 000**	**19 000**	**19 000**	**20 000**	**20 000**	**19 000**	**20 000**	**20 000**	**20 000**	**20 000**	**20 000**	**20 000**	**21 000**	**20 000**	**21 000**	**21 000**	**20 000**	**19 000**	**18 000**	**18 000**	**18 000**	**18 000**	**19 000**	**19 000**	**19 000**	**19 000**
a. Solid Waste Disposal	**18 000**	**18 000**	**18 000**	**18 000**	**18 000**	**18 000**	**18 000**	**18 000**	**18 000**	**18 000**	**18 000**	**18 000**	**18 000**	**18 000**	**19 000**	**18 000**	**19 000**	**19 000**	**18 000**	**17 000**	**16 000**	**16 000**	**16 000**	**16 000**	**17 000**	**17 000**	**17 000**	**17 000**
b. Biological Treatment of Solid Waste	**60**	**60**	**60**	**60**	**70**	**80**	**100**	**100**	**100**	**200**	**200**	**200**	**200**	**200**	**300**	**300**	**300**	**400**	**400**	**400**	**400**	**400**	**400**	**400**	**500**	**500**	**400**	**400**
c. Wastewater Treatment and Discharge	**850**	**860**	**870**	**880**	**900**	**910**	**920**	**920**	**930**	**930**	**940**	**970**	**970**	**980**	**990**	**990**	**1 000**	**1 000**	**1 000**	**1 000**	**1 100**	**1 100**	**1 100**	**1 100**	**1 100**	**1 200**	**1 200**	**1 200**
d. Incineration and Open Burning of Waste	**500**	**500**	**500**	**600**	**600**	**700**	**600**	**600**	**600**	**700**	**700**	**700**	**700**	**600**	**700**	**600**	**600**	**500**	**600**	**500**	**500**	**500**	**300**	**400**	**400**	**400**	**400**	**400**
LAND USE, LAND-USE CHANGE AND FORESTRY	**-68 000**	**-75 000**	**-67 000**	**-60 000**	**-62 000**	**-49 000**	**-57 000**	**-59 000**	**-66 000**	**-56 000**	**-42 000**	**-58 000**	**-44 000**	**-50 000**	**-27 000**	**-21 000**	**-30 000**	**-32 000**	**-37 000**	**-49 000**	**-32 000**	**-33 000**	**-36 000**	**-33 000**	**-32 000**	**-25 000**	**-25 000**	**-24 000**
a. Forest Land	**-210 000**	**-220 000**	**-220 000**	**-210 000**	**-220 000**	**-200 000**	**-210 000**	**-210 000**	**-200 000**	**-200 000**	**-190 000**	**-190 000**	**-180 000**	**-170 000**	**-170 000**	**-160 000**	**-150 000**	**-150 000**	**-160 000**	**-160 000**	**-150 000**	**-160 000**	**-160 000**	**-160 000**	**-160 000**	**-150 000**	**-150 000**	**-150 000**
b. Cropland	**8 300**	**7 100**	**5 600**	**4 400**	**3 000**	**1 500**	**650**	**-930**	**-2 100**	**-3 300**	**-4 700**	**-5 900**	**-7 300**	**-8 600**	**-9 800**	**-11 000**	**-12 000**	**-12 000**	**-12 000**	**-12 000**	**-12 000**	**-12 000**	**-11 000**	**-10 000**	**-9 500**	**-8 600**	**-7 800**	**-6 800**
c. Grassland	**0.6**	**1**	**1**	**0.4**	**1**	**0.3**	**0.5**	**0.6**	**0.7**	**0.8**	**1**	**1**	**1**	**1**	**0.9**	**0.9**	**1**	**0.4**	**0.5**	**0.4**	**0.3**	**0.6**	**2**	**2**	**0.8**	**1**	**1**	**1**
d. Wetlands	**5 300**	**5 200**	**5 100**	**5 400**	**3 200**	**3 100**	**3 000**	**3 100**	**3 400**	**3 700**	**3 200**	**3 100**	**3 200**	**3 000**	**3 200**	**3 100**	**3 200**	**3 200**	**3 200**	**3 100**	**3 100**	**3 000**	**3 000**	**3 000**	**3 100**	**2 900**	**2 900**	**3 200**
e. Settlements	**3 800**	**3 700**	**3 600**	**3 400**	**3 400**	**3 200**	**3 200**	**3 200**	**3 200**	**3 300**	**3 300**	**3 200**	**3 500**	**3 600**	**3 700**	**3 800**	**4 000**	**4 000**	**3 900**	**3 800**	**3 600**	**3 700**	**3 700**	**3 800**	**3 900**	**3 900**	**3 800**	**3 500**
f. Harvested Wood Products	**130 000**	**130 000**	**140 000**	**140 000**	**140 000**	**150 000**	**140 000**	**140 000**	**130 000**	**140 000**	**150 000**	**130 000**	**140 000**	**120 000**	**140 000**	**140 000**	**130 000**	**120 000**	**120 000**	**120 000**	**130 000**	**130 000**	**130 000**	**130 000**	**130 000**	**130 000**	**130 000**	**130 000**

Notes:
1. National totals exclude all GHGs from the Land Use, Land-use Change and Forestry Sector.
2. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.
- Indicates no emissions
0.00 Indicates emissions truncated due to rounding
Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.
National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–3 2017 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									
	CO_2	CH_4	CH_4	N_2O	N_2O	HFCs[4]	PFCs[4]	SF_6	NF_3	TOTAL
Global Warming Potential			25		298			22 800	17 200	
Unit	kt	kt	kt CO_2 eq	kt	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
TOTAL[1, 2]	**571 000**	**3 700**	**93 000**	**130**	**38 000**	**13 000**	**740**	**410**	**0.10**	**716 000**
ENERGY	**530 000**	**1 900**	**47 000**	**20**	**6 000**	**-**	**-**	**-**	**-**	**583 000**
a. Stationary Combustion Sources	**318 000**	**200**	**6 000**	**9**	**3 000**	**-**	**-**	**-**	**-**	**327 000**
Public Electricity and Heat Production	78 000	5	130	2	500	-	-	-	-	78 600
Petroleum Refining Industries	18 000	0.40	9	0.10	30	-	-	-	-	18 000
Oil and Gas Extraction	103 000	100	3 000	2	600	-	-	-	-	106 000
Mining	3 910	0.09	2	0.10	40	-	-	-	-	3 950
Manufacturing Industries	42 000	2	57	2	520	-	-	-	-	42 600
Iron and Steel	5 850	0.10	3	0.10	40	-	-	-	-	5 890
Non Ferrous Metals	3 430	0.07	2	0.06	20	-	-	-	-	3 450
Chemical	9 910	0.19	5	0.20	50	-	-	-	-	9 960
Pulp and Paper	5 920	1	30	0.80	200	-	-	-	-	6 190
Cement	4 060	0.20	5	0.05	20	-	-	-	-	4 080
Other Manufacturing	12 800	0.69	17	0.50	200	-	-	-	-	13 000
Construction	1 300	0.02	0.58	0.04	11	-	-	-	-	1 310
Commercial and Institutional	31 100	0.83	21	0.80	200	-	-	-	-	31 300
Residential	37 000	100	3 000	2	700	-	-	-	-	40 900
Agriculture and Forestry	3 630	0.06	2	0.10	30	-	-	-	-	3 670
b. Transport	**196 000**	**38**	**940**	**12**	**3 700**	**-**	**-**	**-**	**-**	**201 000**
Domestic Aviation	7 030	0.30	7	0.20	60	-	-	-	-	7 100
Road Transportation	141 000	9	200	8	2 500	-	-	-	-	144 000
Light-Duty Gasoline Vehicles	32 400	3	70	2	530	-	-	-	-	33 000
Light-Duty Gasoline Trucks	47 400	4	100	3	760	-	-	-	-	48 300
Heavy-Duty Gasoline Vehicles	12 700	0.50	10	1	330	-	-	-	-	13 000
Motorcycles	285	0.10	3	0.01	2	-	-	-	-	289
Light-Duty Diesel Vehicles	787	0.02	0.40	0.07	20	-	-	-	-	807
Light-Duty Diesel Trucks	1 010	0.03	0.70	0.09	25	-	-	-	-	1 040
Heavy-Duty Diesel Vehicles	46 300	2	50	3	780	-	-	-	-	47 100
Propane and Natural Gas Vehicles	10	0.00	0.10	0.00	0.05	-	-	-	-	10
Railways	5 870	0.30	8	2	700	-	-	-	-	6 570
Domestic Navigation	4 340	0.40	10	0.10	30	-	-	-	-	4 380
Other Transportation	38 300	27	690	2	500	-	-	-	-	39 500
Off-Road Agriculture & Forestry	9 710	0.47	12	0.40	100	-	-	-	-	9 840
Off-Road Commercial & Institutional	2 620	4	96	0.09	30	-	-	-	-	2 740
Off-Road Manufacturing, Mining & Construction	12 700	2	41	0.80	200	-	-	-	-	13 000
Off-Road Residential	1 100	2	61	0.03	9	-	-	-	-	1 160
Off-Road Other Transportation	4 680	12	290	0.10	40	-	-	-	-	5 010
Pipeline Transport	7 550	8	190	0.20	60	-	-	-	-	7 800
c. Fugitive Sources	**16 000**	**1 600**	**40 000**	**0.35**	**100**	**-**	**-**	**-**	**-**	**56 000**
Coal Mining	-	50	1 000	-	-	-	-	-	-	1 000
Oil and Natural Gas	16 000	1 600	39 000	0.40	100	-	-	-	-	54 000
Oil	510	180	4 600	0.30	100	-	-	-	-	5 200
Natural Gas	110	500	12 000	0.00	0.04	-	-	-	-	13 000
Venting	8 800	840	21 000	-	-	-	-	-	-	30 000
Flaring	6 120	24	600	0.03	8	-	-	-	-	6 730
d. CO_2 Transport and Storage	**0.30**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.30**
INDUSTRIAL PROCESSES AND PRODUCT USE	**38 500**	**4**	**87**	**5**	**1 470**	**13 000**	**744**	**410**	**0.10**	**53 800**
a. Mineral Products	**8 500**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**8 500**
Cement Production	6 800	-	-	-	-	-	-	-	-	6 800
Lime Production	1 400	-	-	-	-	-	-	-	-	1 400
Mineral Product Use	380	-	-	-	-	-	-	-	-	380
b. Chemical Industry	**4 820**	**3**	**85**	**3**	**946**	**-**	**-**	**-**	**-**	**5 850**
Ammonia Production	2 560	-	-	-	-	-	-	-	-	2 560
Nitric Acid Production	-	-	-	3	935	-	-	-	-	935
Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
Petrochemical and Carbon Black Production	2 260	3	85	0.04	11	-	-	-	-	2 360
c. Metal Production	**14 700**	**0.08**	**2**	**-**	**-**	**-**	**728**	**262**	**-**	**15 600**
Iron and Steel Production	9 380	0.08	2	-	-	-	-	-	-	9 380
Aluminum Production	5 280	-	-	-	-	-	728	8	-	6 010
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	254	-	254
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**-**	**-**	**-**	**-**	**13 000**	**3**	**2**	**0.10**	**13 000**
e. Non-Energy Products from Fuels and Solvent Use	**10 000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**10 000**
f. Other Product Manufacture and Use	**29**	**-**	**-**	**2**	**530**	**-**	**12**	**140**	**-**	**710**
AGRICULTURE	**3 000**	**1 100**	**28 000**	**98**	**29 000**	**-**	**-**	**-**	**-**	**60 000**
a. Enteric Fermentation	**-**	**970**	**24 000**	**-**	**-**	**-**	**-**	**-**	**-**	**24 000**
b. Manure Management	**-**	**150**	**3 900**	**10**	**4 000**	**-**	**-**	**-**	**-**	**8 000**
c. Agricultural Soils	**-**	**-**	**-**	**84**	**25 000**	**-**	**-**	**-**	**-**	**25 000**
Direct Sources	-	-	-	70	21 000	-	-	-	-	21 000
Indirect Sources	-	-	-	10	4 000	-	-	-	-	4 000
d. Field Burning of Agricultural Residues	**-**	**2**	**40**	**0.04**	**10**	**-**	**-**	**-**	**-**	**50**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**3 000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3 000**
WASTE	**200**	**710**	**18 000**	**3**	**800**	**-**	**-**	**-**	**-**	**19 000**
a. Solid Waste Disposal	**-**	**670**	**17 000**	**-**	**-**	**-**	**-**	**-**	**-**	**17 000**
b. Biological Treatment of Solid Waste	**-**	**10**	**300**	**0.60**	**200**	**-**	**-**	**-**	**-**	**400**
c. Wastewater Treatment and Discharge	**-**	**28**	**710**	**2**	**500**	**-**	**-**	**-**	**-**	**1 200**
d. Incineration and Open Burning of Waste	**200**	**2**	**50**	**0.60**	**200**	**-**	**-**	**-**	**-**	**400**
LAND USE, LAND-USE CHANGE AND FORESTRY	**-25 000**	**23**	**590**	**1**	**300**	**-**	**-**	**-**	**-**	**-24 000**
a. Forest Land	**-150 000**	**10**	**400**	**0.60**	**200**	**-**	**-**	**-**	**-**	**-150 000**
b. Cropland	**-7 000**	**4**	**91**	**0.21**	**63**	**-**	**-**	**-**	**-**	**-6 800**
c. Grassland	**-**	**0.04**	**0.90**	**0.00**	**0.30**	**-**	**-**	**-**	**-**	**1**
d. Wetlands	**3 100**	**0.88**	**22**	**0.03**	**8**	**-**	**-**	**-**	**-**	**3 200**
e. Settlements	**3 400**	**4**	**100**	**0.16**	**48**	**-**	**-**	**-**	**-**	**3 500**
f. Harvested Wood Products	**130 000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**130 000**

Notes:
1. National totals exclude all GHGs from the Land Use, Land-use Change and Forestry Sector.
2. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.
4. IPCC's Fourth Assessment Report provides global warming potentials (GWPs) for the various species of HFCs and PFCs. Chapter 1, Table 1-1 of this report provides a list of GWPs used.

- Indicates no emissions
0.00 Indicates emissions truncated due to rounding
Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.
National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

ANNEX 10

CANADA'S GREENHOUSE GAS EMISSION TABLES BY CANADIAN ECONOMIC SECTOR, 1990–2017

This annex contains summary tables illustrating national GHG emissions for the period 1990–2017 by Canadian economic sector (Table A10–2), as well as the relationship (crosswalk) between the economic sectors and the Intergovernmental Panel on Climate Change (IPCC) sectors presented in Annex 9 of this report (Table A10–3). In addition, Table A10–1 provides a brief description of each economic sector.

Although not a mandatory reporting requirement, reallocating emissions from IPCC sectors to Canadian economic sectors is useful for the purpose of analyzing trends and policies, as most people associate GHG emissions with a particular economic activity (e.g. producing electricity, farming or driving a car). This re-allocation simply re-categorizes emissions under different headings, but does not change the overall magnitude of Canadian emission estimates. Estimates for each economic sector includes emissions from energy-related and non-energy-related processes.

Reallocation of Emissions from IPCC Sector to Canadian Economic Sector

In general, the reallocation of emissions from IPCC sector to economic sector involves aggregating emissions from stationary combustion, fugitive sources, transportation, industrial processes, agriculture and waste into the appropriate economic sector. In many cases, the stationary combustion emissions for a specific IPCC sector are the same as that for the corresponding economic sector with some notable exceptions.

First, unlike allocation for the IPCC sectors, all utility-owned cogeneration facilities that produce steam or electricity for on-site use are reallocated from Electricity to the relevant economic sector. The relevant economic sectors include Natural Gas Production & Processing, Oil Sands, Mining, Pulp and Paper, Chemicals and Fertilizers, Service Industry, and Light Manufacturing. This is generally accomplished by analyzing and reallocating data by sector from the *Electric Power Thermal Generating Station Fuel Consumption Survey* (Statistics Canada 2018).

Second, Lime and Gypsum is split out from the IPCC category Other Manufacturing and reported as an economic sector on its own, while all other industries included in the IPCC category are allocated to the economic sector Light Manufacturing. Constituent sectors include all other manufacturing industries not already accounted for in identified IPCC manufacturing categories (e.g. Iron and Steel, Chemicals, etc.). Examples include automobile manufacturing, textiles, food and beverage industries, etc.

Third, emissions resulting from the combustion of fuel used to transport oil and natural gas in pipelines accounted for in the IPCC category Pipeline Transport, is divided into the Oil and Natural Gas Transmission and Natural Gas Distribution economic sectors. This division is based on sector-specific fuel combustion data from an upstream oil and gas (UOG) study (Environment Canada 2014).

Fourth, combustion emissions from the Mining and Upstream Oil and Gas Production IPCC category are reallocated to many economic sectors including: Coal Production, Mining, Natural Gas Production and Processing, Conventional Light Oil Production, Conventional Heavy Oil Production, Frontier Oil Production and Oil Sands (Mining, In-situ, Upgrading). A variety of external data sources are used to estimate emissions for the appropriate sectors which are then re-proportioned to align with Canada's energy balance. These external data sources include:

1. **Mining**—Metal and non-metal mining fuel consumption data from the Canadian Industrial Energy End-Use Data and Analysis Centre (CIEEDAC) database on *Energy, Production and Intensity Indicators for Canadian Industry* (CIEEDAC 2016).

2. **Coal Production**—Fuel consumption estimates for the coal mining industry are based on the *Compilation of a National Inventory of Greenhouse Gas and Fugitive VOC Emissions by the Canadian Coal Mining Industry* (Cheminfo/Clearstone 2014) and annual coal production data provided by Statistics Canada (see Annex 3.2 for further discussion on this activity data).
3. **UOG sectors**—Fuel consumption data for the various UOG sectors, except Oil Sands, is estimated from the UOG study (Environment Canada 2014).
4. **Oil Sands**—Fuel consumption data for the Oil Sands industry (including mining and extraction, in-situ and upgrading) is modelled by ECCC and adjusted so that the resultant emissions align with the facility level emissions data that is reported to ECCC through the Greenhouse Gas Emissions Reporting Program (GHGRP) (see Chapter 1 for more information on the GHGRP).

Fifth, emissions from road, rail, marine and air transport are separated into passenger and freight components. Emissions for Other Transportation (Off-road) are reallocated to their relevant economic sectors and to the Transportation category Other: Recreational, Commercial, and Residential.

Sixth, CO_2 captured from waste streams at large industrial facilities (e.g. electric utilities, oil sands upgraders) is presented separately in the economic sectors. It is displayed as a negative number to represent the removal of CO_2 from the specific sector while the source of the CO_2 emissions (e.g. stationary combustion) for the sector is displayed as a gross amount.

In terms of process and product use-related emissions, emissions from mineral products, chemical industry and metal production are reallocated to Heavy Industry and Light Manufacturing. Emissions from consumption of halocarbons, SF_6 and NF_3, which mainly consist of HFC emissions from refrigeration and air conditioning, are reallocated to Transportation and Buildings, where the majority of HFCs are used and emitted. Emissions from non-energy products from fuels and solvent use are reallocated to multiple relevant economic categories. Finally, emissions from other product manufacture and use are mainly distributed to Electricity and Service Industry.

Once all of these sector specific fuel consumption estimates are compiled the data are reconciled by province and by fuel with the fuel consumption data from the *Report on Energy Supply and Demand* (Statistics Canada, 2003–). This ensures that the economic sector estimates match the IPCC sector estimates.

Canada's greenhouse gas emission tables are also available in electronic file format online at http://open.canada.ca.

Table A10–1 **Canadian Economic Sector Descriptions**

Economic Sector	Description
OIL AND GAS	
Upstream Oil and Gas	Stationary combustion, onsite transportation, electricity and steam production, fugitive and process emissions from:
Natural Gas Production and Processing	– Natural gas production and processing
Conventional Light Oil Production	– Conventional light crude oil production
Conventional Heavy Oil Production	– Conventinoal heavy crude oil production
Frontier Oil Production	– Offshore and arctic production of crude oil
Oil Sands (Mining, In-situ, Upgrading)	Stationary combustion, onsite transportation, electricity and steam production, fugitive and process emissions from:
Mining and Extraction	– Crude bitumen mining and extraction
In-situ	– In-situ extraction of crude bitumen including primary extraction, cyclic steam stimulation (CSS), steam-assisted gravity drainage (SAGD) and other experimental techniques.
Upgrading	– Crude bitumen and heavy oil upgrading to synthetic crude oil
Oil and Natural Gas Transmission	Combustion and fugitive emissions from the transport and storage of crude oil and natural gas
Downstream Oil and Gas	Emissions resulting from:
Petroleum Refining	Stationary combustion, onsite transportation, electricity and steam production, fugitive and process emissions from petroleum refining industries
Natural Gas Distribution	Combustion and fugitive emissions from local distribution of natural gas
ELECTRICITY	Combustion and process emissions from utility electricity generation, steam production (for sale) and transmission. Excludes utility owned cogeneration at industrial sites.
TRANSPORTATION	Mobile related emissions including all fossil fuels and non-CO_2 emission from biofuels.
Passenger Transport	Mobile related combustion, process and refrigerant emissions from the vehicles that primarily move people around.
Cars, Light Trucks and Motorcycles	– Light duty cars and trucks up to 8 500 lb. GVWR and motorcycles.
Bus, Rail and Domestic Aviation	– All buses and the passenger component of rail and domestic aviation
Freight Transport	Mobile related combustion, process and refrigerant emissions from the vehicles that primarily move cargo or freight around.
Heavy Duty Trucks, Rail	– Vehicles above 8 500 lb. GVWR and the freight component of rail
Domestic Aviation and Marine	– Cargo component of domestic aviation and all domestic navigation
Other: Recreational, Commercial and Residential	Combustion emissions from the non-industrial use of off-road engines (e.g., ATVs, snowmobiles, personal watercraft), including portable engines (e.g., generators, lawn mowers, chain saws).
HEAVY INDUSTRY	Stationary combustion, onsite transportation, electricty and steam production, and process emissions from:
Mining	– Metal and non-metal mines, stone quarries, and gravel pits
Smelting and Refining (Non Ferrous Metals)	– Non-ferrous Metals (aluminium, magnesium and other production)
Pulp and Paper	– Pulp and Paper (primarily pulp, paper, and paper product manufacturers)
Iron and Steel	– Iron and Steel (steel foundries, casting, rolling mills and iron making)
Cement	– Cement and other non-metallic mineral production
Lime & Gypsum	– Lime and Gypsum product manufacturing
Chemicals & Fertilizers	– Chemical (fertilizer manufacturing, organic and inorganic chemical manufacturing)
BUILDINGS	Stationary combustion and process (i.e. air conditioning) emissions from:
Service Industry	– Service industries related to mining, communication, wholesale and retail trade, finance and insurance, real estate, education, etc.; offices, health, arts, accommodation, food, information & cultural; Federal, provincial and municipal establishments; National Defence and Canadian Coast Guard; Train stations, airports and warehouses
Residential	– Personal residences (homes, apartment hotels, condominiums and farm houses)
AGRICULTURE	Emissions resulting from:
On Farm Fuel Use	– Stationary combustion, onsite transportation and process emissions from the agricultural, hunting and trapping industry (excluding food processing, farm machinery manufacturing, and repair)
Crop Production	– Application of inorganic nitrogen fertilizers, decomposition of crop residues, loss of soil organic carbon, cultivation of organic soils, indirect emissions from leaching and volatilization, field burning of agricultural residues, liming, and urea application
Animal Production	– Animal housing, manure storage, manure deposited by grazing animals, and application of manure to managed soils
WASTE	Non-CO_2 Emissions from biomass resulting from:
Solid Waste	– Municipal solid waste management sites (landfills), dedicated wood waste landfills, and composting of municipal solid waste
Waste Water	– Municipal and industrial wastewater treatment
Waste Incineration	– Municipal solid, hazardous and clinical waste, and sewage sludge incineration
COAL PRODUCTION	Stationary combustion, onsite transportation and fugitive emissions from underground and surface coal mines
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	Stationary combustion, onsite transportation, electricty and steam production, and process emissions from (excluding LULUCF):
Light Manufacturing	– All other manufacturing industries not included in the Heavy Industry category above
Construction	– Construction of buildings, highways etc.
Forest Resources	– Forestry and logging service industry

Table A10–2 **Canada's GHG Emissions by Canadian Economic Sector, 1990–2017**

Greenhouse Gas Categories	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
	Mt CO_2 eq																											
NATIONAL GHG TOTAL	**602**	**593**	**610**	**612**	**634**	**651**	**672**	**687**	**695**	**707**	**731**	**720**	**724**	**741**	**743**	**730**	**721**	**744**	**723**	**682**	**693**	**703**	**711**	**722**	**723**	**722**	**708**	**716**
OIL AND GAS	**106**	**104**	**113**	**121**	**125**	**132**	**139**	**140**	**145**	**154**	**157**	**158**	**161**	**163**	**162**	**158**	**161**	**168**	**160**	**158**	**159**	**165**	**176**	**186**	**193**	**192**	**187**	**195**
Upstream Oil and Gas	**86**	**85**	**94**	**101**	**107**	**113**	**117**	**118**	**124**	**134**	**137**	**137**	**139**	**140**	**137**	**134**	**138**	**144**	**138**	**135**	**136**	**143**	**153**	**162**	**171**	**169**	**165**	**171**
Natural Gas Production and Processing	35	34	36	39	41	43	45	43	46	55	59	60	62	64	59	57	56	60	54	52	49	53	54	56	55	52	51	50
Conventional Oil Production	23	22	24	26	27	30	31	33	35	35	37	36	35	32	31	30	29	30	29	26	26	28	31	33	38	36	30	31
Conventional Light Oil Production	11	10	10	11	11	12	12	11	11	11	12	12	12	11	11	11	11	12	11	10	11	12	14	16	19	19	16	18
Conventional Heavy Oil Production	12	12	14	15	16	18	19	22	21	22	24	23	21	19	18	17	16	17	16	14	14	14	15	15	17	16	13	12
Frontier Oil Production	0	0	0	0	0	0	0	0	2	2	1	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2
Oil Sands (Mining, In-situ, Upgrading)	15	16	19	20	21	22	22	23	24	25	26	28	28	32	36	36	41	43	46	49	54	55	60	65	68	71	73	81
Mining and Extraction	4	5	5	5	5	5	5	5	6	6	6	7	7	9	9	9	10	11	11	12	13	12	12	13	14	14	15	16
In-situ	5	5	5	5	6	6	6	8	8	8	8	8	8	9	10	11	13	13	17	18	20	22	25	27	30	33	37	42
Upgrading	6	6	9	10	10	10	10	10	10	11	11	12	13	15	16	16	18	19	18	20	21	22	23	24	24	23	21	22
Oil and Natural Gas Transmission	12	13	16	16	17	18	19	19	19	19	15	14	13	11	10	12	11	10	9	8	7	7	8	9	10	10	11	10
Downstream Oil and Gas	**20**	**19**	**19**	**20**	**19**	**19**	**22**	**22**	**21**	**20**	**20**	**21**	**22**	**23**	**24**	**23**	**23**	**24**	**22**	**22**	**23**	**22**	**24**	**24**	**23**	**22**	**23**	**23**
Petroleum Refining	18	17	17	18	17	17	20	20	19	18	19	19	21	22	23	22	22	23	21	21	22	21	23	23	21	21	22	22
Natural Gas Distribution	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ELECTRICITY	**94**	**96**	**102**	**93**	**95**	**98**	**98**	**109**	**122**	**119**	**129**	**130**	**123**	**127**	**120**	**119**	**114**	**119**	**110**	**95**	**97**	**88**	**84**	**81**	**78**	**81**	**76**	**74**
TRANSPORTATION	**122**	**116**	**117**	**118**	**122**	**123**	**127**	**132**	**139**	**144**	**146**	**148**	**149**	**154**	**159**	**162**	**163**	**167**	**167**	**164**	**170**	**170**	**172**	**175**	**173**	**174**	**174**	**174**
Passenger Transport	**71**	**68**	**68**	**69**	**71**	**72**	**74**	**76**	**79**	**81**	**82**	**85**	**86**	**88**	**89**	**90**	**90**	**90**	**89**	**88**	**89**	**89**	**89**	**91**	**89**	**92**	**95**	**94**
Cars, Light Trucks and Motorcycles	64	62	62	63	65	66	67	69	71	74	75	77	79	80	81	82	82	82	80	81	82	81	80	82	81	83	87	85
Bus, Rail and Domestic Aviation	7	6	6	6	6	6	7	7	7	8	8	7	7	7	8	8	8	9	8	8	8	8	9	9	8	8	8	8
Freight Transport	**32**	**31**	**31**	**31**	**32**	**32**	**35**	**39**	**44**	**47**	**49**	**52**	**52**	**55**	**58**	**62**	**63**	**67**	**68**	**66**	**70**	**73**	**75**	**76**	**75**	**73**	**71**	**72**
Heavy Duty Trucks, Rail	26	24	25	25	27	26	29	33	37	41	43	45	45	48	50	54	56	59	61	58	63	66	68	70	69	68	66	66
Domestic Aviation and Marine	6	6	6	6	6	6	6	6	6	6	6	7	7	8	8	8	7	8	7	7	8	7	7	6	6	6	5	5
Other: Recreational, Commercial and Residential	**18**	**18**	**18**	**18**	**19**	**19**	**18**	**17**	**16**	**16**	**15**	**11**	**11**	**11**	**12**	**10**	**10**	**10**	**10**	**10**	**10**	**8**	**8**	**8**	**8**	**9**	**9**	**9**
HEAVY INDUSTRY	**97**	**97**	**94**	**93**	**99**	**100**	**102**	**102**	**96**	**94**	**93**	**87**	**89**	**88**	**92**	**87**	**86**	**86**	**84**	**72**	**74**	**81**	**80**	**78**	**78**	**77**	**76**	**73**
Mining	**7**	**6**	**6**	**7**	**8**	**8**	**8**	**9**	**8**	**7**	**8**	**7**	**7**	**7**	**7**	**7**	**7**	**8**	**8**	**8**	**8**	**8**	**9**	**8**	**8**	**8**	**7**	**7**
Smelting and Refining (Non Ferrous Metals)	**17**	**18**	**17**	**17**	**17**	**16**	**17**	**17**	**17**	**16**	**16**	**15**	**15**	**15**	**14**	**14**	**14**	**13**	**13**	**12**	**11**	**12**	**10**	**11**	**10**	**10**	**10**	**11**
Pulp and Paper	**15**	**15**	**14**	**14**	**14**	**13**	**14**	**14**	**13**	**13**	**13**	**12**	**11**	**11**	**11**	**9**	**8**	**8**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**
Iron and Steel	**16**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**19**	**19**	**17**	**17**	**17**	**17**	**16**	**17**	**18**	**17**	**13**	**14**	**17**	**17**	**15**	**16**	**15**	**15**	**16**
Cement	**10**	**8**	**8**	**9**	**10**	**11**	**10**	**11**	**11**	**12**	**12**	**12**	**12**	**12**	**13**	**13**	**14**	**13**	**12**	**10**	**10**	**10**	**11**	**10**	**10**	**10**	**10**	**11**
Lime & Gypsum	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**2**	**2**	**2**
Chemicals & Fertilizers	**29**	**28**	**28**	**27**	**30**	**31**	**32**	**31**	**27**	**24**	**23**	**22**	**23**	**22**	**26**	**24**	**24**	**23**	**24**	**20**	**22**	**24**	**25**	**25**	**25**	**25**	**24**	**20**
BUILDINGS	**74**	**73**	**75**	**79**	**79**	**80**	**86**	**83**	**76**	**79**	**86**	**82**	**87**	**92**	**90**	**86**	**81**	**87**	**86**	**85**	**82**	**87**	**86**	**86**	**88**	**86**	**82**	**85**
Service Industry	**28**	**28**	**29**	**31**	**30**	**32**	**34**	**34**	**32**	**34**	**38**	**38**	**40**	**43**	**43**	**40**	**37**	**39**	**39**	**39**	**39**	**41**	**43**	**41**	**42**	**41**	**41**	**42**
Residential	**47**	**45**	**46**	**48**	**49**	**48**	**52**	**49**	**44**	**45**	**47**	**44**	**47**	**48**	**47**	**46**	**44**	**48**	**47**	**46**	**43**	**46**	**43**	**45**	**47**	**45**	**41**	**43**
AGRICULTURE	**57**	**58**	**60**	**62**	**65**	**68**	**69**	**70**	**70**	**69**	**70**	**68**	**67**	**70**	**72**	**72**	**70**	**71**	**70**	**68**	**68**	**68**	**70**	**72**	**71**	**71**	**72**	**72**
On Farm Fuel Use	**11**	**11**	**11**	**12**	**13**	**14**	**14**	**15**	**14**	**13**	**13**	**11**	**11**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**13**	**14**	**13**	**13**	**13**	**13**	**13**	**12**
Crop Production	**15**	**14**	**14**	**15**	**16**	**16**	**17**	**17**	**17**	**17**	**17**	**15**	**15**	**16**	**17**	**16**	**16**	**17**	**18**	**18**	**18**	**19**	**21**	**23**	**22**	**23**	**23**	**24**
Animal Production	**32**	**32**	**34**	**34**	**36**	**38**	**38**	**38**	**39**	**39**	**40**	**41**	**41**	**42**	**43**	**44**	**43**	**41**	**40**	**38**	**37**	**36**	**36**	**36**	**36**	**35**	**36**	**36**
WASTE	**19**	**19**	**19**	**19**	**19**	**20**	**20**	**19**	**20**	**20**	**20**	**20**	**20**	**20**	**21**	**20**	**21**	**21**	**20**	**19**	**18**	**18**	**18**	**18**	**19**	**19**	**19**	**19**
Solid Waste	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**19**	**18**	**19**	**18**	**19**	**19**	**20**	**19**	**18**	**17**	**17**	**17**	**16**	**17**	**17**	**17**	**17**	**17**
Wastewater	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Waste Incineration	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
COAL PRODUCTION	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**2**	**2**	**2**	**2**
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	**28**	**27**	**26**	**24**	**25**	**27**	**27**	**28**	**24**	**24**	**26**	**24**	**24**	**24**	**25**	**24**	**23**	**24**	**23**	**20**	**22**	**23**	**22**	**22**	**21**	**21**	**20**	**21**
Light Manufacturing	**21**	**20**	**20**	**18**	**18**	**20**	**20**	**21**	**18**	**18**	**19**	**17**	**17**	**17**	**17**	**17**	**16**	**17**	**16**	**14**	**15**	**16**	**16**	**16**	**15**	**14**	**14**	**14**
Construction	**6**	**5**	**5**	**5**	**6**	**6**	**6**	**5**	**5**	**5**	**5**	**5**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**5**	**6**	**6**	**5**	**5**	**5**	**5**	**5**	**6**
Forest Resources	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**

Notes:
Totals may not add up due to rounding.
National GHG emissions allocated to IPCC sectors are provided in Annex 9 of this report.
Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex 11 of this report.
Estimates presented here are under continual improvement. Historical emissions may be change in future publications as new data becomes available and methods and models are refined and improved.
Emission estimates for Solid Waste include emissions from municipal solid waste landfills, wood waste landfills and municipal solid waste composting.
0 indicates emissions of less than 0.5 Mt CO_2 eq; truncated due to rounding

Table A10–3 Relationship between Canadian Economic Sectors and IPCC Sectors, 2017

		Economic Category Total	National Inventory Category[a]																										
			Energy									Industrial Processes and Product Use							Agriculture				Waste						
			Energy: Fuel Combustion				Energy: Fugitive																						
			Stationary Combustion			Transport	Fugitive (Unintentional)	Flaring	Venting	Total	Mineral Products[d]	Chemical Industry[e]	Metal Production[f]	Consumption of Halocarbons, SF_6 and NF_3	Non-Energy Products from Fuels and Solvent Use	Other Product Manufacture and Use	Total	Manure Management	Enteric Fermentation	Agriculture Soils	Total	Solid Waste Disposal	Biological Treatment of Solid Waste	Wastewater Treatment and Discharge	Incineration and Open Burning of Waste	Total	CO_2 Captured[j]	LULUCF[b]
			Stationary	Industrial Cogeneration																									
				Electricity[c]	Steam for Sale																								
		Mt CO_2 equivalent																											
	National Inventory Total[a,b]	**716**	**304**	**22.6**	**0.7**	**201**	**18.9**	**6.7**	**31.0**	**585**	**8.5**	**5.8**	**15.6**	**12.6**	**10.5**	**0.7**	**53.8**	**8.0**	**24.2**	**27.7**	**59.9**	**16.7**	**0.4**	**1.2**	**0.4**	**18.8**	**-1.6**	
	OIL AND GAS	**195**	**110.3**	**16.3**		**11.3**	**17.8**	**6.7**	**31.0**	**193.5**					**2.2**		**2.2**										**-1.1**	
	Upstream Oil and Gas	**171**	**92.6**	**15.5**		**11.2**	**16.7**	**6.5**	**29.9**	**172.4**					**0.1**		**0.1**										**-1.1**	
	Natural Gas Production and Processing	50	18.8	8.6		0.2	10.2	1.4	10.3	49.5					0.0		0.0											
	Conventional Oil Production	31	7.7	3.2		0.2	2.9	3.8	13.5	31.3					0.0		0.0											
	Conventional Light Oil Production	18	2.4	3.0		0.1	1.9	2.0	8.2	17.6					0.0		0.0											
	Conventional Heavy Oil Production	12	4.5			0.0	1.0	1.1	5.3	11.9																		
	Frontier Oil Production	2	0.9	0.3		0.0	0.0	0.6	0.0	1.8																		
	Oil Sands (Mining, In-situ, Upgrading)[c]	81	66.0	3.8		3.0	2.2	1.4	5.2	81.5					0.1		0.1										-1.1	
	Mining and Extraction	16	10.4	1.0		3.0	1.8	0.1	0.0	16.3					0.1		0.1											
	In-situ	42	39.4	1.6			0.3	0.2	0.1	41.7																		
	Upgrading	22	16.2	1.2			0.1	1.0	5.1	23.5					0.0		0.0										-1.1	
	Oil and Natural Gas Transmission	10				7.7	1.4	0.0	0.9	10.0																		
	Downstream Oil and Gas	**23**	**17.8**	**0.8**		**0.1**	**1.1**	**0.2**	**1.1**	**21.1**					**2.0**		**2.0**											
	Petroleum Refining	22	17.8	0.8		0.0	0.1	0.2	1.0	19.9					2.0		2.0											
	Natural Gas Distribution	1				0.1	1.0	0.0	0.1	1.2																		
	ELECTRICITY	**74**	**74.1**		**0.5**					**74.6**						**0.1**	**0.1**										**-0.5**	
	TRANSPORTATION[g]	**174**				**170.6**				**170.6**				**3.6**	**0.2**	**0.0**	**3.8**											
	Passenger Transport	**94**				**91.6**				**91.6**				**2.1**	**0.1**	**0.0**	**2.2**											
	Cars, Light Trucks and Motorcycles	85				83.4				83.4				1.9	0.1	0.0	2.0											
	Bus, Rail and Domestic Aviation	8				8.1				8.1				0.2	0.0	0.0	0.2											
	Freight Transport	**72**				**70.1**				**70.1**				**1.6**	**0.1**	**0.0**	**1.6**											
	Heavy Duty Trucks, Rail	66				64.9				64.9				1.5	0.1	0.0	1.5											
	Domestic Aviation and Marine	5				5.2				5.2				0.1	0.0		0.1											
	Other: Recreational, Commercial and Residential	**9**				**8.9**				**8.9**																		
	HEAVY INDUSTRY	**73**	**30.7**	**5.1**	**0.3**	**2.9**				**38.9**	**8.3**	**5.8**	**15.6**	**0.3**	**3.9**		**34.1**											
	Mining	**7**	**2.8**	**1.3**		**2.3**				**6.4**				**0.0**	**0.2**		**0.2**											
	Smelting and Refining (Non Ferrous Metals)	**11**	**3.4**		**0.0**	**0.2**				**3.6**	**0.0**		**6.3**		**0.9**		**7.2**											
	Pulp and Paper	**7**	**4.8**	**1.7**	**0.1**	**0.1**				**6.7**	**0.0**				**0.0**		**0.0**											
	Iron and Steel	**16**	**5.7**	**0.1**	**0.0**	**0.2**				**6.1**			**9.4**		**0.2**		**9.5**											
	Cement	**11**	**4.1**			**0.0**				**4.1**	**6.8**				**0.0**		**6.8**											
	Lime & Gypsum	**2**	**1.1**			**0.0**				**1.1**	**1.4**				**0.0**		**1.4**											
	Chemicals & Fertilizers	**20**	**8.8**	**2.0**	**0.2**	**0.0**				**11.0**	**0.2**	**5.8**		**0.3**	**2.6**		**8.9**											
	BUILDINGS	**85**	**71.7**	**0.7**						**72.4**				**8.3**	**3.8**	**0.5**	**12.6**											
	Service Industry	**42**	**30.8**	**0.7**						**31.5**				**6.4**	**3.8**	**0.5**	**10.7**											
	Residential	**43**	**40.9**							**40.9**				**1.9**			**1.9**											
	AGRICULTURE	**72**	**3.5**	**0.0**		**8.8**				**12.3**					**0.0**		**0.0**	**8.0**	**24.2**	**27.7**	**59.9**							
	On Farm Fuel Use[h]	**12**	**3.5**	**0.0**		**8.8**				**12.3**					**0.0**		**0.0**											
	Crop Production	**24**																		**24.1**	**24.1**							
	Animal Production	**36**																**8.0**	**24.2**	**3.7**	**35.8**							
	WASTE	**19**												**0.0**			**0.0**					**16.7**	**0.4**	**1.2**	**0.4**	**18.8**		
	Solid Waste[i]	**17**												**0.0**			**0.0**					**16.7**	**0.4**			**17.1**		
	Wastewater	**1**																						**1.2**		**1.2**		
	Waste Incineration	**0**																							**0.4**	**0.4**		
	COAL PRODUCTION	**2**	**0.5**			**0.5**	**1.1**			**2.1**																		
	LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	**21**	**13.0**	**0.4**	**0.0**	**7.2**				**20.6**	**0.2**			**0.4**	**0.4**	**0.0**	**0.9**											
	Light Manufacturing	**14**	**11.5**	**0.4**	**0.0**	**1.5**				**13.4**	**0.2**			**0.4**	**0.3**	**0.0**	**0.8**											
	Construction	**6**	**1.3**			**4.7**				**6.0**					**0.0**		**0.0**											
	Forest Resources	**1**	**0.1**			**1.1**				**1.2**					**0.0**		**0.0**											
																												-23.7

ECONOMIC CATEGORY

Notes:
Totals may not add up due to rounding. Economic category totals rounded to nearest megatonne (Mt). The estimates for the economic categories may not add up to the National Inventory Totals due to rounding and statistical differences in the RESD for the IP category of Other & Undifferentiated Production.
Estimates presented here are under continual improvement. Historical emissions may be change in future publications as new data becomes available and methods and models are refined and improved.

a. Categorization of emissions is consistent with the IPCC's sectors following the reporting requirement of the UNFCCC.
b. National totals exclude all GHGs from the Land Use, Land Use Change and Forestry Sector.
c. Industrial cogeneration includes emissions associated with the simultaneous production of heat and power. At some facilities, a portion of this power is generated by onsite utility-owned generators. As such, the cogeneration emissions for these specific facilities are included under the Public Electricity and Heat Generation category in the National Inventory (UNFCCC) format.
d. Mineral products includes cement production, lime production and mineral product use.
e. Chemical industry includes ammonia production, nitric acid production, petrochemical production, and adipic acid production.
f. Metal production includes iron and steel production, aluminum production, and SF_6 used in magnesium smelters and casters.
g. Emissions from the consumption of propane and natural gas in Transportation are allocated to Cars, Light Trucks and Buses
h. On Farm Fuel Use includes emissions associated with the use of lube oils and greases.
i. Emission estimates for Solid Waste include emissions from municipal solid waste landfills, wood waste landfills and municipal solid waste composting.
j. Some facilities capture CO_2 emissions. This is displayed as a negative quantity, as it is computed as an emission reduction at the source. Though the CO_2 has been captured, this does not imply permanent storage; some portion may be subsequently re-emitted (for instance, as fugitive releases) in another activity—in such cases, the re-emissions are reported in the economic sectors where they occur.

0 Indicates emissions of less than 0.5 Mt CO_2 eq

ANNEX 11

PROVINCIAL/ TERRITORIAL GREENHOUSE GAS EMISSION TABLES BY IPCC SECTOR, 1990–2017

This annex contains summary tables (Table A11-1 to Table A11-28) illustrating GHG emissions by province/ territory and year for each IPCC sector.

To account for the creation of Nunavut in 1999, separate time-series are provided from 1999 onwards for both the Northwest Territories and Nunavut (Table A11-24 and Table A11-26); emissions for the years 1990–1998 are presented as a combined region in Table A11-28.

Provincial/territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report.

Although the UNFCCC reporting guidelines only require reporting national-level information, provincial and territorial information is important, owing to differences in regional emission levels and trends. Note that provincial and territorial emission estimates may not necessarily sum to the national totals due to rounding.

Several Canadian provinces develop independent inventories of provincial GHG emissions, in some cases making use of alternate methodologies, data inputs and/or inclusions/omissions of GHG source categories. While Canada is developing a national emission inventory consistent with IPCC guidelines and international obligations, provincial governments may elect to develop an inventory structure in accordance with specific provincial needs. Environment and Climate Change Canada encourages collaboration with provinces and territories for quality assurance and continuous improvement of this annual National Inventory Report.

Provincial/territorial greenhouse gas emission tables are also available in electronic file format online at https://open.canada.ca.

Table A11–1 GHG Source/Sink Category Description

GHG Source/Sink Categories	
ENERGY	
a. Stationary Combustion Sources	
Public Electricity and Heat Production	Emissions from fuel consumed by utility electricity generation and steam production (for sale)
Petroleum Refining Industries	Emissions from fuel consumed by petroleum refining industries
Oil and Gas Extraction	Emissions from fuel consumed by oil and gas extraction industries
Mining	Emissions from fuel consumed by:
	– Metal and non-metal mines, coal mines, stone quarries, and gravel pits
	– Mineral exploration and contract drilling operations
Manufacturing Industries	Emissions from fuel consumed by the following industries:
	– Iron and Steel (steel foundries, casting and rolling mills)
	– Non-ferrous metals (aluminium, magnesium and other production)
	– Chemical (fertilizer manufacturing, organic and inorganic chemical manufacturing)
	– Pulp and Paper (primarily pulp, paper, and paper product manufacturers)
	– Cement and other non-metallic mineral production
	– Other manufacturing industries not listed (such as automobile manufacturing, textiles, food and beverage industries)
Construction	Emissions from fuels consumed by the construction industry—buildings, highways etc.
Commercial & Institutional	Emissions from fuel consumed by:
	– Service industries related to mining, communication, wholesale and retail trade, finance and insurance, real estate, education, etc.)
	– Federal, provincial and municipal establishments
	– National Defence and Canadian Coast Guard
	– Train stations, airports and warehouses
Residential	Emissions from fuel consumed for personal residences (homes, apartment hotels, condominiums and farm houses)
Agriculture & Forestry	Emissions from fuel consumed by:
	– Forestry and logging service industry
	– Agricultural, hunting and trapping industry (excluding food processing, farm machinery manufacturing and repair)
b. Transportation	Emissions resulting from the:
Domestic Aviation	– Consumption of fossil fuels by aircrafts flying domestically with Canadian purchased fuel
Road Transportation	– Consumption of fossil fuels (including non-CO_2 emissions from ethanol and biodiesel) by vehicles licensed to operate on roads
Railways	– Consumption of fossil fuels (including non-CO_2 emissions from biodiesel) by Canadian railways
Domestic Navigation	– Consumption of fossil fuels (including non-CO_2 emissions from ethanol and biodiesel) by Canadian registered marine vessels fuelled domestically
Others—Off-road	– Consumption of fossil fuels (including non-CO_2 emissions from ethanol and biodiesel) by moblie combustion devices not licensed to operate on roads
Others—Pipeline Transport	– Transportation and distribution of crude oil, natural gas and other products
c. Fugitive Sources	Intentional and unintentional releases of greenhouse gases from the following activities:
Coal Mining	– Underground and surface mining, abandoned underground coal mines
Oil and Natural Gas	– Conventional and unconventional oil and gas exploration, production, transportation and distribution
d. CO_2 Transport and Storage	Intentional and unintentional releases of greenhouse gases from the transport and storage of carbon dioxide
INDUSTRIAL PROCESSES AND PRODUCT USE	Emissions resulting from the following process activities:
a. Mineral Products	– Cement production, lime production, and mineral product use (which includes glass production, other uses of soda ash, magnesite use, and limestone and dolomite use)
b. Chemical Industry	– Production of ammonia, nitric acid, adipic acid, carbide and petrochemicals. Petrochemical production includes production of carbon black, ethylene dichloride, ethylene, methanol and styrene
c. Metal Production	– Aluminum production, iron and steel production, and magnesium production and casting
d. Production and Consumption of Halocarbons, SF_6 and NF_3	– By-product production of HFC-23; use of HFCs and/or PFCs in air conditioning units, refrigeration units, fire extinguishers, aerosol cans, solvents, foam blowing, semiconductor manufacturing and electronics industry, and use of SF_6 and NF_3 in semiconductor manufacturing
e. Non-Energy Products from Fuels and Solvent Use	– Non-energy use of fossil fuels (including solvents and lubricants) that are not accounted for elsewhere under the Industrial Processes and Product Use Sector
f. Other Product Manufacture and Use	– Use of N_2O as an anaesthetic and propellant; use of urea in selective catalytic reduction (SCR) equipped vehicles; use of SF_6 in electrical equipment; and PFCs in electronics industry
AGRICULTURE	Emissions resulting from the:
a. Enteric Fermentation	– Eructation of CH_4 during the digestion of plant material by (mainly) ruminants
b. Manure Management	– Release of CH_4 and N_2O due to microbial activity during the storage of feces, urine and bedding materials from the cleaning of barns and pens
	– Indirect N_2O emissions from volatilization and leaching of nitrogen from animal manure during storage
c. Agricultural Soils	
Direct sources	– Direct N_2O emissions from Synthetic fertilizer, manure on cropland, pasture range and paddock, crop residue, tillage, summerfallow, irrigation and cultivation of organic soils
Indirect Sources	– Indirect N_2O emissions from volatilization and leaching of animal manure nitrogen, synthetic fertilizer nitrogen and crop residue nitrogen
d. Field Burning of Agricultural Residues	– CH_4 and N_2O emissions from crop residue burning
e. Liming, Urea Application and Other Carbon-containing Fertilizers	– Direct emissions of CO_2 from the application of lime, urea and other fertilizers containing carbon
WASTE	Emissions resulting from:
a. Solid Waste Disposal	– Municipal solid waste management sites (landfills) and dedicated wood waste landfills
b. Biological Treatment of Solid Waste	– Composting of municipal solid waste
c. Wastewater Treatment and Discharge	– Municipal and industrial wastewater treatment
d. Incineration and Open Burning of Waste	– Municipal solid, hazardous and clinical waste, and sewage sludge incineration
LAND USE, LAND-USE CHANGE AND FORESTRY	Emissions and removals resulting from:
a. Forest Land	– Managed forests and lands converted to forests; reports emissions and removals from forest growth and anthropogenic disturbances related to forest management but tracks seperately emissions and removals from fire and most insect disturbances
b. Cropland	– Management practices on lands in annual crops, summerfallow and perennial crops (forage, specialty crops, orchards); immediate and residual emissions from lands converted to cropland
c. Grassland	– Managed agricultural grassland
d. Wetlands	– Peatlands disturbed for peat extraction, or land flooded from hydro reservoir development
e. Settlements	– Forest and grassland converted to built-up land (settlements, transport infrastructure, oil & gas infrastructure, mining, etc); urban tree growth
f. Harvested Wood Products	– Use and disposal of harvested wood products manufactured from wood coming from forest harvest and forest conversion activities in Canada

Table A11–2 GHG Emission Summary for Newfoundland and Labrador, Selected Years

Greenhouse Gas Categories	1990	2005	2012	2013	2014	2015	2016	2017
	kt CO_2 eq							
TOTAL	**9 440**	**9 860**	**9 390**	**9 420**	**10 400**	**10 700**	**10 900**	**10 500**
ENERGY	**8 600**	**9 050**	**8 530**	**8 580**	**9 600**	**9 840**	**10 000**	**9 630**
a. Stationary Combustion Sources	**5 550**	**4 780**	**4 180**	**4 600**	**5 140**	**5 150**	**5 240**	**5 130**
Public Electricity and Heat Production	1 640	819	769	867	1 210	1 340	1 520	1 530
Petroleum Refining Industries	1 000	950	1 000	960	920	1 000	1 200	970
Oil and Gas Extraction	-	764	845	1 060	1 130	1 030	1 080	1 110
Mining	1 160	1 130	772	700	742	692	373	389
Manufacturing Industries	506	276	79	72	40	35	40	83
Construction	33	24	9	6	7	18	5	6
Commercial and Institutional	320	358	203	544	630	599	572	623
Residential	828	443	470	390	453	378	445	409
Agriculture and Forestry	25	8	11	8	11	12	10	4
b. Transport[1]	**3 000**	**3 360**	**3 830**	**3 410**	**3 810**	**4 110**	**4 110**	**3 780**
Domestic Aviation	191	199	229	234	219	208	204	189
Road Transportation	1 570	2 120	2 790	2 590	2 940	3 100	3 120	2 940
Light-Duty Gasoline Vehicles	678	604	730	629	679	684	640	641
Light-Duty Gasoline Trucks	440	646	1 060	956	1 090	1 160	1 160	1 250
Heavy-Duty Gasoline Vehicles	86	102	208	194	208	223	232	259
Motorcycles	3	2	7	6	8	9	9	10
Light-Duty Diesel Vehicles	4	5	6	6	7	8	8	6
Light-Duty Diesel Trucks	2	6	5	4	6	8	10	9
Heavy-Duty Diesel Vehicles	358	756	771	790	943	1 020	1 060	772
Propane and Natural Gas Vehicles	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00
Railways	-	-	-	-	-	-	-	-
Domestic Navigation	630	x	389	222	206	266	262	179
Other Transportation	614	x	416	372	442	530	522	468
Off-Road Agriculture & Forestry	25	34	21	19	21	26	23	19
Off-Road Commercial & Institutional	31	48	43	41	46	50	21	11
Off-Road Manufacturing, Mining & Construction	223	282	224	201	242	307	335	293
Off-Road Residential	7	25	28	x	28	30	29	29
Off-Road Other Transportation	328	124	99	86	105	117	114	117
Pipeline Transport	-	x	-	x	-	-	-	-
c. Fugitive Sources	**41**	**910**	**520**	**570**	**660**	**580**	**650**	**720**
Coal Mining	-	-	-	-	-	-	-	-
Oil and Natural Gas	41	910	520	570	660	580	650	720
Oil	6	49	34	38	35	30	35	37
Natural Gas	0.00	1	2	2	2	2	2	2
Venting	25	52	51	50	39	46	45	60
Flaring	11	805	438	478	579	501	572	622
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**98**	**147**	**203**	**210**	**188**	**196**	**223**	**262**
a. Mineral Products	**64**	**2**	**0.79**	**0.56**	**0.59**	**0.76**	**0.84**	**1**
Cement Production	60	-	-	-	-	-	-	-
Lime Production	-	-	-	-	-	-	-	-
Mineral Products Use	4	2	0.79	0.56	0.59	0.76	0.84	1
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**71**	**140**	**140**	**150**	**170**	**190**	**200**
e. Non-Energy Products from Fuels and Solvent Use	**29**	**68**	**60**	**65**	**27**	**18**	**26**	**56**
f. Other Product Manufacture and Use	**5**	**6**	**6**	**6**	**7**	**9**	**11**	**10**
AGRICULTURE	**54**	**66**	**140**	**100**	**99**	**91**	**93**	**93**
a. Enteric Fermentation	**23**	**31**	**31**	**32**	**32**	**31**	**31**	**31**
b. Manure Management	**17**	**20**	**26**	**26**	**27**	**27**	**26**	**26**
c. Agricultural Soils	**12**	**15**	**18**	**18**	**19**	**20**	**19**	**19**
Direct Sources	10	12	15	15	15	16	16	16
Indirect Sources	2	3	3	3	4	4	4	4
d. Field Burning of Agricultural Residues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**3**	**-**	**70**	**30**	**20**	**10**	**20**	**20**
WASTE	**690**	**600**	**520**	**530**	**540**	**540**	**550**	**550**
a. Solid Waste Disposal	**520**	**500**	**490**	**500**	**510**	**520**	**520**	**530**
b. Biological Treatment of Solid Waste	**-**	**-**	**-**	**-**	**-**	**-**	**0.07**	**0.07**
c. Wastewater Treatment and Discharge	**23**	**21**	**23**	**22**	**22**	**22**	**22**	**22**
d. Incineration and Open Burning of Waste	**100**	**80**	**7**	**4**	**1**	**1**	**0.70**	**0.70**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.

- Indicates no emissions

0.00 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–3 2017 GHG Emission Summary for Newfoundland and Labrador

Greenhouse Gas Categories	CO_2	CH_4	CH_4	N_2O	N_2O	HFCs[4]	PFCs[4]	SF_6	NF_3	TOTAL
Global Warming Potential			25		298			22 800	17 200	
Unit	kt	kt	kt CO_2 eq	kt	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
TOTAL	**9 330**	**35**	**870**	**0.47**	**140**	**200**	**0.03**	**2**	**-**	**10 500**
ENERGY	**9 260**	**11**	**280**	**0.30**	**90**	**-**	**-**	**-**	**-**	**9 630**
a. Stationary Combustion Sources	**4 910**	**7**	**200**	**0.10**	**40**	**-**	**-**	**-**	**-**	**5 130**
Public Electricity and Heat Production	1 520	0.02	0.58	0.03	9	-	-	-	-	1 530
Petroleum Refining Industries	970	0.03	0.70	0.01	3	-	-	-	-	970
Oil and Gas Extraction	1 040	3	60	0.03	10	-	-	-	-	1 110
Mining	386	0.01	0.40	0.01	2	-	-	-	-	389
Manufacturing Industries	82	0.00	0.07	0.00	0.55	-	-	-	-	83
Construction	6	0.00	0.00	0.00	0.03	-	-	-	-	6
Commercial and Institutional	619	0.01	0.16	0.01	3	-	-	-	-	623
Residential	283	4	100	0.05	20	-	-	-	-	409
Agriculture and Forestry	4	0.00	0.00	0.00	0.02	-	-	-	-	4
b. Transport[1]	**3 720**	**0.58**	**15**	**0.15**	**46**	**-**	**-**	**-**	**-**	**3 780**
Domestic Aviation	187	0.01	0.10	0.01	2	-	-	-	-	189
Road Transportation	2 900	0.20	5	0.12	37	-	-	-	-	2 940
Light-Duty Gasoline Vehicles	634	0.05	1	0.02	6	-	-	-	-	641
Light-Duty Gasoline Trucks	1 230	0.10	2	0.04	12	-	-	-	-	1 250
Heavy-Duty Gasoline Vehicles	252	0.01	0.20	0.02	6	-	-	-	-	259
Motorcycles	10	0.00	0.09	0.00	0.05	-	-	-	-	10
Light-Duty Diesel Vehicles	5	0.00	0.00	0.00	0.13	-	-	-	-	6
Light-Duty Diesel Trucks	9	0.00	0.01	0.00	0.21	-	-	-	-	9
Heavy-Duty Diesel Vehicles	759	0.03	0.80	0.04	13	-	-	-	-	772
Propane and Natural Gas Vehicles	0.00	0.00	0.00	0.00	0.00	-	-	-	-	0.00
Railways	-	-	-	-	-	-	-	-	-	-
Domestic Navigation	177	0.02	0.42	0.01	1	-	-	-	-	179
Other Transportation	453	0.37	9	0.02	6	-	-	-	-	468
Off-Road Agriculture & Forestry	19	0.00	0.03	0.00	0.40	-	-	-	-	19
Off-Road Commercial & Institutional	10	0.02	0.38	0.00	0.09	-	-	-	-	11
Off-Road Manufacturing, Mining & Construction	288	0.03	0.64	0.01	4	-	-	-	-	293
Off-Road Residential	27	0.06	1	0.00	0.20	-	-	-	-	29
Off-Road Other Transportation	109	0.27	7	0.00	0.80	-	-	-	-	117
Pipeline Transport	-	-	-	-	-	-	-	-	-	-
c. Fugitive Sources	**630**	**4**	**94**	**0.01**	**2**	**-**	**-**	**-**	**-**	**720**
Coal Mining	-	-	-	-	-	-	-	-	-	-
Oil and Natural Gas	630	4	94	0.01	2	-	-	-	-	720
Oil	0.16	1	35	0.01	2	-	-	-	-	37
Natural Gas	0.02	0.08	2	-	-	-	-	-	-	2
Venting	59	0.02	0.41	-	-	-	-	-	-	60
Flaring	566	2	56	0.00	0.30	-	-	-	-	622
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**58**	**-**	**-**	**0.03**	**8**	**200**	**0.03**	**2**	**-**	**262**
a. Mineral Products	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**
Cement Production	-	-	-	-	-	-	-	-	-	-
Lime Production	-	-	-	-	-	-	-	-	-	-
Mineral Products Use	1	-	-	-	-	-	-	-	-	1
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**-**	**-**	**-**	**-**	**200**	**0.02**	**-**	**-**	**200**
e. Non-Energy Products from Fuels and Solvent Use	**56**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**56**
f. Other Product Manufacture and Use	**0.45**	**-**	**-**	**0.03**	**8**	**-**	**0.02**	**2**	**-**	**10**
AGRICULTURE	**20**	**2**	**43**	**0.11**	**33**	**-**	**-**	**-**	**-**	**93**
a. Enteric Fermentation	**-**	**1**	**31**	**-**	**-**	**-**	**-**	**-**	**-**	**31**
b. Manure Management	**-**	**0.47**	**12**	**0.05**	**10**	**-**	**-**	**-**	**-**	**26**
c. Agricultural Soils	**-**	**-**	**-**	**0.06**	**19**	**-**	**-**	**-**	**-**	**19**
Direct Sources	-	-	-	0.05	16	-	-	-	-	16
Indirect Sources	-	-	-	0.01	4	-	-	-	-	4
d. Field Burning of Agricultural Residues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**20**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**20**
WASTE	**0.09**	**22**	**540**	**0.02**	**7**	**-**	**-**	**-**	**-**	**550**
a. Solid Waste Disposal	**-**	**21**	**530**	**-**	**-**	**-**	**-**	**-**	**-**	**530**
b. Biological Treatment of Solid Waste	**-**	**0.00**	**0.04**	**0.00**	**0.03**	**-**	**-**	**-**	**-**	**0.07**
c. Wastewater Treatment and Discharge	**-**	**0.60**	**15**	**0.02**	**7**	**-**	**-**	**-**	**-**	**22**
d. Incineration and Open Burning of Waste	**0.09**	**0.02**	**0.60**	**0.00**	**0.01**	**-**	**-**	**-**	**-**	**0.70**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.
4. IPCC's Fourth Assessment Report provides global warming potentials (GWPs) for the various species of HFCs and PFCs. Chapter 1, Table 1-1 of this report provides a list of GWPs used.

- Indicates no emissions
0.00 Indicates emissions truncated due to rounding
x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–4 GHG Emission Summary for Prince Edward Island, Selected Years

Greenhouse Gas Categories	1990	2005	2012	2013	2014	2015	2016	2017
	kt CO_2 eq							
TOTAL	**1 930**	**2 030**	**2 050**	**1 740**	**1 730**	**1 730**	**1 830**	**1 820**
ENERGY	**1 470**	**1 480**	**1 580**	**1 310**	**1 250**	**1 270**	**1 310**	**1 310**
a. Stationary Combustion Sources	**781**	**647**	**705**	**565**	**475**	**426**	**395**	**400**
Public Electricity and Heat Production	104	5	11	4	4	14	4	9
Petroleum Refining Industries	-	-	-	-	-	-	-	-
Oil and Gas Extraction	-	-	-	-	-	-	-	-
Mining	0.89	x	x	x	x	-	-	-
Manufacturing Industries	55	145	189	116	75	63	67	73
Construction	11	x	x	x	x	2	3	1
Commercial and Institutional	202	152	105	102	93	96	67	47
Residential	389	311	380	328	288	241	243	269
Agriculture and Forestry	19	24	17	13	12	10	11	1
b. Transport[1]	**691**	**834**	**880**	**748**	**779**	**846**	**910**	**909**
Domestic Aviation	18	14	20	20	19	19	20	20
Road Transportation	467	624	681	586	590	612	648	657
Light-Duty Gasoline Vehicles	234	243	236	201	195	196	206	208
Light-Duty Gasoline Trucks	127	228	258	222	218	222	247	263
Heavy-Duty Gasoline Vehicles	41	47	47	42	40	40	44	47
Motorcycles	0.58	0.98	2	1	1	1	2	2
Light-Duty Diesel Vehicles	1	2	3	2	2	3	3	2
Light-Duty Diesel Trucks	0.45	0.90	0.68	0.60	0.67	1	1	1
Heavy-Duty Diesel Vehicles	62	102	136	116	133	149	146	133
Propane and Natural Gas Vehicles	-	-	-	-	-	-	-	-
Railways	-	-	-	-	-	-	-	-
Domestic Navigation	80	89	85	63	85	119	144	129
Other Transportation	126	107	95	79	85	96	99	104
Off-Road Agriculture & Forestry	47	48	41	34	36	42	37	31
Off-Road Commercial & Institutional	5	9	10	9	9	9	8	8
Off-Road Manufacturing, Mining & Construction	15	15	15	13	14	17	26	35
Off-Road Residential	0.86	x	x	x	x	x	x	6
Off-Road Other Transportation	60	28	23	19	21	22	23	24
Pipeline Transport	-	x	x	x	x	x	x	-
c. Fugitive Sources	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Coal Mining	-	-	-	-	-	-	-	-
Oil and Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	-	-	-	-	-	-	-	-
Venting	-	-	-	-	-	-	-	-
Flaring	-	-	-	-	-	-	-	-
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**6**	**30**	**49**	**49**	**51**	**53**	**58**	**61**
a. Mineral Products	**0.34**	**0.91**	**0.66**	**0.63**	**0.61**	**0.66**	**0.57**	**0.59**
Cement Production	-	-	-	-	-	-	-	-
Lime Production	-	-	-	-	-	-	-	-
Mineral Products Use	0.34	0.91	0.66	0.63	0.61	0.66	0.57	0.59
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**25**	**46**	**46**	**48**	**50**	**54**	**58**
e. Non-Energy Products from Fuels and Solvent Use	**5**	**2**	**1**	**2**	**0.90**	**0.68**	**0.68**	**0.45**
f. Other Product Manufacture and Use	**0.83**	**2**	**1**	**1**	**1**	**2**	**2**	**2**
AGRICULTURE	**370**	**440**	**350**	**310**	**360**	**340**	**400**	**390**
a. Enteric Fermentation	**140**	**130**	**110**	**110**	**110**	**110**	**110**	**110**
b. Manure Management	**47**	**51**	**41**	**42**	**41**	**39**	**38**	**38**
c. Agricultural Soils	**180**	**250**	**200**	**150**	**210**	**190**	**260**	**240**
Direct Sources	140	210	160	130	180	160	210	200
Indirect Sources	30	40	30	20	30	30	40	40
d. Field Burning of Agricultural Residues	**0.10**	**0.20**	**0.20**	**0.20**	**0.10**	**0.20**	**0.20**	**0.20**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**5**	**5**	**2**	**2**	**2**	**3**	**3**	**2**
WASTE	**76**	**81**	**68**	**68**	**66**	**65**	**65**	**64**
a. Solid Waste Disposal	**68**	**65**	**53**	**52**	**51**	**50**	**49**	**48**
b. Biological Treatment of Solid Waste	**-**	**5**	**3**	**3**	**3**	**3**	**4**	**3**
c. Wastewater Treatment and Discharge	**8**	**11**	**12**	**12**	**12**	**12**	**13**	**13**
d. Incineration and Open Burning of Waste	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.

- Indicates no emissions

0.00 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–5 2017 GHG Emission Summary for Prince Edward Island

Greenhouse Gas Categories	CO_2	CH_4	CH_4	N_2O	N_2O	HFCs[4]	PFCs[4]	SF_6	NF_3	TOTAL
Global Warming Potential			25		298			22 800	17 200	
Unit	kt	kt	kt CO_2 eq	kt	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
TOTAL	**1 260**	**9**	**230**	**0.95**	**280**	**58**	**0.01**	**-**	**-**	**1 820**
ENERGY	**1 250**	**2**	**39**	**0.06**	**20**	**-**	**-**	**-**	**-**	**1 310**
a. Stationary Combustion Sources	**358**	**1**	**40**	**0.02**	**7**	**-**	**-**	**-**	**-**	**400**
Public Electricity and Heat Production	9	0.00	0.01	0.00	0.04	-	-	-	-	9
Petroleum Refining Industries	-	-	-	-	-	-	-	-	-	-
Oil and Gas Extraction	-	-	-	-	-	-	-	-	-	-
Mining	-	-	-	-	-	-	-	-	-	-
Manufacturing Industries	72	0.00	0.04	0.00	0.42	-	-	-	-	73
Construction	1	0.00	0.00	0.00	0.00	-	-	-	-	1
Commercial and Institutional	45	0.01	0.31	0.00	1	-	-	-	-	47
Residential	229	1	40	0.02	5	-	-	-	-	269
Agriculture and Forestry	1	0.00	0.00	0.00	0.01	-	-	-	-	1
b. Transport[1]	**894**	**0.15**	**4**	**0.04**	**11**	**-**	**-**	**-**	**-**	**909**
Domestic Aviation	20	0.00	0.02	0.00	0.20	-	-	-	-	20
Road Transportation	647	0.05	1	0.03	9	-	-	-	-	657
Light-Duty Gasoline Vehicles	205	0.02	0.40	0.01	2	-	-	-	-	208
Light-Duty Gasoline Trucks	260	0.02	0.60	0.01	3	-	-	-	-	263
Heavy-Duty Gasoline Vehicles	46	0.00	0.04	0.00	1	-	-	-	-	47
Motorcycles	2	0.00	0.02	0.00	0.01	-	-	-	-	2
Light-Duty Diesel Vehicles	2	0.00	0.00	0.00	0.05	-	-	-	-	2
Light-Duty Diesel Trucks	1	0.00	0.00	0.00	0.03	-	-	-	-	1
Heavy-Duty Diesel Vehicles	131	0.01	0.10	0.01	2	-	-	-	-	133
Propane and Natural Gas Vehicles	-	-	-	-	-	-	-	-	-	-
Railways	-	-	-	-	-	-	-	-	-	-
Domestic Navigation	128	0.01	0.30	0.00	1	-	-	-	-	129
Other Transportation	100	0.09	2	0.00	1	-	-	-	-	104
Off-Road Agriculture & Forestry	30	0.00	0.03	0.00	0.40	-	-	-	-	31
Off-Road Commercial & Institutional	7	0.01	0.26	0.00	0.07	-	-	-	-	8
Off-Road Manufacturing, Mining & Construction	34	0.01	0.15	0.00	0.50	-	-	-	-	35
Off-Road Residential	6	0.01	0.32	0.00	0.05	-	-	-	-	6
Off-Road Other Transportation	22	0.06	2	0.00	0.20	-	-	-	-	24
Pipeline Transport	-	-	-	-	-	-	-	-	-	-
c. Fugitive Sources	**-**	**0.00**	**0.00**	**-**	**-**	**-**	**-**	**-**	**-**	**0.00**
Coal Mining	-	-	-	-	-	-	-	-	-	-
Oil and Natural Gas	-	0.00	0.00	-	-	-	-	-	-	0.00
Oil	-	0.00	0.00	-	-	-	-	-	-	0.00
Natural Gas	-	-	-	-	-	-	-	-	-	-
Venting	-	-	-	-	-	-	-	-	-	-
Flaring	-	-	-	-	-	-	-	-	-	-
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**1**	**-**	**-**	**0.01**	**2**	**58**	**0.01**	**-**	**-**	**61**
a. Mineral Products	**0.59**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.59**
Cement Production	-	-	-	-	-	-	-	-	-	-
Lime Production	-	-	-	-	-	-	-	-	-	-
Mineral Products Use	0.59	-	-	-	-	-	-	-	-	0.59
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**-**	**-**	**-**	**-**	**58**	**0.01**	**-**	**-**	**58**
e. Non-Energy Products from Fuels and Solvent Use	**0.45**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.45**
f. Other Product Manufacture and Use	**0.08**	**-**	**-**	**0.01**	**2**	**-**	**0.01**	**-**	**-**	**2**
AGRICULTURE	**2**	**5**	**130**	**0.87**	**260**	**-**	**-**	**-**	**-**	**390**
a. Enteric Fermentation	**-**	**4**	**110**	**-**	**-**	**-**	**-**	**-**	**-**	**110**
b. Manure Management	**-**	**0.70**	**17**	**0.07**	**20**	**-**	**-**	**-**	**-**	**38**
c. Agricultural Soils	**-**	**-**	**-**	**0.80**	**240**	**-**	**-**	**-**	**-**	**240**
Direct Sources	-	-	-	0.67	200	-	-	-	-	200
Indirect Sources	-	-	-	0.10	40	-	-	-	-	40
d. Field Burning of Agricultural Residues	**-**	**0.01**	**0.20**	**0.00**	**0.05**	**-**	**-**	**-**	**-**	**0.20**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**
WASTE	**-**	**2**	**61**	**0.01**	**3**	**-**	**-**	**-**	**-**	**64**
a. Solid Waste Disposal	**-**	**2**	**48**	**-**	**-**	**-**	**-**	**-**	**-**	**48**
b. Biological Treatment of Solid Waste	**-**	**0.08**	**2**	**0.01**	**1**	**-**	**-**	**-**	**-**	**3**
c. Wastewater Treatment and Discharge	**-**	**0.43**	**11**	**0.01**	**2**	**-**	**-**	**-**	**-**	**13**
d. Incineration and Open Burning of Waste	**-**	**0.00**	**0.00**	**0.00**	**0.00**	**-**	**-**	**-**	**-**	**0.00**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.
4. IPCC's Fourth Assessment Report provides global warming potentials (GWPs) for the various species of HFCs and PFCs. Chapter 1, Table 1-1 of this report provides a list of GWPs used.

- Indicates no emissions
0.00 Indicates emissions truncated due to rounding
x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–6 GHG Emission Summary for Nova Scotia, Selected Years

Greenhouse Gas Categories	1990	2005	2012	2013	2014	2015	2016	2017
	kt CO_2 eq							
TOTAL	**19 600**	**23 200**	**19 200**	**18 200**	**16 400**	**16 600**	**15 600**	**15 600**
ENERGY	**18 100**	**21 700**	**17 700**	**16 700**	**15 000**	**15 200**	**14 200**	**14 200**
a. Stationary Combustion Sources	**11 600**	**15 500**	**12 200**	**11 600**	**10 400**	**10 100**	**9 200**	**9 120**
Public Electricity and Heat Production	6 900	10 700	7 620	7 530	7 200	6 970	6 600	6 460
Petroleum Refining Industries	620	1 100	940	820	x	x	x	x
Oil and Gas Extraction	46	302	534	536	727	565	415	284
Mining	39	39	8	6	5	4	4	2
Manufacturing Industries	776	555	528	416	415	399	367	395
Construction	50	x	21	10	x	x	x	x
Commercial and Institutional	819	x	648	616	538	651	539	607
Residential	2 230	1 410	1 790	1 590	1 460	1 480	1 240	1 350
Agriculture and Forestry	104	96	70	38	33	28	24	15
b. Transport[1]	**4 840**	**5 940**	**5 390**	**4 940**	**4 510**	**5 020**	**4 990**	**5 020**
Domestic Aviation	293	267	243	254	241	241	237	235
Road Transportation	3 100	4 100	4 130	3 790	3 410	3 910	3 930	3 910
Light-Duty Gasoline Vehicles	1 490	1 350	1 290	1 100	971	1 190	1 200	1 190
Light-Duty Gasoline Trucks	735	1 190	1 310	1 130	1 030	1 310	1 390	1 470
Heavy-Duty Gasoline Vehicles	165	237	286	255	224	272	288	302
Motorcycles	6	5	9	8	7	9	10	11
Light-Duty Diesel Vehicles	29	42	43	47	44	44	38	31
Light-Duty Diesel Trucks	6	9	7	8	8	12	12	13
Heavy-Duty Diesel Vehicles	664	1 260	1 190	1 240	1 120	1 070	991	890
Propane and Natural Gas Vehicles	4	2	0.02	0.01	0.00	0.00	0.00	0.00
Railways	66	115	131	104	x	x	x	x
Domestic Navigation	571	815	383	312	x	x	x	x
Other Transportation	815	638	501	487	486	550	537	566
Off-Road Agriculture & Forestry	86	90	64	65	60	63	51	48
Off-Road Commercial & Institutional	43	66	62	63	68	74	65	65
Off-Road Manufacturing, Mining & Construction	225	235	192	197	188	208	211	234
Off-Road Residential	9	38	38	32	32	38	x	x
Off-Road Other Transportation	452	175	143	127	129	161	164	174
Pipeline Transport	-	35	4	4	9	6	x	x
c. Fugitive Sources	**1 700**	**230**	**180**	**160**	**79**	**53**	**49**	**39**
Coal Mining	2 000	100	80	80	0.70	0.60	0.70	0.80
Oil and Natural Gas	51	130	95	78	79	52	48	38
Oil	7	5	5	3	0.00	0.00	0.00	0.00
Natural Gas	-	13	10	9	14	14	14	13
Venting	30	80	55	43	33	20	18	13
Flaring	13	32	26	22	32	19	17	12
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**330**	**489**	**576**	**639**	**500**	**525**	**550**	**589**
a. Mineral Products	**180**	**250**	**210**	**200**	**190**	**200**	**200**	**210**
Cement Production	180	250	210	190	190	200	200	210
Lime Production	-	-	-	-	-	-	-	-
Mineral Products Use	4	3	3	3	2	2	1	1
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**140**	**230**	**230**	**240**	**270**	**290**	**310**
e. Non-Energy Products from Fuels and Solvent Use	**120**	**64**	**100**	**160**	**21**	**14**	**20**	**11**
f. Other Product Manufacture and Use	**29**	**40**	**31**	**48**	**42**	**43**	**40**	**55**
AGRICULTURE	**470**	**450**	**420**	**420**	**420**	**400**	**400**	**400**
a. Enteric Fermentation	**230**	**210**	**180**	**170**	**170**	**170**	**170**	**170**
b. Manure Management	**82**	**100**	**110**	**110**	**110**	**110**	**95**	**97**
c. Agricultural Soils	**120**	**130**	**120**	**110**	**120**	**110**	**120**	**120**
Direct Sources	96	100	98	89	98	94	100	100
Indirect Sources	20	20	20	20	20	20	20	20
d. Field Burning of Agricultural Residues	**0.06**	**0.10**	**0.04**	**0.04**	**0.05**	**0.05**	**0.07**	**0.08**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**40**	**10**	**20**	**20**	**20**	**10**	**20**	**20**
WASTE	**690**	**540**	**460**	**480**	**490**	**450**	**440**	**440**
a. Solid Waste Disposal	**640**	**460**	**390**	**400**	**410**	**370**	**360**	**350**
b. Biological Treatment of Solid Waste	**-**	**20**	**20**	**30**	**30**	**30**	**30**	**30**
c. Wastewater Treatment and Discharge	**52**	**54**	**49**	**50**	**52**	**55**	**56**	**56**
d. Incineration and Open Burning of Waste	**0.02**	**0.03**	**-**	**-**	**-**	**-**	**-**	**-**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.

- Indicates no emissions

0.00 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–7 2017 GHG Emission Summary for Nova Scotia

Greenhouse Gas Categories	Greenhouse Gases									
	CO_2	CH_4	CH_4	N_2O	N_2O	$HFCs^4$	$PFCs^4$	SF_6	NF_3	TOTAL
Global Warming Potential			25		298			22 800	17 200	
Unit	kt	kt	kt CO_2 eq	kt	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
TOTAL	**14 000**	**36**	**890**	**1**	**360**	**310**	**0.19**	**40**	**-**	**15 600**
ENERGY	**13 800**	**11**	**270**	**0.50**	**100**	**-**	**-**	**-**	**-**	**14 200**
a. Stationary Combustion Sources	**8 830**	**9**	**200**	**0.20**	**70**	**-**	**-**	**-**	**-**	**9 120**
Public Electricity and Heat Production	6 430	0.26	7	0.09	30	-	-	-	-	6 460
Petroleum Refining Industries	x	x	x	x	x	x	x	x	x	x
Oil and Gas Extraction	265	0.70	20	0.01	2	-	-	-	-	284
Mining	2	0.00	0.00	0.00	0.03	-	-	-	-	2
Manufacturing Industries	384	0.04	1	0.04	10	-	-	-	-	395
Construction	x	x	x	x	x	x	x	x	x	x
Commercial and Institutional	603	0.01	0.24	0.01	4	-	-	-	-	607
Residential	1 130	8	200	0.10	30	-	-	-	-	1 350
Agriculture and Forestry	15	0.00	0.00	0.00	0.08	-	-	-	-	15
b. Transport[1]	**4 920**	**0.98**	**25**	**0.25**	**73**	**-**	**-**	**-**	**-**	**5 020**
Domestic Aviation	232	0.01	0.10	0.01	2	-	-	-	-	235
Road Transportation	3 850	0.30	7	0.17	49	-	-	-	-	3 910
Light-Duty Gasoline Vehicles	1 180	0.09	2	0.04	12	-	-	-	-	1 190
Light-Duty Gasoline Trucks	1 450	0.10	3	0.05	15	-	-	-	-	1 470
Heavy-Duty Gasoline Vehicles	295	0.01	0.20	0.03	7	-	-	-	-	302
Motorcycles	11	0.00	0.10	0.00	0.06	-	-	-	-	11
Light-Duty Diesel Vehicles	31	0.00	0.01	0.00	0.75	-	-	-	-	31
Light-Duty Diesel Trucks	13	0.00	0.01	0.00	0.30	-	-	-	-	13
Heavy-Duty Diesel Vehicles	875	0.04	0.90	0.05	14	-	-	-	-	890
Propane and Natural Gas Vehicles	0.00	0.00	0.00	0.00	0.00	-	-	-	-	0.00
Railways	x	x	x	x	x	x	x	x	x	x
Domestic Navigation	x	x	x	x	x	x	x	x	x	x
Other Transportation	543	0.69	17	0.02	6	-	-	-	-	566
Off-Road Agriculture & Forestry	48	0.00	0.08	0.00	0.70	-	-	-	-	48
Off-Road Commercial & Institutional	61	0.13	3	0.00	0.60	-	-	-	-	65
Off-Road Manufacturing, Mining & Construction	230	0.04	0.87	0.01	3	-	-	-	-	234
Off-Road Residential	x	x	x	x	x	x	x	x	x	x
Off-Road Other Transportation	162	0.43	11	0.00	1	-	-	-	-	174
Pipeline Transport	x	x	x	x	x	x	x	x	x	x
c. Fugitive Sources	**11**	**1**	**29**	**0.00**	**0.01**	**-**	**-**	**-**	**-**	**39**
Coal Mining	-	0.03	0.80	-	-	-	-	-	-	0.80
Oil and Natural Gas	11	1	28	0.00	0.01	-	-	-	-	38
Oil	-	0.00	0.00	-	-	-	-	-	-	0.00
Natural Gas	0.01	0.53	13	-	-	-	-	-	-	13
Venting	0.01	0.51	13	-	-	-	-	-	-	13
Flaring	11	0.07	2	0.00	0.01	-	-	-	-	12
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**226**	**-**	**-**	**0.05**	**14**	**310**	**0.19**	**40**	**-**	**589**
a. Mineral Products	**210**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**210**
Cement Production	210	-	-	-	-	-	-	-	-	210
Lime Production	-	-	-	-	-	-	-	-	-	-
Mineral Products Use	1	-	-	-	-	-	-	-	-	1
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**-**	**-**	**-**	**-**	**310**	**0.03**	**-**	**-**	**310**
e. Non-Energy Products from Fuels and Solvent Use	**11**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**11**
f. Other Product Manufacture and Use	**0.53**	**-**	**-**	**0.05**	**14**	**-**	**0.16**	**40**	**-**	**55**
AGRICULTURE	**20**	**8**	**210**	**0.59**	**180**	**-**	**-**	**-**	**-**	**400**
a. Enteric Fermentation	**-**	**7**	**170**	**-**	**-**	**-**	**-**	**-**	**-**	**170**
b. Manure Management	**-**	**2**	**44**	**0.20**	**50**	**-**	**-**	**-**	**-**	**97**
c. Agricultural Soils	**-**	**-**	**-**	**0.42**	**120**	**-**	**-**	**-**	**-**	**120**
Direct Sources	-	-	-	0.34	100	-	-	-	-	100
Indirect Sources	-	-	-	0.07	20	-	-	-	-	20
d. Field Burning of Agricultural Residues	**-**	**0.00**	**0.06**	**0.00**	**0.02**	**-**	**-**	**-**	**-**	**0.08**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**20**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**20**
WASTE	**-**	**17**	**410**	**0.08**	**20**	**-**	**-**	**-**	**-**	**440**
a. Solid Waste Disposal	**-**	**14**	**350**	**-**	**-**	**-**	**-**	**-**	**-**	**350**
b. Biological Treatment of Solid Waste	**-**	**0.60**	**20**	**0.04**	**10**	**-**	**-**	**-**	**-**	**30**
c. Wastewater Treatment and Discharge	**-**	**2**	**44**	**0.04**	**10**	**-**	**-**	**-**	**-**	**56**
d. Incineration and Open Burning of Waste	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.
4. IPCC's Fourth Assessment Report provides global warming potentials (GWPs) for the various species of HFCs and PFCs. Chapter 1, Table 1-1 of this report provides a list of GWPs used.

- Indicates no emissions
0.00 Indicates emissions truncated due to rounding
x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–8 GHG Emission Summary for New Brunswick, Selected Years

Greenhouse Gas Categories	1990	2005	2012	2013	2014	2015	2016	2017
	kt CO_2 eq							
TOTAL	**16 100**	**20 000**	**16 700**	**14 800**	**14 300**	**14 200**	**15 200**	**14 300**
ENERGY	**14 900**	**18 600**	**14 700**	**12 900**	**12 800**	**12 700**	**13 800**	**12 800**
a. Stationary Combustion Sources	**10 800**	**13 100**	**9 440**	**8 570**	**8 850**	**8 450**	**9 160**	**8 520**
Public Electricity and Heat Production	6 020	8 060	4 060	4 190	4 390	3 950	4 690	3 980
Petroleum Refining Industries	1 200	2 300	2 500	2 500	x	x	x	x
Oil and Gas Extraction	-	-	9	41	35	29	26	26
Mining	126	161	206	60	x	x	x	x
Manufacturing Industries	1 640	1 170	841	850	684	764	619	617
Construction	69	6	14	9	10	28	17	35
Commercial and Institutional	580	602	833	320	403	428	380	293
Residential	1 160	834	864	570	617	747	685	659
Agriculture and Forestry	53	33	86	57	60	25	31	14
b. Transport[1]	**4 060**	**5 210**	**5 050**	**4 100**	**3 820**	**4 090**	**4 440**	**4 090**
Domestic Aviation	142	125	103	113	109	106	103	98
Road Transportation	2 260	3 590	3 780	3 090	2 790	3 090	3 420	3 080
Light-Duty Gasoline Vehicles	931	1 030	1 010	827	716	851	943	810
Light-Duty Gasoline Trucks	532	984	1 210	1 010	894	1 100	1 290	1 170
Heavy-Duty Gasoline Vehicles	125	197	264	218	182	216	251	226
Motorcycles	3	6	9	7	7	9	10	9
Light-Duty Diesel Vehicles	15	22	20	16	16	16	15	13
Light-Duty Diesel Trucks	6	10	6	4	4	6	7	7
Heavy-Duty Diesel Vehicles	649	1 340	1 260	1 010	975	891	902	842
Propane and Natural Gas Vehicles	0.67	0.15	0.00	0.00	-	0.00	0.00	0.00
Railways	129	284	273	198	x	x	x	x
Domestic Navigation	243	382	329	243	250	209	192	193
Other Transportation	1 280	829	558	461	x	x	x	x
Off-Road Agriculture & Forestry	123	167	118	95	96	98	87	88
Off-Road Commercial & Institutional	30	55	53	47	46	48	48	46
Off-Road Manufacturing, Mining & Construction	151	194	158	128	130	138	155	172
Off-Road Residential	5	x	x	x	x	x	x	x
Off-Road Other Transportation	971	386	201	169	172	205	229	213
Pipeline Transport	-	x	x	x	-	-	13	9
c. Fugitive Sources	**60**	**220**	**190**	**180**	**150**	**180**	**190**	**220**
Coal Mining	1	0.30	-	-	-	-	-	-
Oil and Natural Gas	59	220	190	180	150	180	190	220
Oil	8	18	18	17	15	17	17	18
Natural Gas	0.00	20	16	14	16	16	19	19
Venting	36	150	130	130	100	120	130	150
Flaring	15	31	28	26	21	25	27	32
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**187**	**265**	**990**	**929**	**439**	**453**	**483**	**544**
a. Mineral Products	**90**	**97**	**57**	**54**	**57**	**54**	**55**	**57**
Cement Production	-	-	-	-	-	-	-	-
Lime Production	80	89	53	50	54	50	51	54
Mineral Products Use	10	8	3	4	3	4	3	3
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**130**	**230**	**220**	**230**	**250**	**270**	**280**
e. Non-Energy Products from Fuels and Solvent Use	**92**	**34**	**690**	**640**	**140**	**140**	**150**	**190**
f. Other Product Manufacture and Use	**5**	**8**	**7**	**8**	**8**	**9**	**10**	**13**
AGRICULTURE	**490**	**540**	**490**	**480**	**490**	**440**	**500**	**490**
a. Enteric Fermentation	**200**	**180**	**160**	**160**	**150**	**150**	**150**	**150**
b. Manure Management	**61**	**75**	**65**	**64**	**61**	**60**	**58**	**59**
c. Agricultural Soils	**160**	**220**	**180**	**150**	**190**	**170**	**220**	**210**
Direct Sources	130	190	160	120	160	150	190	180
Indirect Sources	30	40	30	20	30	30	30	30
d. Field Burning of Agricultural Residues	**0.02**	**0.02**	**0.02**	**0.02**	**0.03**	**0.03**	**0.03**	**0.03**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**70**	**50**	**80**	**100**	**90**	**60**	**70**	**70**
WASTE	**550**	**630**	**520**	**530**	**540**	**550**	**470**	**470**
a. Solid Waste Disposal	**500**	**560**	**450**	**460**	**480**	**480**	**400**	**400**
b. Biological Treatment of Solid Waste	**6**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
c. Wastewater Treatment and Discharge	**47**	**49**	**51**	**51**	**51**	**52**	**52**	**51**
d. Incineration and Open Burning of Waste	**-**	**0.01**	**0.03**	**0.03**	**0.03**	**0.01**	**-**	**-**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.

- Indicates no emissions

0.00 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–9 2017 GHG Emission Summary for New Brunswick

Greenhouse Gas Categories	CO_2	CH_4	CH_4	N_2O	N_2O	HFCs[4]	PFCs[4]	SF_6	NF_3	TOTAL
	Greenhouse Gases									
Global Warming Potential			25		298			22 800	17 200	
Unit	kt	kt	kt CO_2 eq	kt	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
TOTAL	**12 800**	**33**	**810**	**1**	**420**	**280**	**0.03**	**2**	**-**	**14 300**
ENERGY	**12 500**	**7**	**180**	**0.50**	**100**	**-**	**-**	**-**	**-**	**12 800**
a. Stationary Combustion Sources	**8 320**	**5**	**100**	**0.20**	**70**	**-**	**-**	**-**	**-**	**8 520**
Public Electricity and Heat Production	3 960	0.20	5	0.05	20	-	-	-	-	3 980
Petroleum Refining Industries	x	x	x	x	x	x	x	x	x	x
Oil and Gas Extraction	26	0.00	0.01	0.00	0.50	-	-	-	-	26
Mining	x	x	x	x	x	x	x	x	x	x
Manufacturing Industries	585	0.12	3	0.10	29	-	-	-	-	617
Construction	35	0.00	0.01	0.00	0.13	-	-	-	-	35
Commercial and Institutional	290	0.00	0.11	0.01	2	-	-	-	-	293
Residential	522	5	100	0.06	20	-	-	-	-	659
Agriculture and Forestry	14	0.00	0.00	0.00	0.08	-	-	-	-	14
b. Transport[1]	**4 000**	**0.92**	**23**	**0.23**	**69**	**-**	**-**	**-**	**-**	**4 090**
Domestic Aviation	97	0.01	0.20	0.00	0.90	-	-	-	-	98
Road Transportation	3 030	0.20	6	0.15	44	-	-	-	-	3 080
Light-Duty Gasoline Vehicles	798	0.07	2	0.03	10	-	-	-	-	810
Light-Duty Gasoline Trucks	1 160	0.10	3	0.05	14	-	-	-	-	1 170
Heavy-Duty Gasoline Vehicles	220	0.01	0.20	0.02	6	-	-	-	-	226
Motorcycles	9	0.00	0.09	0.00	0.05	-	-	-	-	9
Light-Duty Diesel Vehicles	13	0.00	0.01	0.00	0.32	-	-	-	-	13
Light-Duty Diesel Trucks	7	0.00	0.01	0.00	0.18	-	-	-	-	7
Heavy-Duty Diesel Vehicles	827	0.03	0.90	0.05	14	-	-	-	-	842
Propane and Natural Gas Vehicles	0.00	0.00	0.00	0.00	0.00	-	-	-	-	0.00
Railways	x	x	x	x	x	x	x	x	x	x
Domestic Navigation	191	0.02	0.45	0.01	2	-	-	-	-	193
Other Transportation	x	x	x	x	x	x	x	x	x	x
Off-Road Agriculture & Forestry	87	0.01	0.16	0.01	2	-	-	-	-	88
Off-Road Commercial & Institutional	44	0.06	1	0.00	0.40	-	-	-	-	46
Off-Road Manufacturing, Mining & Construction	169	0.03	0.64	0.01	3	-	-	-	-	172
Off-Road Residential	x	x	x	x	x	x	x	x	x	x
Off-Road Other Transportation	198	0.50	13	0.01	2	-	-	-	-	213
Pipeline Transport	9	0.01	0.23	0.00	0.07	-	-	-	-	9
c. Fugitive Sources	**180**	**1**	**32**	**0.02**	**4**	**-**	**-**	**-**	**-**	**220**
Coal Mining	-	-	-	-	-	-	-	-	-	-
Oil and Natural Gas	180	1	32	0.01	4	-	-	-	-	220
Oil	0.12	0.53	13	0.01	4	-	-	-	-	18
Natural Gas	0.01	0.76	19	-	-	-	-	-	-	19
Venting	150	0.01	0.17	-	-	-	-	-	-	150
Flaring	32	0.00	0.03	0.00	0.01	-	-	-	-	32
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**251**	**-**	**-**	**0.04**	**11**	**280**	**0.02**	**2**	**-**	**544**
a. Mineral Products	**57**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**57**
Cement Production	-	-	-	-	-	-	-	-	-	-
Lime Production	54	-	-	-	-	-	-	-	-	54
Mineral Products Use	3	-	-	-	-	-	-	-	-	3
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**-**	**-**	**-**	**-**	**280**	**0.02**	**-**	**-**	**280**
e. Non-Energy Products from Fuels and Solvent Use	**190**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**190**
f. Other Product Manufacture and Use	**0.50**	**-**	**-**	**0.04**	**11**	**-**	**0.00**	**2**	**-**	**13**
AGRICULTURE	**70**	**7**	**180**	**0.82**	**240**	**-**	**-**	**-**	**-**	**490**
a. Enteric Fermentation	**-**	**6**	**150**	**-**	**-**	**-**	**-**	**-**	**-**	**150**
b. Manure Management	**-**	**1**	**29**	**0.10**	**30**	**-**	**-**	**-**	**-**	**59**
c. Agricultural Soils	**-**	**-**	**-**	**0.72**	**210**	**-**	**-**	**-**	**-**	**210**
Direct Sources	-	-	-	0.61	180	-	-	-	-	180
Indirect Sources	-	-	-	0.10	30	-	-	-	-	30
d. Field Burning of Agricultural Residues	**-**	**0.00**	**0.02**	**0.00**	**0.01**	**-**	**-**	**-**	**-**	**0.03**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**70**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**70**
WASTE	**-**	**18**	**450**	**0.06**	**20**	**-**	**-**	**-**	**-**	**470**
a. Solid Waste Disposal	**-**	**16**	**400**	**-**	**-**	**-**	**-**	**-**	**-**	**400**
b. Biological Treatment of Solid Waste	**-**	**0.40**	**10**	**0.02**	**7**	**-**	**-**	**-**	**-**	**20**
c. Wastewater Treatment and Discharge	**-**	**2**	**41**	**0.03**	**10**	**-**	**-**	**-**	**-**	**51**
d. Incineration and Open Burning of Waste	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.
4. IPCC's Fourth Assessment Report provides global warming potentials (GWPs) for the various species of HFCs and PFCs. Chapter 1, Table 1-1 of this report provides a list of GWPs used.

- Indicates no emissions
0.00 Indicates emissions truncated due to rounding
x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–10 GHG Emission Summary for Quebec, Selected Years

Greenhouse Gas Categories	1990	2005	2012	2013	2014	2015	2016	2017
	kt CO_2 eq							
TOTAL	**86 100**	**86 500**	**79 700**	**80 300**	**77 900**	**78 100**	**77 700**	**78 000**
ENERGY	**59 700**	**61 400**	**57 700**	**57 500**	**55 400**	**56 300**	**55 600**	**55 300**
a. Stationary Combustion Sources	**31 600**	**27 400**	**22 400**	**22 600**	**22 200**	**22 500**	**21 300**	**20 900**
Public Electricity and Heat Production	1 500	622	488	371	248	208	237	243
Petroleum Refining Industries	3 500	3 700	2 200	2 100	2 000	2 200	1 900	1 700
Oil and Gas Extraction	-	-	-	-	-	-	-	-
Mining	824	319	1 120	1 080	722	570	648	318
Manufacturing Industries	12 300	10 000	9 000	9 350	9 260	9 450	8 340	8 830
Construction	458	314	369	367	374	351	345	350
Commercial and Institutional	4 440	5 450	4 200	4 380	4 610	4 800	4 770	4 930
Residential	8 290	6 680	4 480	4 440	4 500	4 450	4 600	4 110
Agriculture and Forestry	291	367	477	480	469	484	496	468
b. Transport[1]	**27 700**	**33 600**	**35 100**	**34 700**	**32 900**	**33 500**	**34 000**	**34 100**
Domestic Aviation	820	747	741	733	677	675	697	723
Road Transportation	18 100	26 300	28 200	27 800	26 400	26 800	27 400	27 100
Light-Duty Gasoline Vehicles	10 600	10 800	9 750	9 610	9 110	9 170	9 130	8 840
Light-Duty Gasoline Trucks	3 580	6 900	7 450	7 450	7 270	7 530	7 890	8 050
Heavy-Duty Gasoline Vehicles	785	1 620	2 020	2 040	1 790	1 800	1 890	1 930
Motorcycles	17	71	73	72	65	68	70	71
Light-Duty Diesel Vehicles	210	151	188	191	196	204	194	176
Light-Duty Diesel Trucks	57	69	93	98	122	156	184	208
Heavy-Duty Diesel Vehicles	2 820	6 680	8 640	8 370	7 880	7 890	8 040	7 830
Propane and Natural Gas Vehicles	2	0.99	0.05	0.04	0.22	0.20	0.17	0.12
Railways	567	706	931	869	776	682	673	604
Domestic Navigation	1 380	1 290	803	905	737	721	740	960
Other Transportation	6 800	4 570	4 420	4 340	4 300	4 630	4 490	4 680
Off-Road Agriculture & Forestry	999	780	794	743	691	739	678	660
Off-Road Commercial & Institutional	359	456	518	548	575	585	687	829
Off-Road Manufacturing, Mining & Construction	2 030	1 620	1 830	1 750	1 660	1 890	1 870	1 980
Off-Road Residential	61	264	270	252	244	251	217	215
Off-Road Other Transportation	3 330	1 120	802	773	765	829	855	895
Pipeline Transport	26	338	201	268	360	326	189	98
c. Fugitive Sources	**430**	**380**	**280**	**270**	**270**	**290**	**300**	**330**
Coal Mining	-	-	-	-	-	-	-	-
Oil and Natural Gas	430	380	280	270	270	290	300	330
Oil	22	28	23	20	22	22	22	22
Natural Gas	260	74	36	50	48	49	48	48
Venting	99	240	190	170	170	190	200	220
Flaring	40	47	35	31	29	32	35	40
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**14 800**	**12 600**	**11 000**	**11 500**	**11 200**	**10 100**	**10 000**	**10 500**
a. Mineral Products	**1 900**	**2 100**	**1 900**	**1 700**	**1 800**	**1 800**	**1 800**	**2 100**
Cement Production	1 400	1 300	1 400	1 200	1 200	1 300	1 300	1 600
Lime Production	280	480	460	430	470	440	440	470
Mineral Products Use	200	260	89	69	70	72	68	66
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-
c. Metal Production	**10 900**	**7 560**	**5 630**	**5 830**	**5 340**	**5 300**	**5 180**	**5 270**
Iron and Steel Production	-	-	32	31	28	29	29	22
Aluminum Production	8 660	7 460	5 580	5 780	5 280	5 240	5 130	5 220
SF_6 Used in Magnesium Smelters and Casters	2 280	103	16	21	28	27	27	26
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**2**	**1 100**	**1 800**	**1 900**	**2 000**	**2 200**	**2 300**	**2 500**
e. Non-Energy Products from Fuels and Solvent Use	**1 800**	**1 800**	**1 600**	**1 900**	**2 000**	**720**	**510**	**590**
f. Other Product Manufacture and Use	**80**	**120**	**140**	**150**	**100**	**160**	**190**	**150**
AGRICULTURE	**7 000**	**7 600**	**7 900**	**7 700**	**7 700**	**7 800**	**8 000**	**8 100**
a. Enteric Fermentation	**3 100**	**3 100**	**2 700**	**2 700**	**2 700**	**2 600**	**2 600**	**2 600**
b. Manure Management	**1 100**	**1 600**	**1 600**	**1 600**	**1 600**	**1 600**	**1 700**	**1 700**
c. Agricultural Soils	**2 500**	**2 700**	**3 300**	**3 100**	**3 200**	**3 400**	**3 500**	**3 600**
Direct Sources	2 100	2 300	2 800	2 700	2 700	2 900	3 000	3 100
Indirect Sources	400	400	500	500	500	500	500	500
d. Field Burning of Agricultural Residues	**0.30**	**0.30**	**0.20**	**0.20**	**0.20**	**0.20**	**0.20**	**0.10**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**200**	**200**	**300**	**300**	**300**	**200**	**300**	**200**
WASTE	**4 700**	**4 900**	**3 100**	**3 600**	**3 700**	**3 800**	**4 100**	**4 100**
a. Solid Waste Disposal	**4 300**	**4 400**	**2 700**	**3 200**	**3 300**	**3 400**	**3 700**	**3 700**
b. Biological Treatment of Solid Waste	**-**	**50**	**70**	**70**	**70**	**60**	**50**	**50**
c. Wastewater Treatment and Discharge	**190**	**210**	**260**	**260**	**270**	**270**	**270**	**280**
d. Incineration and Open Burning of Waste	**200**	**200**	**80**	**80**	**80**	**80**	**80**	**80**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.

- Indicates no emissions

0.00 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–11 2017 GHG Emission Summary for Quebec

Greenhouse Gas Categories	Greenhouse Gases									
	CO_2	CH_4	CH_4	N_2O	N_2O	$HFCs^4$	$PFCs^4$	SF_6	NF_3	TOTAL
Global Warming Potential			25		298			22 800	17 200	
Unit	kt	kt	kt CO_2 eq	kt	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
TOTAL	**60 100**	**380**	**9 500**	**18**	**5 300**	**2 500**	**670**	**57**	**0.10**	**78 000**
ENERGY	**52 600**	**70**	**1 800**	**3**	**900**	**-**	**-**	**-**	**-**	**55 300**
a. Stationary Combustion Sources	**19 000**	**60**	**2 000**	**1**	**400**	**-**	**-**	**-**	**-**	**20 900**
Public Electricity and Heat Production	237	0.01	0.17	0.02	5	-	-	-	-	243
Petroleum Refining Industries	1 700	0.03	0.90	0.01	4	-	-	-	-	1 700
Oil and Gas Extraction	-	-	-	-	-	-	-	-	-	-
Mining	316	0.01	0.30	0.01	2	-	-	-	-	318
Manufacturing Industries	8 710	0.52	13	0.36	110	-	-	-	-	8 830
Construction	348	0.01	0.16	0.01	2	-	-	-	-	350
Commercial and Institutional	4 880	0.18	5	0.10	40	-	-	-	-	4 930
Residential	2 370	60	2 000	0.80	200	-	-	-	-	4 110
Agriculture and Forestry	460	0.01	0.20	0.02	7	-	-	-	-	468
b. Transport[1]	**33 400**	**6**	**150**	**2**	**510**	**-**	**-**	**-**	**-**	**34 100**
Domestic Aviation	716	0.03	0.80	0.02	6	-	-	-	-	723
Road Transportation	26 700	2	50	1	370	-	-	-	-	27 100
Light-Duty Gasoline Vehicles	8 720	0.70	20	0.33	98	-	-	-	-	8 840
Light-Duty Gasoline Trucks	7 950	0.70	20	0.29	88	-	-	-	-	8 050
Heavy-Duty Gasoline Vehicles	1 880	0.06	2	0.16	49	-	-	-	-	1 930
Motorcycles	70	0.03	0.70	0.00	0.39	-	-	-	-	71
Light-Duty Diesel Vehicles	172	0.00	0.08	0.01	4	-	-	-	-	176
Light-Duty Diesel Trucks	203	0.01	0.10	0.02	5	-	-	-	-	208
Heavy-Duty Diesel Vehicles	7 700	0.30	8	0.43	130	-	-	-	-	7 830
Propane and Natural Gas Vehicles	0.11	0.00	0.00	0.00	0.00	-	-	-	-	0.12
Railways	540	0.03	0.80	0.20	60	-	-	-	-	604
Domestic Navigation	951	0.09	2	0.03	7	-	-	-	-	960
Other Transportation	4 520	4	96	0.20	60	-	-	-	-	4 680
Off-Road Agriculture & Forestry	650	0.03	0.79	0.03	9	-	-	-	-	660
Off-Road Commercial & Institutional	794	1	27	0.03	8	-	-	-	-	829
Off-Road Manufacturing, Mining & Construction	1 940	0.29	7	0.10	30	-	-	-	-	1 980
Off-Road Residential	202	0.44	11	0.01	2	-	-	-	-	215
Off-Road Other Transportation	840	2	48	0.02	7	-	-	-	-	895
Pipeline Transport	95	0.10	2	0.00	0.80	-	-	-	-	98
c. Fugitive Sources	**230**	**4**	**89**	**0.02**	**6**	**-**	**-**	**-**	**-**	**330**
Coal Mining	-	-	-	-	-	-	-	-	-	-
Oil and Natural Gas	230	4	89	0.02	6	-	-	-	-	330
Oil	0.16	0.66	17	0.02	6	-	-	-	-	22
Natural Gas	0.04	2	48	-	-	-	-	-	-	48
Venting	190	0.99	25	-	-	-	-	-	-	220
Flaring	40	0.00	0.02	0.00	0.01	-	-	-	-	40
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**7 250**	**0.00**	**0.00**	**0.41**	**121**	**2 500**	**670**	**57**	**0.10**	**10 500**
a. Mineral Products	**2 100**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2 100**
Cement Production	1 600	-	-	-	-	-	-	-	-	1 600
Lime Production	470	-	-	-	-	-	-	-	-	470
Mineral Products Use	66	-	-	-	-	-	-	-	-	66
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
c. Metal Production	**4 570**	**0.00**	**0.01**	**-**	**-**	**-**	**665**	**34**	**-**	**5 270**
Iron and Steel Production	22	0.00	0.01	-	-	-	-	-	-	22
Aluminum Production	4 550	-	-	-	-	-	665	8	-	5 220
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	26	-	26
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**-**	**-**	**-**	**-**	**2 500**	**1**	**0.83**	**0.10**	**2 500**
e. Non-Energy Products from Fuels and Solvent Use	**590**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**590**
f. Other Product Manufacture and Use	**5**	**-**	**-**	**0.41**	**120**	**-**	**3**	**22**	**-**	**150**
AGRICULTURE	**200**	**150**	**3 800**	**14**	**4 100**	**-**	**-**	**-**	**-**	**8 100**
a. Enteric Fermentation	**-**	**100**	**2 600**	**-**	**-**	**-**	**-**	**-**	**-**	**2 600**
b. Manure Management	**-**	**48**	**1 200**	**2**	**500**	**-**	**-**	**-**	**-**	**1 700**
c. Agricultural Soils	**-**	**-**	**-**	**12**	**3 600**	**-**	**-**	**-**	**-**	**3 600**
Direct Sources	-	-	-	10	3 100	-	-	-	-	3 100
Indirect Sources	-	-	-	2	500	-	-	-	-	500
d. Field Burning of Agricultural Residues	**-**	**0.01**	**0.10**	**0.00**	**0.04**	**-**	**-**	**-**	**-**	**0.10**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**200**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**200**
WASTE	**10**	**160**	**3 900**	**0.60**	**200**	**-**	**-**	**-**	**-**	**4 100**
a. Solid Waste Disposal	**-**	**150**	**3 700**	**-**	**-**	**-**	**-**	**-**	**-**	**3 700**
b. Biological Treatment of Solid Waste	**-**	**1**	**30**	**0.06**	**20**	**-**	**-**	**-**	**-**	**50**
c. Wastewater Treatment and Discharge	**-**	**7**	**170**	**0.40**	**100**	**-**	**-**	**-**	**-**	**280**
d. Incineration and Open Burning of Waste	**10**	**1**	**30**	**0.10**	**40**	**-**	**-**	**-**	**-**	**80**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.
4. IPCC's Fourth Assessment Report provides global warming potentials (GWPs) for the various species of HFCs and PFCs. Chapter 1, Table 1-1 of this report provides a list of GWPs used.

- Indicates no emissions
0.00 Indicates emissions truncated due to rounding
x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–12 GHG Emission Summary for Ontario, Selected Years

Greenhouse Gas Categories	1990	2005	2012	2013	2014	2015	2016	2017
	kt CO_2 eq							
TOTAL	**180 000**	**204 000**	**169 000**	**168 000**	**166 000**	**165 000**	**162 000**	**159 000**
ENERGY	**133 000**	**163 000**	**129 000**	**130 000**	**127 000**	**126 000**	**121 000**	**119 000**
a. Stationary Combustion Sources	**83 400**	**97 000**	**69 300**	**67 400**	**66 300**	**63 500**	**59 500**	**57 400**
Public Electricity and Heat Production	25 800	35 400	14 300	10 300	6 030	6 250	5 540	2 530
Petroleum Refining Industries	6 200	6 900	6 900	6 100	6 000	5 600	5 400	5 500
Oil and Gas Extraction	100	169	132	97	49	53	73	42
Mining	493	420	643	531	581	455	532	537
Manufacturing Industries	22 000	18 800	15 900	16 200	16 600	16 000	15 700	16 400
Construction	571	637	436	361	380	350	341	305
Commercial and Institutional	9 190	12 800	11 000	12 000	13 300	12 700	12 200	12 700
Residential	18 200	20 700	18 300	20 200	21 800	20 700	18 100	18 000
Agriculture and Forestry	775	1 040	1 690	1 650	1 500	1 420	1 510	1 340
b. Transport[1]	**47 900**	**64 100**	**58 300**	**60 900**	**59 200**	**60 600**	**60 300**	**60 200**
Domestic Aviation	2 240	2 250	2 200	2 290	2 190	2 190	2 200	2 190
Road Transportation	29 300	47 800	45 300	47 400	45 400	46 300	46 600	46 500
Light-Duty Gasoline Vehicles	16 400	16 600	12 800	13 400	12 800	12 900	12 700	12 000
Light-Duty Gasoline Trucks	7 210	15 800	15 600	16 600	16 400	16 900	17 700	17 900
Heavy-Duty Gasoline Vehicles	1 480	3 150	3 320	3 550	3 300	3 310	3 420	3 390
Motorcycles	27	61	84	87	86	88	93	94
Light-Duty Diesel Vehicles	127	217	296	326	327	363	337	337
Light-Duty Diesel Trucks	34	72	157	192	241	328	376	464
Heavy-Duty Diesel Vehicles	3 970	11 800	13 100	13 200	12 300	12 400	11 900	12 300
Propane and Natural Gas Vehicles	68	55	4	1	0.91	0.65	0.74	0.54
Railways	1 780	1 550	1 240	1 320	1 410	1 430	1 450	1 420
Domestic Navigation	917	856	984	1 220	1 220	1 210	1 120	1 110
Other Transportation	13 700	11 700	8 550	8 730	8 970	9 500	8 930	8 980
Off-Road Agriculture & Forestry	1 340	1 410	1 230	1 200	1 110	1 170	1 040	1 030
Off-Road Commercial & Institutional	561	960	970	1 050	1 020	993	1 040	1 190
Off-Road Manufacturing, Mining & Construction	3 130	3 310	3 450	3 310	3 130	3 540	3 420	3 780
Off-Road Residential	89	491	475	471	480	475	452	457
Off-Road Other Transportation	6 340	2 460	1 590	1 630	1 700	1 770	1 780	1 840
Pipeline Transport	2 280	3 070	844	1 070	1 530	1 550	1 200	677
c. Fugitive Sources	**1 600**	**1 600**	**1 400**	**1 400**	**1 500**	**1 500**	**1 500**	**1 500**
Coal Mining	-	-	-	-	-	-	-	-
Oil and Natural Gas	1 600	1 600	1 400	1 400	1 500	1 500	1 500	1 500
Oil	62	41	36	35	35	33	31	28
Natural Gas	1 000	960	820	830	920	920	940	970
Venting	340	460	420	440	440	440	450	460
Flaring	155	101	78	73	65	67	60	63
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**30 500**	**24 900**	**24 200**	**22 500**	**23 100**	**23 000**	**24 600**	**23 600**
a. Mineral Products	**3 900**	**4 800**	**3 700**	**3 400**	**3 400**	**3 500**	**3 500**	**3 700**
Cement Production	2 400	3 700	2 900	2 700	2 700	2 800	2 800	3 000
Lime Production	1 100	800	610	570	620	570	580	610
Mineral Products Use	380	320	150	130	120	130	120	110
b. Chemical Industry[2]	**10 300**	**2 550**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	10 000	2 500	-	-	-	-	-	-
c. Metal Production	**11 200**	**11 400**	**10 400**	**8 190**	**9 160**	**8 720**	**9 480**	**9 590**
Iron and Steel Production	10 500	10 300	10 100	8 010	8 900	8 490	9 240	9 360
Aluminum Production	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	687	1 130	232	187	257	231	243	227
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**970**	**2 000**	**3 400**	**3 500**	**3 800**	**4 200**	**4 500**	**4 700**
e. Non-Energy Products from Fuels and Solvent Use	**4 100**	**3 900**	**6 500**	**7 200**	**6 600**	**6 400**	**6 800**	**5 300**
f. Other Product Manufacture and Use	**140**	**190**	**190**	**200**	**180**	**210**	**240**	**270**
AGRICULTURE	**10 000**	**10 000**	**9 600**	**10 000**	**9 700**	**9 500**	**9 900**	**9 800**
a. Enteric Fermentation	**4 300**	**4 100**	**3 400**	**3 400**	**3 300**	**3 300**	**3 300**	**3 300**
b. Manure Management	**1 800**	**2 000**	**1 800**	**1 800**	**1 800**	**1 800**	**1 800**	**1 800**
c. Agricultural Soils	**3 900**	**3 700**	**4 300**	**4 600**	**4 300**	**4 200**	**4 500**	**4 400**
Direct Sources	3 300	3 200	3 700	4 000	3 700	3 600	3 900	3 800
Indirect Sources	600	600	600	600	600	600	600	600
d. Field Burning of Agricultural Residues	**3**	**0.60**	**0.40**	**0.30**	**0.30**	**0.30**	**0.30**	**0.20**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**300**	**200**	**200**	**200**	**200**	**100**	**200**	**200**
WASTE	**6 300**	**6 400**	**6 100**	**6 100**	**6 500**	**6 400**	**6 200**	**6 200**
a. Solid Waste Disposal	**5 900**	**5 700**	**5 300**	**5 300**	**5 600**	**5 500**	**5 300**	**5 300**
b. Biological Treatment of Solid Waste	**50**	**100**	**200**	**200**	**200**	**200**	**200**	**200**
c. Wastewater Treatment and Discharge	**290**	**360**	**400**	**380**	**390**	**390**	**400**	**400**
d. Incineration and Open Burning of Waste	**100**	**300**	**200**	**200**	**300**	**300**	**300**	**300**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.

- Indicates no emissions

0.00 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–13 2017 GHG Emission Summary for Ontario

Greenhouse Gas Categories	CO_2	CH_4	CH_4	N_2O	N_2O	HFCs[4]	PFCs[4]	SF_6	NF_3	TOTAL
Global Warming Potential			25		298			22 800	17 200	
Unit	kt	kt	kt CO_2 eq	kt	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
TOTAL	**134 000**	**490**	**12 000**	**25**	**7 600**	**4 700**	**7**	**280**	**-**	**159 000**
ENERGY	**115 000**	**93**	**2 300**	**6**	**2 000**	**-**	**-**	**-**	**-**	**119 000**
a. Stationary Combustion Sources	**56 100**	**30**	**800**	**2**	**500**	**-**	**-**	**-**	**-**	**57 400**
Public Electricity and Heat Production	2 490	0.64	16	0.09	30	-	-	-	-	2 530
Petroleum Refining Industries	5 500	0.10	3	0.03	8	-	-	-	-	5 500
Oil and Gas Extraction	41	0.00	0.02	0.00	0.30	-	-	-	-	42
Mining	528	0.01	0.20	0.03	9	-	-	-	-	537
Manufacturing Industries	16 200	0.53	13	0.43	130	-	-	-	-	16 400
Construction	301	0.01	0.13	0.01	3	-	-	-	-	305
Commercial and Institutional	12 600	0.35	9	0.30	90	-	-	-	-	12 700
Residential	17 100	30	800	0.70	200	-	-	-	-	18 000
Agriculture and Forestry	1 330	0.02	0.60	0.04	10	-	-	-	-	1 340
b. Transport[1]	**58 700**	**11**	**280**	**4**	**1 200**	**-**	**-**	**-**	**-**	**60 200**
Domestic Aviation	2 170	0.08	2	0.06	20	-	-	-	-	2 190
Road Transportation	45 500	3	70	3	880	-	-	-	-	46 500
Light-Duty Gasoline Vehicles	11 800	0.90	20	0.79	240	-	-	-	-	12 000
Light-Duty Gasoline Trucks	17 500	1	30	1	320	-	-	-	-	17 900
Heavy-Duty Gasoline Vehicles	3 290	0.10	3	0.30	89	-	-	-	-	3 390
Motorcycles	93	0.04	0.90	0.00	0.53	-	-	-	-	94
Light-Duty Diesel Vehicles	329	0.01	0.20	0.03	8	-	-	-	-	337
Light-Duty Diesel Trucks	453	0.01	0.30	0.04	11	-	-	-	-	464
Heavy-Duty Diesel Vehicles	12 100	0.50	10	0.70	210	-	-	-	-	12 300
Propane and Natural Gas Vehicles	0.53	0.00	0.01	0.00	0.00	-	-	-	-	0.54
Railways	1 270	0.07	2	0.50	200	-	-	-	-	1 420
Domestic Navigation	1 100	0.10	3	0.03	8	-	-	-	-	1 110
Other Transportation	8 670	8	200	0.40	100	-	-	-	-	8 980
Off-Road Agriculture & Forestry	1 020	0.04	1	0.04	10	-	-	-	-	1 030
Off-Road Commercial & Institutional	1 150	1	36	0.04	10	-	-	-	-	1 190
Off-Road Manufacturing, Mining & Construction	3 700	0.66	17	0.20	60	-	-	-	-	3 780
Off-Road Residential	429	0.96	24	0.01	4	-	-	-	-	457
Off-Road Other Transportation	1 720	4	110	0.05	20	-	-	-	-	1 840
Pipeline Transport	655	0.64	16	0.02	6	-	-	-	-	677
c. Fugitive Sources	**270**	**50**	**1 200**	**0.02**	**6**	**-**	**-**	**-**	**-**	**1 500**
Coal Mining	-	-	-	-	-	-	-	-	-	-
Oil and Natural Gas	270	50	1 200	0.02	6	-	-	-	-	1 500
Oil	0.18	0.89	22	0.02	6	-	-	-	-	28
Natural Gas	2	39	970	-	-	-	-	-	-	970
Venting	210	10	250	-	-	-	-	-	-	460
Flaring	60	0.10	3	0.00	0.03	-	-	-	-	63
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**18 300**	**2**	**42**	**0.77**	**231**	**4 700**	**7**	**280**	**-**	**23 600**
a. Mineral Products	**3 700**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3 700**
Cement Production	3 000	-	-	-	-	-	-	-	-	3 000
Lime Production	610	-	-	-	-	-	-	-	-	610
Mineral Products Use	110	-	-	-	-	-	-	-	-	110
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
c. Metal Production	**9 360**	**0.08**	**2**	**-**	**-**	**-**	**-**	**227**	**-**	**9 590**
Iron and Steel Production	9 360	0.08	2	-	-	-	-	-	-	9 360
Aluminum Production	-	-	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	227	-	227
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**-**	**-**	**-**	**-**	**4 700**	**1**	**0.60**	**-**	**4 700**
e. Non-Energy Products from Fuels and Solvent Use	**5 300**	**-**	**-**	**0.10**	**-**	**-**	**-**	**-**	**-**	**5 300**
f. Other Product Manufacture and Use	**8**	**-**	**-**	**0.69**	**200**	**-**	**6**	**56**	**-**	**270**
AGRICULTURE	**200**	**170**	**4 300**	**18**	**5 300**	**-**	**-**	**-**	**-**	**9 800**
a. Enteric Fermentation	**-**	**130**	**3 300**	**-**	**-**	**-**	**-**	**-**	**-**	**3 300**
b. Manure Management	**-**	**39**	**960**	**3**	**900**	**-**	**-**	**-**	**-**	**1 800**
c. Agricultural Soils	**-**	**-**	**-**	**15**	**4 400**	**-**	**-**	**-**	**-**	**4 400**
Direct Sources	-	-	-	13	3 800	-	-	-	-	3 800
Indirect Sources	-	-	-	2	600	-	-	-	-	600
d. Field Burning of Agricultural Residues	**-**	**0.01**	**0.20**	**0.00**	**0.05**	**-**	**-**	**-**	**-**	**0.20**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**200**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**200**
WASTE	**200**	**220**	**5 600**	**1**	**400**	**-**	**-**	**-**	**-**	**6 200**
a. Solid Waste Disposal	**-**	**210**	**5 300**	**-**	**-**	**-**	**-**	**-**	**-**	**5 300**
b. Biological Treatment of Solid Waste	**-**	**5**	**100**	**0.30**	**80**	**-**	**-**	**-**	**-**	**200**
c. Wastewater Treatment and Discharge	**-**	**9**	**220**	**0.60**	**200**	**-**	**-**	**-**	**-**	**400**
d. Incineration and Open Burning of Waste	**200**	**0.70**	**20**	**0.40**	**100**	**-**	**-**	**-**	**-**	**300**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.
4. IPCC's Fourth Assessment Report provides global warming potentials (GWPs) for the various species of HFCs and PFCs. Chapter 1, Table 1-1 of this report provides a list of GWPs used.

- Indicates no emissions
0.00 Indicates emissions truncated due to rounding
x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–14 GHG Emission Summary for Manitoba, Selected Years

Greenhouse Gas Categories	1990	2005	2012	2013	2014	2015	2016	2017
	kt CO_2 eq							
TOTAL	**18 300**	**20 100**	**20 200**	**20 900**	**20 800**	**20 600**	**21 000**	**21 700**
ENERGY	**12 500**	**12 300**	**12 600**	**12 700**	**13 100**	**12 600**	**12 800**	**13 300**
a. Stationary Combustion Sources	**4 980**	**4 590**	**3 880**	**4 250**	**4 250**	**4 100**	**4 100**	**4 510**
Public Electricity and Heat Production	518	358	112	120	127	124	70	70
Petroleum Refining Industries	-	-	-	-	-	-	-	-
Oil and Gas Extraction	1	0.46	0.46	0.46	0.31	-	-	-
Mining	79	96	95	107	91	78	59	97
Manufacturing Industries	1 180	1 470	1 280	1 220	1 190	1 420	1 530	1 590
Construction	63	86	108	123	111	104	122	120
Commercial and Institutional	1 400	1 420	1 180	1 390	1 450	1 300	1 260	1 450
Residential	1 690	1 130	1 070	1 240	1 250	1 040	1 040	1 140
Agriculture and Forestry	43	43	37	43	34	32	26	41
b. Transport[1]	**7 090**	**7 520**	**8 300**	**8 060**	**8 450**	**8 120**	**8 320**	**8 380**
Domestic Aviation	471	543	482	496	458	421	415	431
Road Transportation	3 260	4 180	5 560	5 440	5 560	5 250	5 540	5 550
Light-Duty Gasoline Vehicles	1 540	1 210	1 290	1 290	1 230	1 140	1 130	1 070
Light-Duty Gasoline Trucks	915	1 470	1 990	2 040	2 100	2 080	2 150	2 110
Heavy-Duty Gasoline Vehicles	318	443	533	544	500	487	497	483
Motorcycles	4	4	7	8	8	9	9	9
Light-Duty Diesel Vehicles	8	10	17	16	16	14	15	16
Light-Duty Diesel Trucks	6	15	11	10	11	11	13	14
Heavy-Duty Diesel Vehicles	443	1 020	1 710	1 540	1 690	1 500	1 720	1 850
Propane and Natural Gas Vehicles	31	7	0.21	0.20	0.09	0.07	0.05	0.08
Railways	605	299	617	570	656	704	660	763
Domestic Navigation	0.02	2	-	-	-	0.78	-	-
Other Transportation	2 750	2 490	1 640	1 550	1 780	1 740	1 710	1 630
Off-Road Agriculture & Forestry	1 060	1 310	1 100	939	971	890	908	880
Off-Road Commercial & Institutional	41	81	91	96	100	92	84	86
Off-Road Manufacturing, Mining & Construction	193	229	224	200	213	215	238	285
Off-Road Residential	6	45	49	46	51	51	51	50
Off-Road Other Transportation	604	222	160	156	177	185	182	180
Pipeline Transport	848	601	13	109	268	311	245	152
c. Fugitive Sources	**450**	**210**	**430**	**440**	**440**	**410**	**400**	**370**
Coal Mining	-	-	-	-	-	-	-	-
Oil and Natural Gas	450	210	430	440	440	410	400	370
Oil	6	65	120	120	120	110	100	91
Natural Gas	380	72	110	110	130	120	120	120
Venting	41	40	74	74	72	67	64	58
Flaring	29	31	131	130	126	117	111	99
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**484**	**693**	**848**	**889**	**824**	**905**	**918**	**914**
a. Mineral Products	**220**	**69**	**64**	**59**	**63**	**60**	**60**	**63**
Cement Production	150	-	-	-	-	-	-	-
Lime Production	61	59	57	54	58	54	54	57
Mineral Products Use	6	10	7	6	6	6	6	6
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**190**	**360**	**380**	**400**	**440**	**480**	**500**
e. Non-Energy Products from Fuels and Solvent Use	**250**	**410**	**410**	**440**	**340**	**390**	**360**	**330**
f. Other Product Manufacture and Use	**11**	**17**	**14**	**13**	**14**	**15**	**19**	**22**
AGRICULTURE	**4 700**	**6 300**	**5 900**	**6 500**	**6 100**	**6 300**	**6 500**	**6 700**
a. Enteric Fermentation	**1 900**	**3 200**	**2 500**	**2 400**	**2 400**	**2 300**	**2 300**	**2 400**
b. Manure Management	**410**	**780**	**680**	**690**	**690**	**710**	**720**	**740**
c. Agricultural Soils	**2 100**	**2 100**	**2 500**	**3 100**	**2 800**	**3 000**	**3 100**	**3 300**
Direct Sources	1 700	1 600	2 000	2 500	2 300	2 500	2 500	2 700
Indirect Sources	400	400	500	600	500	600	600	600
d. Field Burning of Agricultural Residues	**100**	**10**	**20**	**20**	**20**	**20**	**20**	**20**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**100**	**200**	**200**	**300**	**200**	**300**	**300**	**300**
WASTE	**610**	**800**	**810**	**780**	**730**	**740**	**750**	**760**
a. Solid Waste Disposal	**570**	**750**	**760**	**730**	**670**	**680**	**700**	**710**
b. Biological Treatment of Solid Waste	**0.50**	**2**	**4**	**6**	**8**	**9**	**9**	**9**
c. Wastewater Treatment and Discharge	**37**	**41**	**47**	**48**	**47**	**47**	**48**	**48**
d. Incineration and Open Burning of Waste	**0.04**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.

- Indicates no emissions

0.00 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–15 2017 GHG Emission Summary for Manitoba

Greenhouse Gas Categories	CO_2	CH_4	CH_4	N_2O	N_2O	HFCs[4]	PFCs[4]	SF_6	NF_3	TOTAL
	Greenhouse Gases									
Global Warming Potential			25		298			22 800	17 200	
Unit	kt	kt	kt CO_2 eq	kt	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
TOTAL	**13 300**	**160**	**3 900**	**13**	**3 900**	**500**	**0.38**	**1**	**-**	**21 700**
ENERGY	**12 700**	**15**	**370**	**0.80**	**200**	**-**	**-**	**-**	**-**	**13 300**
a. Stationary Combustion Sources	**4 420**	**2**	**60**	**0.10**	**40**	**-**	**-**	**-**	**-**	**4 510**
Public Electricity and Heat Production	69	0.00	0.12	0.00	0.80	-	-	-	-	70
Petroleum Refining Industries	-	-	-	-	-	-	-	-	-	-
Oil and Gas Extraction	-	-	-	-	-	-	-	-	-	-
Mining	95	0.00	0.04	0.01	2	-	-	-	-	97
Manufacturing Industries	1 570	0.05	1	0.04	13	-	-	-	-	1 590
Construction	119	0.00	0.06	0.00	0.70	-	-	-	-	120
Commercial and Institutional	1 440	0.03	0.70	0.03	9	-	-	-	-	1 450
Residential	1 080	2	50	0.05	10	-	-	-	-	1 140
Agriculture and Forestry	40	0.00	0.02	0.00	0.80	-	-	-	-	41
b. Transport[1]	**8 160**	**1**	**34**	**0.63**	**190**	**-**	**-**	**-**	**-**	**8 380**
Domestic Aviation	427	0.02	0.40	0.01	4	-	-	-	-	431
Road Transportation	5 460	0.40	10	0.28	85	-	-	-	-	5 550
Light-Duty Gasoline Vehicles	1 060	0.10	3	0.05	15	-	-	-	-	1 070
Light-Duty Gasoline Trucks	2 080	0.20	5	0.09	26	-	-	-	-	2 110
Heavy-Duty Gasoline Vehicles	470	0.02	0.50	0.04	13	-	-	-	-	483
Motorcycles	9	0.00	0.09	0.00	0.05	-	-	-	-	9
Light-Duty Diesel Vehicles	16	0.00	0.01	0.00	0.39	-	-	-	-	16
Light-Duty Diesel Trucks	14	0.00	0.01	0.00	0.34	-	-	-	-	14
Heavy-Duty Diesel Vehicles	1 810	0.08	2	0.10	30	-	-	-	-	1 850
Propane and Natural Gas Vehicles	0.08	0.00	0.00	0.00	0.00	-	-	-	-	0.08
Railways	682	0.04	1	0.30	80	-	-	-	-	763
Domestic Navigation	-	-	-	-	-	-	-	-	-	-
Other Transportation	1 590	0.91	23	0.06	20	-	-	-	-	1 630
Off-Road Agriculture & Forestry	869	0.04	0.95	0.03	10	-	-	-	-	880
Off-Road Commercial & Institutional	82	0.13	3	0.00	0.80	-	-	-	-	86
Off-Road Manufacturing, Mining & Construction	280	0.06	1	0.01	4	-	-	-	-	285
Off-Road Residential	47	0.11	3	0.00	0.40	-	-	-	-	50
Off-Road Other Transportation	168	0.43	11	0.01	1	-	-	-	-	180
Pipeline Transport	147	0.15	4	0.00	1	-	-	-	-	152
c. Fugitive Sources	**92**	**11**	**280**	**0.00**	**0.09**	**-**	**-**	**-**	**-**	**370**
Coal Mining	-	-	-	-	-	-	-	-	-	-
Oil and Natural Gas	92	11	280	0.00	0.09	-	-	-	-	370
Oil	0.22	4	91	-	-	-	-	-	-	91
Natural Gas	6	5	110	0.00	0.04	-	-	-	-	120
Venting	0.41	2	58	-	-	-	-	-	-	58
Flaring	86	0.54	14	0.00	0.05	-	-	-	-	99
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**353**	**-**	**-**	**0.21**	**64**	**500**	**0.38**	**1**	**-**	**914**
a. Mineral Products	**63**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**63**
Cement Production	-	-	-	-	-	-	-	-	-	-
Lime Production	57	-	-	-	-	-	-	-	-	57
Mineral Products Use	6	-	-	-	-	-	-	-	-	6
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**-**	**-**	**-**	**-**	**500**	**0.04**	**-**	**-**	**500**
e. Non-Energy Products from Fuels and Solvent Use	**x**	**-**	**-**	**x**	**x**	**-**	**-**	**-**	**-**	**330**
f. Other Product Manufacture and Use	**x**	**-**	**-**	**x**	**x**	**-**	**0.34**	**1**	**-**	**22**
AGRICULTURE	**300**	**110**	**2 800**	**12**	**3 600**	**-**	**-**	**-**	**-**	**6 700**
a. Enteric Fermentation	**-**	**95**	**2 400**	**-**	**-**	**-**	**-**	**-**	**-**	**2 400**
b. Manure Management	**-**	**18**	**450**	**1**	**300**	**-**	**-**	**-**	**-**	**740**
c. Agricultural Soils	**-**	**-**	**-**	**11**	**3 300**	**-**	**-**	**-**	**-**	**3 300**
Direct Sources	-	-	-	9	2 700	-	-	-	-	2 700
Indirect Sources	-	-	-	2	600	-	-	-	-	600
d. Field Burning of Agricultural Residues	**-**	**0.60**	**10**	**0.01**	**4**	**-**	**-**	**-**	**-**	**20**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**300**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**300**
WASTE	**-**	**30**	**740**	**0.07**	**20**	**-**	**-**	**-**	**-**	**760**
a. Solid Waste Disposal	**-**	**28**	**710**	**-**	**-**	**-**	**-**	**-**	**-**	**710**
b. Biological Treatment of Solid Waste	**-**	**0.20**	**5**	**0.01**	**4**	**-**	**-**	**-**	**-**	**9**
c. Wastewater Treatment and Discharge	**-**	**1**	**30**	**0.06**	**20**	**-**	**-**	**-**	**-**	**48**
d. Incineration and Open Burning of Waste	**-**	**0.00**	**0.00**	**0.00**	**0.00**	**-**	**-**	**-**	**-**	**0.00**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.
4. IPCC's Fourth Assessment Report provides global warming potentials (GWPs) for the various species of HFCs and PFCs. Chapter 1, Table 1-1 of this report provides a list of GWPs used.

- Indicates no emissions
0.00 Indicates emissions truncated due to rounding
x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–16 GHG Emission Summary for Saskatchewan, Selected Years

Greenhouse Gas Categories	1990	2005	2012	2013	2014	2015	2016	2017
	kt CO_2 eq							
TOTAL	**44 400**	**68 000**	**70 600**	**73 400**	**76 500**	**78 700**	**75 700**	**77 900**
ENERGY	**35 700**	**54 000**	**56 800**	**58 300**	**62 500**	**64 300**	**61 100**	**62 900**
a. Stationary Combustion Sources	**19 900**	**27 300**	**29 500**	**28 900**	**30 900**	**31 900**	**30 800**	**31 900**
Public Electricity and Heat Production	11 100	15 200	16 100	15 000	15 200	16 000	16 000	16 500
Petroleum Refining Industries	630	780	1 200	1 200	1 200	1 300	1 300	1 300
Oil and Gas Extraction	2 950	6 080	5 830	6 280	7 640	8 050	7 160	7 290
Mining	974	1 280	2 010	1 900	1 920	1 930	1 810	1 790
Manufacturing Industries	792	533	808	751	969	851	804	867
Construction	70	42	37	36	39	67	39	44
Commercial and Institutional	985	1 510	1 110	1 120	1 130	1 110	1 300	1 470
Residential	2 140	1 630	1 760	1 870	1 870	1 720	1 680	1 840
Agriculture and Forestry	296	256	661	772	997	870	783	829
b. Transport[1]	**9 160**	**11 500**	**14 800**	**16 100**	**16 600**	**16 900**	**16 400**	**16 300**
Domestic Aviation	259	193	221	234	223	218	213	201
Road Transportation	3 780	5 170	7 940	8 680	8 650	9 060	9 110	9 140
Light-Duty Gasoline Vehicles	1 480	1 370	1 470	1 480	1 320	1 400	1 380	1 300
Light-Duty Gasoline Trucks	1 230	1 720	2 780	2 960	2 860	3 200	3 350	3 370
Heavy-Duty Gasoline Vehicles	628	777	1 060	1 150	897	971	1 000	998
Motorcycles	2	3	7	7	7	7	8	8
Light-Duty Diesel Vehicles	5	11	21	24	25	26	24	24
Light-Duty Diesel Trucks	8	39	29	31	33	37	36	37
Heavy-Duty Diesel Vehicles	386	1 250	2 570	3 030	3 520	3 420	3 310	3 400
Propane and Natural Gas Vehicles	37	5	0.62	0.28	0.16	0.14	0.27	0.59
Railways	584	410	563	695	718	802	781	794
Domestic Navigation	0.09	-	-	-	-	-	-	-
Other Transportation	4 540	5 730	6 090	6 530	6 990	6 790	6 300	6 200
Off-Road Agriculture & Forestry	2 130	3 240	3 350	3 690	3 830	3 870	3 770	3 880
Off-Road Commercial & Institutional	32	77	111	133	131	128	54	32
Off-Road Manufacturing, Mining & Construction	166	238	307	342	392	438	304	271
Off-Road Residential	4	35	47	48	50	51	59	61
Off-Road Other Transportation	612	243	235	253	268	292	294	299
Pipeline Transport	1 590	1 900	2 040	2 060	2 320	2 010	1 830	1 660
c. Fugitive Sources	**6 700**	**15 000**	**12 000**	**13 000**	**15 000**	**16 000**	**14 000**	**15 000**
Coal Mining	20	20	20	20	20	20	20	20
Oil and Natural Gas	6 700	15 000	12 000	13 000	15 000	16 000	14 000	15 000
Oil	650	1 300	980	1 000	1 100	1 000	970	1 000
Natural Gas	2 100	2 000	2 500	2 500	2 400	2 300	2 600	2 600
Venting	3 500	10 000	7 400	7 500	9 000	9 500	7 900	8 400
Flaring	373	1 610	1 680	2 250	2 500	2 660	2 390	2 680
d. CO_2 Transport and Storage	**-**	**0.09**	**0.09**	**0.09**	**0.10**	**0.20**	**0.20**	**0.20**
INDUSTRIAL PROCESSES AND PRODUCT USE	**353**	**842**	**1 010**	**1 180**	**860**	**888**	**907**	**838**
a. Mineral Products	**95**	**10**	**9**	**8**	**8**	**8**	**7**	**8**
Cement Production	87	-	-	-	-	-	-	-
Lime Production	-	-	-	-	-	-	-	-
Mineral Products Use	8	10	9	8	8	8	7	8
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**180**	**350**	**360**	**390**	**420**	**470**	**490**
e. Non-Energy Products from Fuels and Solvent Use	**250**	**640**	**640**	**800**	**450**	**440**	**420**	**320**
f. Other Product Manufacture and Use	**8**	**12**	**11**	**12**	**12**	**14**	**16**	**20**
AGRICULTURE	**7 700**	**12 000**	**12 000**	**13 000**	**12 000**	**13 000**	**13 000**	**13 000**
a. Enteric Fermentation	**3 300**	**6 100**	**4 800**	**4 800**	**4 600**	**4 600**	**4 600**	**4 700**
b. Manure Management	**710**	**1 300**	**1 100**	**1 100**	**1 000**	**1 000**	**1 100**	**1 100**
c. Agricultural Soils	**3 500**	**4 500**	**5 400**	**6 400**	**5 800**	**6 100**	**6 400**	**6 700**
Direct Sources	3 000	3 700	4 400	5 200	4 700	5 000	5 200	5 400
Indirect Sources	500	800	1 000	1 000	1 000	1 000	1 000	1 000
d. Field Burning of Agricultural Residues	**70**	**30**	**20**	**30**	**30**	**40**	**30**	**30**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**200**	**400**	**700**	**900**	**900**	**900**	**900**	**1 000**
WASTE	**580**	**720**	**720**	**730**	**700**	**700**	**700**	**710**
a. Solid Waste Disposal	**540**	**680**	**680**	**690**	**660**	**660**	**660**	**670**
b. Biological Treatment of Solid Waste	**0.02**	**0.60**	**5**	**5**	**5**	**5**	**5**	**5**
c. Wastewater Treatment and Discharge	**31**	**30**	**35**	**35**	**34**	**35**	**35**	**35**
d. Incineration and Open Burning of Waste	**1**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.

- Indicates no emissions

0.00 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–17 2017 GHG Emission Summary for Saskatchewan

Greenhouse Gas Categories	CO_2	CH_4	CH_4	N_2O	N_2O	HFCs[4]	PFCs[4]	SF_6	NF_3	TOTAL
	Greenhouse Gases									
Global Warming Potential			25		298			22 800	17 200	
Unit	kt	kt	kt CO_2 eq	kt	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
TOTAL	**51 500**	**710**	**18 000**	**27**	**8 100**	**490**	**0.24**	**0.80**	**-**	**77 900**
ENERGY	**50 100**	**490**	**12 000**	**2**	**600**	**-**	**-**	**-**	**-**	**62 900**
a. Stationary Combustion Sources	**31 300**	**20**	**400**	**0.70**	**200**	**-**	**-**	**-**	**-**	**31 900**
Public Electricity and Heat Production	16 300	1	32	0.40	100	-	-	-	-	16 500
Petroleum Refining Industries	1 300	0.03	0.70	0.01	4	-	-	-	-	1 300
Oil and Gas Extraction	6 910	10	300	0.20	50	-	-	-	-	7 290
Mining	1 780	0.04	0.90	0.04	10	-	-	-	-	1 790
Manufacturing Industries	858	0.04	0.86	0.03	8	-	-	-	-	867
Construction	43	0.00	0.02	0.00	0.29	-	-	-	-	44
Commercial and Institutional	1 460	0.03	0.73	0.03	9	-	-	-	-	1 470
Residential	1 800	1	30	0.05	10	-	-	-	-	1 840
Agriculture and Forestry	824	0.02	0.40	0.02	5	-	-	-	-	829
b. Transport[1]	**16 000**	**4**	**89**	**0.97**	**290**	**-**	**-**	**-**	**-**	**16 300**
Domestic Aviation	199	0.02	0.40	0.01	2	-	-	-	-	201
Road Transportation	8 980	0.70	20	0.47	140	-	-	-	-	9 140
Light-Duty Gasoline Vehicles	1 270	0.10	3	0.06	18	-	-	-	-	1 300
Light-Duty Gasoline Trucks	3 320	0.30	8	0.13	40	-	-	-	-	3 370
Heavy-Duty Gasoline Vehicles	971	0.04	1	0.09	26	-	-	-	-	998
Motorcycles	8	0.00	0.08	0.00	0.05	-	-	-	-	8
Light-Duty Diesel Vehicles	23	0.00	0.01	0.00	0.57	-	-	-	-	24
Light-Duty Diesel Trucks	36	0.00	0.02	0.00	0.89	-	-	-	-	37
Heavy-Duty Diesel Vehicles	3 340	0.10	4	0.19	56	-	-	-	-	3 400
Propane and Natural Gas Vehicles	0.58	0.00	0.01	0.00	0.00	-	-	-	-	0.59
Railways	710	0.04	1	0.30	80	-	-	-	-	794
Domestic Navigation	-	-	-	-	-	-	-	-	-	-
Other Transportation	6 070	3	71	0.20	60	-	-	-	-	6 200
Off-Road Agriculture & Forestry	3 830	0.17	4	0.10	40	-	-	-	-	3 880
Off-Road Commercial & Institutional	30	0.06	2	0.00	0.30	-	-	-	-	32
Off-Road Manufacturing, Mining & Construction	266	0.04	0.94	0.01	4	-	-	-	-	271
Off-Road Residential	58	0.14	3	0.00	0.50	-	-	-	-	61
Off-Road Other Transportation	277	0.78	20	0.01	2	-	-	-	-	299
Pipeline Transport	1 610	2	42	0.04	10	-	-	-	-	1 660
c. Fugitive Sources	**2 900**	**470**	**12 000**	**0.24**	**70**	**-**	**-**	**-**	**-**	**15 000**
Coal Mining	-	0.70	20	-	-	-	-	-	-	20
Oil and Natural Gas	2 900	470	12 000	0.20	70	-	-	-	-	15 000
Oil	4	38	940	0.20	70	-	-	-	-	1 000
Natural Gas	50	100	2 500	-	-	-	-	-	-	2 600
Venting	400	320	8 000	-	-	-	-	-	-	8 400
Flaring	2 450	9	230	0.01	2	-	-	-	-	2 680
d. CO_2 Transport and Storage	**0.20**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.20**
INDUSTRIAL PROCESSES AND PRODUCT USE	**318**	**-**	**-**	**0.10**	**31**	**490**	**0.24**	**0.80**	**-**	**838**
a. Mineral Products	**8**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**8**
Cement Production	-	-	-	-	-	-	-	-	-	-
Lime Production	-	-	-	-	-	-	-	-	-	-
Mineral Products Use	8	-	-	-	-	-	-	-	-	8
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**-**	**-**	**-**	**-**	**490**	**0.04**	**-**	**-**	**490**
e. Non-Energy Products from Fuels and Solvent Use	**x**	**-**	**-**	**x**	**x**	**-**	**-**	**-**	**-**	**320**
f. Other Product Manufacture and Use	**x**	**-**	**-**	**x**	**x**	**-**	**0.20**	**0.80**	**-**	**20**
AGRICULTURE	**1 000**	**200**	**5 000**	**25**	**7 400**	**-**	**-**	**-**	**-**	**13 000**
a. Enteric Fermentation	**-**	**190**	**4 700**	**-**	**-**	**-**	**-**	**-**	**-**	**4 700**
b. Manure Management	**-**	**13**	**320**	**3**	**800**	**-**	**-**	**-**	**-**	**1 100**
c. Agricultural Soils	**-**	**-**	**-**	**22**	**6 700**	**-**	**-**	**-**	**-**	**6 700**
Direct Sources	-	-	-	18	5 400	-	-	-	-	5 400
Indirect Sources	-	-	-	4	1 000	-	-	-	-	1 000
d. Field Burning of Agricultural Residues	**-**	**0.90**	**20**	**0.02**	**7**	**-**	**-**	**-**	**-**	**30**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**1 000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1 000**
WASTE	**-**	**28**	**690**	**0.06**	**20**	**-**	**-**	**-**	**-**	**710**
a. Solid Waste Disposal	**-**	**27**	**670**	**-**	**-**	**-**	**-**	**-**	**-**	**670**
b. Biological Treatment of Solid Waste	**-**	**0.10**	**3**	**0.01**	**2**	**-**	**-**	**-**	**-**	**5**
c. Wastewater Treatment and Discharge	**-**	**0.79**	**20**	**0.05**	**20**	**-**	**-**	**-**	**-**	**35**
d. Incineration and Open Burning of Waste	**-**	**0.00**	**0.00**	**0.00**	**0.00**	**-**	**-**	**-**	**-**	**0.00**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.
4. IPCC's Fourth Assessment Report provides global warming potentials (GWPs) for the various species of HFCs and PFCs. Chapter 1, Table 1-1 of this report provides a list of GWPs used.

- Indicates no emissions
0.00 Indicates emissions truncated due to rounding
x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–18 GHG Emission Summary for Alberta, Selected Years

Greenhouse Gas Categories	1990	2005	2012	2013	2014	2015	2016	2017
	kt CO_2 eq							
TOTAL	**173 000**	**231 000**	**261 000**	**271 000**	**276 000**	**275 000**	**264 000**	**273 000**
ENERGY	**151 000**	**199 000**	**227 000**	**238 000**	**244 000**	**242 000**	**231 000**	**241 000**
a. Stationary Combustion Sources	**95 200**	**128 000**	**148 000**	**156 000**	**161 000**	**163 000**	**158 000**	**167 000**
Public Electricity and Heat Production	39 600	51 900	46 900	48 100	49 100	51 300	45 700	46 500
Petroleum Refining Industries	3 000	4 000	4 100	4 200	4 500	4 700	4 900	5 400
Oil and Gas Extraction	29 200	49 700	70 700	76 100	79 300	82 000	83 500	90 000
Mining	248	298	271	232	161	127	123	111
Manufacturing Industries	10 500	8 860	10 900	11 800	11 400	10 200	9 600	8 770
Construction	238	171	289	306	298	297	307	343
Commercial and Institutional	5 040	5 660	6 200	6 210	6 340	5 770	6 300	6 640
Residential	6 850	7 620	8 750	8 780	9 160	8 260	7 130	8 620
Agriculture and Forestry	477	240	337	338	346	346	358	379
b. Transport[1]	**22 300**	**34 000**	**40 200**	**42 800**	**44 000**	**41 800**	**40 000**	**40 500**
Domestic Aviation	1 130	1 350	1 440	1 550	1 510	1 480	1 400	1 370
Road Transportation	11 900	19 400	25 700	27 300	28 300	26 400	25 800	26 000
Light-Duty Gasoline Vehicles	4 200	3 680	3 150	3 320	3 370	3 040	3 120	2 970
Light-Duty Gasoline Trucks	3 400	5 140	6 080	6 550	7 020	6 910	7 380	7 320
Heavy-Duty Gasoline Vehicles	1 720	3 200	3 280	3 570	3 390	3 180	3 390	3 350
Motorcycles	13	28	38	41	44	44	47	47
Light-Duty Diesel Vehicles	21	51	88	97	100	90	77	78
Light-Duty Diesel Trucks	16	52	80	85	107	122	119	137
Heavy-Duty Diesel Vehicles	2 180	7 200	12 900	13 600	14 200	13 000	11 600	12 100
Propane and Natural Gas Vehicles	395	97	2	2	0.97	0.96	1	2
Railways	1 760	2 780	x	x	2 910	2 530	1 890	1 690
Domestic Navigation	0.28	-	x	x	-	7	3	1
Other Transportation	7 460	10 400	10 000	11 000	11 300	11 300	11 000	11 400
Off-Road Agriculture & Forestry	2 520	3 430	3 080	3 090	3 030	2 870	2 490	2 580
Off-Road Commercial & Institutional	165	295	309	349	392	363	237	196
Off-Road Manufacturing, Mining & Construction	1 520	2 610	4 160	4 690	4 750	4 710	4 010	4 180
Off-Road Residential	20	128	115	116	126	119	128	131
Off-Road Other Transportation	1 940	751	520	543	611	606	609	610
Pipeline Transport	1 300	3 210	1 820	2 190	2 360	2 660	3 500	3 750
c. Fugitive Sources	**34 000**	**37 000**	**38 000**	**39 000**	**39 000**	**37 000**	**34 000**	**33 000**
Coal Mining	400	300	300	300	200	300	300	200
Oil and Natural Gas	33 000	37 000	38 000	39 000	39 000	37 000	33 000	33 000
Oil	4 000	4 300	4 400	4 400	4 300	4 100	3 900	4 000
Natural Gas	8 500	9 700	8 200	8 500	8 500	7 900	7 900	8 000
Venting	17 000	21 000	22 000	22 000	23 000	22 000	19 000	19 000
Flaring	3 560	2 010	2 900	3 440	3 180	2 860	2 220	2 440
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**0.04**	**0.09**	**0.09**
INDUSTRIAL PROCESSES AND PRODUCT USE	**6 580**	**11 000**	**15 400**	**13 400**	**11 700**	**13 100**	**12 600**	**12 300**
a. Mineral Products	**1 100**	**1 500**	**1 300**	**1 200**	**1 200**	**1 200**	**1 200**	**1 300**
Cement Production	790	1 100	980	900	890	940	930	1 000
Lime Production	110	120	120	110	120	110	110	120
Mineral Products Use	190	250	150	140	140	160	160	160
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**1**	**0.68**	**0.68**
Iron and Steel Production	-	-	-	-	-	1	0.68	0.68
Aluminum Production	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**0.27**	**710**	**1 300**	**1 400**	**1 500**	**1 700**	**1 800**	**1 900**
e. Non-Energy Products from Fuels and Solvent Use	**5 500**	**8 800**	**13 000**	**11 000**	**8 900**	**10 000**	**9 500**	**9 000**
f. Other Product Manufacture and Use	**17**	**38**	**43**	**44**	**48**	**52**	**61**	**72**
AGRICULTURE	**14 000**	**19 000**	**18 000**	**18 000**	**18 000**	**18 000**	**18 000**	**18 000**
a. Enteric Fermentation	**7 800**	**12 000**	**9 400**	**9 500**	**9 400**	**9 400**	**9 500**	**9 400**
b. Manure Management	**1 500**	**2 400**	**2 000**	**2 000**	**2 000**	**2 000**	**2 000**	**2 000**
c. Agricultural Soils	**4 100**	**4 500**	**5 600**	**6 000**	**6 000**	**6 000**	**5 900**	**6 000**
Direct Sources	3 400	3 600	4 500	4 900	4 900	4 900	4 800	5 000
Indirect Sources	700	900	1 000	1 000	1 000	1 000	1 000	1 000
d. Field Burning of Agricultural Residues	**4**	**0.70**	**0.60**	**1**	**1**	**1**	**0.80**	**0.80**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**300**	**400**	**700**	**800**	**800**	**900**	**700**	**600**
WASTE	**1 200**	**1 700**	**1 700**	**1 800**	**1 800**	**1 800**	**1 800**	**1 900**
a. Solid Waste Disposal	**1 100**	**1 500**	**1 500**	**1 500**	**1 600**	**1 600**	**1 600**	**1 700**
b. Biological Treatment of Solid Waste	**-**	**40**	**40**	**40**	**40**	**40**	**40**	**40**
c. Wastewater Treatment and Discharge	**63**	**86**	**120**	**120**	**120**	**120**	**120**	**120**
d. Incineration and Open Burning of Waste	**10**	**30**	**40**	**50**	**40**	**50**	**50**	**40**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.

- Indicates no emissions

0.00 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–19 2017 GHG Emission Summary for Alberta

Greenhouse Gas Categories	CO_2	CH_4	CH_4	N_2O	N_2O	HFCs[4]	PFCs[4]	SF_6	NF_3	TOTAL
	Greenhouse Gases									
Global Warming Potential			25		298			22 800	17 200	
Unit	kt	kt	kt CO_2 eq	kt	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
TOTAL	**223 000**	**1 500**	**38 000**	**34**	**10 000**	**1 900**	**2**	**2**	**-**	**273 000**
ENERGY	**213 000**	**1 000**	**26 000**	**6**	**2 000**	**-**	**-**	**-**	**-**	**241 000**
a. Stationary Combustion Sources	**164 000**	**80**	**2 000**	**3**	**1 000**	**-**	**-**	**-**	**-**	**167 000**
Public Electricity and Heat Production	46 200	3	62	0.90	300	-	-	-	-	46 500
Petroleum Refining Industries	5 400	0.10	2	0.02	6	-	-	-	-	5 400
Oil and Gas Extraction	87 600	80	2 000	2	500	-	-	-	-	90 000
Mining	110	0.00	0.06	0.00	0.60	-	-	-	-	111
Manufacturing Industries	8 670	0.33	8	0.28	82	-	-	-	-	8 770
Construction	340	0.01	0.16	0.01	3	-	-	-	-	343
Commercial and Institutional	6 590	0.12	3	0.20	40	-	-	-	-	6 640
Residential	8 420	5	100	0.20	70	-	-	-	-	8 620
Agriculture and Forestry	376	0.01	0.20	0.01	2	-	-	-	-	379
b. Transport[1]	**39 600**	**8**	**200**	**3**	**750**	**-**	**-**	**-**	**-**	**40 500**
Domestic Aviation	1 360	0.03	0.90	0.04	10	-	-	-	-	1 370
Road Transportation	25 600	2	40	1	410	-	-	-	-	26 000
Light-Duty Gasoline Vehicles	2 930	0.30	7	0.13	38	-	-	-	-	2 970
Light-Duty Gasoline Trucks	7 220	0.70	20	0.27	81	-	-	-	-	7 320
Heavy-Duty Gasoline Vehicles	3 260	0.10	3	0.29	86	-	-	-	-	3 350
Motorcycles	46	0.02	0.40	0.00	0.26	-	-	-	-	47
Light-Duty Diesel Vehicles	76	0.00	0.04	0.01	2	-	-	-	-	78
Light-Duty Diesel Trucks	134	0.00	0.09	0.01	3	-	-	-	-	137
Heavy-Duty Diesel Vehicles	11 900	0.50	10	0.68	200	-	-	-	-	12 100
Propane and Natural Gas Vehicles	2	0.00	0.02	0.00	0.01	-	-	-	-	2
Railways	1 510	0.09	2	0.60	200	-	-	-	-	1 690
Domestic Navigation	1	0.00	0.00	0.00	0.01	-	-	-	-	1
Other Transportation	11 100	6	150	0.50	200	-	-	-	-	11 400
Off-Road Agriculture & Forestry	2 540	0.12	3	0.10	30	-	-	-	-	2 580
Off-Road Commercial & Institutional	183	0.48	12	0.01	2	-	-	-	-	196
Off-Road Manufacturing, Mining & Construction	4 090	0.25	6	0.30	90	-	-	-	-	4 180
Off-Road Residential	123	0.26	7	0.00	1	-	-	-	-	131
Off-Road Other Transportation	568	2	38	0.01	4	-	-	-	-	610
Pipeline Transport	3 630	4	89	0.09	30	-	-	-	-	3 750
c. Fugitive Sources	**9 600**	**940**	**24 000**	**0.05**	**15**	**-**	**-**	**-**	**-**	**33 000**
Coal Mining	-	9	200	-	-	-	-	-	-	200
Oil and Natural Gas	9 600	930	23 000	0.05	10	-	-	-	-	33 000
Oil	510	140	3 400	0.03	10	-	-	-	-	4 000
Natural Gas	46	320	8 000	-	-	-	-	-	-	8 000
Venting	6 800	470	12 000	-	-	-	-	-	-	19 000
Flaring	2 240	8	200	0.02	5	-	-	-	-	2 440
d. CO_2 Transport and Storage	**0.09**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.09**
INDUSTRIAL PROCESSES AND PRODUCT USE	**9 430**	**2**	**45**	**3**	**923**	**1 900**	**2**	**2**	**-**	**12 300**
a. Mineral Products	**1 300**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1 300**
Cement Production	1 000	-	-	-	-	-	-	-	-	1 000
Lime Production	120	-	-	-	-	-	-	-	-	120
Mineral Products Use	160	-	-	-	-	-	-	-	-	160
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
c. Metal Production	**0.68**	**0.00**	**0.00**	**-**	**-**	**-**	**-**	**-**	**-**	**0.68**
Iron and Steel Production	0.68	0.00	0.00	-	-	-	-	-	-	0.68
Aluminum Production	-	-	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**-**	**-**	**-**	**-**	**1 900**	**0.42**	**0.20**	**-**	**1 900**
e. Non-Energy Products from Fuels and Solvent Use	**8 100**	**-**	**-**	**-**	**1 000**	**-**	**-**	**-**	**-**	**9 000**
f. Other Product Manufacture and Use	**7**	**-**	**-**	**0.21**	**62**	**-**	**1**	**1**	**-**	**72**
AGRICULTURE	**600**	**400**	**10 000**	**25**	**7 400**	**-**	**-**	**-**	**-**	**18 000**
a. Enteric Fermentation	**-**	**380**	**9 400**	**-**	**-**	**-**	**-**	**-**	**-**	**9 400**
b. Manure Management	**-**	**26**	**650**	**5**	**1 000**	**-**	**-**	**-**	**-**	**2 000**
c. Agricultural Soils	**-**	**-**	**-**	**20**	**6 000**	**-**	**-**	**-**	**-**	**6 000**
Direct Sources	-	-	-	17	5 000	-	-	-	-	5 000
Indirect Sources	-	-	-	4	1 000	-	-	-	-	1 000
d. Field Burning of Agricultural Residues	**-**	**0.03**	**0.60**	**0.00**	**0.20**	**-**	**-**	**-**	**-**	**0.80**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**600**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**600**
WASTE	**30**	**71**	**1 800**	**0.30**	**90**	**-**	**-**	**-**	**-**	**1 900**
a. Solid Waste Disposal	**-**	**67**	**1 700**	**-**	**-**	**-**	**-**	**-**	**-**	**1 700**
b. Biological Treatment of Solid Waste	**-**	**1**	**20**	**0.06**	**20**	**-**	**-**	**-**	**-**	**40**
c. Wastewater Treatment and Discharge	**-**	**3**	**67**	**0.20**	**60**	**-**	**-**	**-**	**-**	**120**
d. Incineration and Open Burning of Waste	**30**	**0.02**	**0.60**	**0.05**	**20**	**-**	**-**	**-**	**-**	**40**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.
4. IPCC's Fourth Assessment Report provides global warming potentials (GWPs) for the various species of HFCs and PFCs. Chapter 1, Table 1-1 of this report provides a list of GWPs used.

- Indicates no emissions
0.00 Indicates emissions truncated due to rounding
x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–20 GHG Emission Summary for British Columbia, Selected Years

Greenhouse Gas Categories	1990	2005	2012	2013	2014	2015	2016	2017
	kt CO_2 eq							
TOTAL	**51 600**	**63 100**	**60 400**	**61 000**	**60 500**	**59 500**	**61 300**	**62 100**
ENERGY	**42 200**	**51 800**	**50 500**	**51 200**	**50 900**	**49 900**	**51 100**	**52 000**
a. Stationary Combustion Sources	**19 500**	**21 900**	**21 800**	**21 400**	**21 500**	**19 900**	**21 100**	**21 400**
Public Electricity and Heat Production	807	1 340	510	596	578	504	678	574
Petroleum Refining Industries	1 200	500	610	520	570	590	690	550
Oil and Gas Extraction	2 140	5 390	8 200	8 160	8 230	7 070	7 430	7 240
Mining	619	386	612	589	561	458	500	469
Manufacturing Industries	6 520	6 210	4 120	4 120	4 410	4 430	4 690	4 980
Construction	307	114	100	68	66	71	95	97
Commercial and Institutional	2 960	3 180	2 970	2 740	2 650	2 420	2 450	2 500
Residential	4 590	4 680	4 320	4 270	4 090	3 950	3 990	4 400
Agriculture and Forestry	323	75	388	385	382	413	563	575
b. Transport[1]	**18 600**	**24 600**	**23 500**	**24 300**	**24 100**	**25 100**	**25 600**	**26 200**
Domestic Aviation	1 340	1 580	1 300	1 340	1 300	1 310	1 330	1 370
Road Transportation	9 600	15 500	15 300	16 300	16 300	16 800	18 000	17 500
Light-Duty Gasoline Vehicles	3 900	4 450	3 620	3 690	3 680	3 800	4 110	3 900
Light-Duty Gasoline Trucks	2 110	3 910	4 040	4 200	4 380	4 680	5 260	5 200
Heavy-Duty Gasoline Vehicles	950	1 860	1 760	1 800	1 750	1 740	1 960	1 930
Motorcycles	15	21	23	24	25	27	30	29
Light-Duty Diesel Vehicles	44	93	114	128	121	131	128	120
Light-Duty Diesel Trucks	17	45	60	76	86	107	119	128
Heavy-Duty Diesel Vehicles	1 940	4 890	5 700	6 390	6 270	6 300	6 350	6 170
Propane and Natural Gas Vehicles	624	214	23	14	7	6	6	7
Railways	1 430	430	685	534	664	665	789	986
Domestic Navigation	961	2 400	2 610	2 120	1 900	1 810	950	1 640
Other Transportation	5 240	4 710	3 620	3 990	3 960	4 500	4 540	4 690
Off-Road Agriculture & Forestry	707	873	568	618	588	656	576	625
Off-Road Commercial & Institutional	243	330	331	361	356	359	301	275
Off-Road Manufacturing, Mining & Construction	1 350	1 460	1 250	1 330	1 260	1 410	1 440	1 570
Off-Road Residential	35	183	157	154	165	169	145	135
Off-Road Other Transportation	2 050	867	505	514	561	608	634	625
Pipeline Transport	863	998	806	1 020	1 040	1 300	1 440	1 450
c. Fugitive Sources	**4 100**	**5 400**	**5 100**	**5 500**	**5 200**	**4 900**	**4 500**	**4 400**
Coal Mining	800	1 000	1 000	1 000	1 000	900	1 000	900
Oil and Natural Gas	3 300	4 400	4 100	4 400	4 200	4 100	3 500	3 600
Oil	190	84	44	41	45	44	48	45
Natural Gas	870	880	660	810	760	770	770	780
Venting	1 900	2 700	2 900	2 800	2 600	2 600	2 100	2 000
Flaring	345	691	499	666	724	700	570	734
d. CO_2 Transport and Storage	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE	**3 310**	**4 610**	**3 940**	**3 880**	**3 780**	**3 630**	**4 140**	**4 060**
a. Mineral Products	**870**	**1 500**	**1 300**	**1 200**	**1 200**	**1 200**	**1 200**	**1 100**
Cement Production	650	1 300	1 100	980	970	1 000	1 000	1 000
Lime Production	170	190	180	170	180	170	120	66
Mineral Products Use	53	51	22	20	23	25	23	22
b. Chemical Industry[2]	-	-	-	-	-	-	-	-
Adipic Acid Production	-	-	-	-	-	-	-	-
c. Metal Production	**1 670**	**1 220**	**886**	**759**	**547**	**477**	**867**	**794**
Iron and Steel Production	-	-	-	-	-	-	-	-
Aluminum Production	1 670	1 220	885	758	546	476	867	793
SF_6 Used in Magnesium Smelters and Casters	-	1	0.66	0.60	0.78	0.74	0.96	0.94
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	-	**620**	**1 200**	**1 200**	**1 300**	**1 400**	**1 500**	**1 600**
e. Non-Energy Products from Fuels and Solvent Use	**690**	**1 200**	**530**	**660**	**680**	**450**	**510**	**460**
f. Other Product Manufacture and Use	**77**	**95**	**89**	**86**	**72**	**71**	**74**	**94**
AGRICULTURE	**2 200**	**2 700**	**2 100**	**2 300**	**2 200**	**2 300**	**2 400**	**2 400**
a. Enteric Fermentation	**1 400**	**1 800**	**1 300**	**1 300**	**1 300**	**1 400**	**1 400**	**1 400**
b. Manure Management	**310**	**440**	**380**	**390**	**390**	**400**	**410**	**410**
c. Agricultural Soils	**490**	**480**	**440**	**520**	**460**	**470**	**490**	**530**
Direct Sources	390	370	340	420	360	370	390	420
Indirect Sources	100	100	90	100	90	100	100	100
d. Field Burning of Agricultural Residues	-	-	-	-	-	-	-	-
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**30**	**20**	**20**	**30**	**20**	**20**	**30**	**30**
WASTE	**3 900**	**3 900**	**3 800**	**3 700**	**3 600**	**3 600**	**3 600**	**3 600**
a. Solid Waste Disposal	**3 800**	**3 700**	**3 600**	**3 400**	**3 400**	**3 400**	**3 400**	**3 400**
b. Biological Treatment of Solid Waste	-	**50**	**80**	**80**	**90**	**90**	**100**	**100**
c. Wastewater Treatment and Discharge	**100**	**130**	**140**	**140**	**140**	**150**	**150**	**150**
d. Incineration and Open Burning of Waste	**20**	-	-	-	-	-	**1**	**3**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.

- Indicates no emissions

0.00 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–21 2017 GHG Emission Summary for British Columbia

Greenhouse Gas Categories	CO_2	CH_4	CH_4	N_2O	N_2O	HFCs[4]	PFCs[4]	SF_6	NF_3	TOTAL
	Greenhouse Gases									
Global Warming Potential			25		298			22 800	17 200	
Unit	kt	kt	kt CO_2 eq	kt	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
TOTAL	**49 800**	**350**	**8 800**	**6**	**1 800**	**1 600**	**65**	**20**	**-**	**62 100**
ENERGY	**47 500**	**150**	**3 600**	**3**	**900**	**-**	**-**	**-**	**-**	**52 000**
a. Stationary Combustion Sources	**20 400**	**30**	**700**	**1**	**300**	**-**	**-**	**-**	**-**	**21 400**
Public Electricity and Heat Production	557	0.17	4	0.04	10	-	-	-	-	574
Petroleum Refining Industries	550	0.01	0.30	0.01	2	-	-	-	-	550
Oil and Gas Extraction	6 810	20	400	0.20	50	-	-	-	-	7 240
Mining	466	0.01	0.20	0.01	3	-	-	-	-	469
Manufacturing Industries	4 820	0.64	16	0.48	140	-	-	-	-	4 980
Construction	96	0.00	0.05	0.00	0.58	-	-	-	-	97
Commercial and Institutional	2 470	0.09	2	0.09	30	-	-	-	-	2 500
Residential	4 090	10	300	0.20	60	-	-	-	-	4 400
Agriculture and Forestry	571	0.01	0.30	0.01	3	-	-	-	-	575
b. Transport[1]	**25 500**	**5**	**130**	**2**	**590**	**-**	**-**	**-**	**-**	**26 200**
Domestic Aviation	1 360	0.06	1	0.04	10	-	-	-	-	1 370
Road Transportation	17 100	1	30	1	410	-	-	-	-	17 500
Light-Duty Gasoline Vehicles	3 810	0.30	8	0.31	92	-	-	-	-	3 900
Light-Duty Gasoline Trucks	5 030	0.40	10	0.53	160	-	-	-	-	5 200
Heavy-Duty Gasoline Vehicles	1 880	0.08	2	0.16	47	-	-	-	-	1 930
Motorcycles	28	0.01	0.30	0.00	0.16	-	-	-	-	29
Light-Duty Diesel Vehicles	117	0.00	0.06	0.01	3	-	-	-	-	120
Light-Duty Diesel Trucks	124	0.00	0.08	0.01	3	-	-	-	-	128
Heavy-Duty Diesel Vehicles	6 060	0.30	7	0.35	100	-	-	-	-	6 170
Propane and Natural Gas Vehicles	7	0.00	0.07	0.00	0.04	-	-	-	-	7
Railways	881	0.05	1	0.40	100	-	-	-	-	986
Domestic Navigation	1 620	0.15	4	0.04	10	-	-	-	-	1 640
Other Transportation	4 540	4	95	0.20	60	-	-	-	-	4 690
Off-Road Agriculture & Forestry	612	0.05	1	0.04	10	-	-	-	-	625
Off-Road Commercial & Institutional	261	0.45	11	0.01	3	-	-	-	-	275
Off-Road Manufacturing, Mining & Construction	1 540	0.24	6	0.08	20	-	-	-	-	1 570
Off-Road Residential	127	0.29	7	0.00	1	-	-	-	-	135
Off-Road Other Transportation	585	1	35	0.02	5	-	-	-	-	625
Pipeline Transport	1 410	1	35	0.04	10	-	-	-	-	1 450
c. Fugitive Sources	**1 600**	**110**	**2 900**	**0.00**	**2**	**-**	**-**	**-**	**-**	**4 400**
Coal Mining	-	40	900	-	-	-	-	-	-	900
Oil and Natural Gas	1 600	78	2 000	0.01	1	-	-	-	-	3 600
Oil	0.23	2	44	0.00	1	-	-	-	-	45
Natural Gas	6	31	770	-	-	-	-	-	-	780
Venting	940	42	1 100	-	-	-	-	-	-	2 000
Flaring	642	4	92	0.00	0.30	-	-	-	-	734
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**2 280**	**-**	**-**	**0.23**	**69**	**1 600**	**65**	**20**	**-**	**4 060**
a. Mineral Products	**1 100**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1 100**
Cement Production	1 000	-	-	-	-	-	-	-	-	1 000
Lime Production	66	-	-	-	-	-	-	-	-	66
Mineral Products Use	22	-	-	-	-	-	-	-	-	22
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
c. Metal Production	**730**	**-**	**-**	**-**	**-**	**-**	**63**	**0.94**	**-**	**794**
Iron and Steel Production	-	-	-	-	-	-	-	-	-	-
Aluminum Production	730	-	-	-	-	-	63	-	-	793
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	0.94	-	0.94
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**-**	**-**	**-**	**-**	**1 600**	**0.15**	**-**	**-**	**1 600**
e. Non-Energy Products from Fuels and Solvent Use	**460**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**460**
f. Other Product Manufacture and Use	**4**	**-**	**-**	**0.23**	**69**	**-**	**1**	**19**	**-**	**94**
AGRICULTURE	**30**	**64**	**1 600**	**3**	**760**	**-**	**-**	**-**	**-**	**2 400**
a. Enteric Fermentation	**-**	**57**	**1 400**	**-**	**-**	**-**	**-**	**-**	**-**	**1 400**
b. Manure Management	**-**	**7**	**170**	**0.80**	**200**	**-**	**-**	**-**	**-**	**410**
c. Agricultural Soils	**-**	**-**	**-**	**2**	**530**	**-**	**-**	**-**	**-**	**530**
Direct Sources	-	-	-	1	420	-	-	-	-	420
Indirect Sources	-	-	-	0.40	100	-	-	-	-	100
d. Field Burning of Agricultural Residues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**30**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**30**
WASTE	**-**	**140**	**3 500**	**0.40**	**100**	**-**	**-**	**-**	**-**	**3 600**
a. Solid Waste Disposal	**-**	**130**	**3 400**	**-**	**-**	**-**	**-**	**-**	**-**	**3 400**
b. Biological Treatment of Solid Waste	**-**	**2**	**60**	**0.10**	**40**	**-**	**-**	**-**	**-**	**100**
c. Wastewater Treatment and Discharge	**-**	**4**	**89**	**0.20**	**60**	**-**	**-**	**-**	**-**	**150**
d. Incineration and Open Burning of Waste	**-**	**0.06**	**1**	**0.01**	**2**	**-**	**-**	**-**	**-**	**3**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.
4. IPCC's Fourth Assessment Report provides global warming potentials (GWPs) for the various species of HFCs and PFCs. Chapter 1, Table 1-1 of this report provides a list of GWPs used.

- Indicates no emissions
0.00 Indicates emissions truncated due to rounding
x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–22 GHG Emission Summary for Yukon, Selected Years

Greenhouse Gas Categories	1990	2005	2012	2013	2014	2015	2016	2017
	kt CO_2 eq							
TOTAL	**535**	**539**	**649**	**570**	**468**	**498**	**498**	**532**
ENERGY	**528**	**526**	**625**	**547**	**444**	**473**	**472**	**504**
a. Stationary Combustion Sources	**222**	**194**	**145**	**119**	**68**	**68**	**66**	**68**
Public Electricity and Heat Production	94	23	19	18	17	19	20	24
Petroleum Refining Industries	-	-	-	-	-	-	-	-
Oil and Gas Extraction	0.31	67	14	-	-	-	-	-
Mining	9	8	5	5	4	4	4	5
Manufacturing Industries	6	-	15	15	14	14	15	16
Construction	4	2	2	2	1	0.62	1.00	0.88
Commercial and Institutional	77	41	64	57	25	25	22	17
Residential	31	45	26	23	7	5	5	5
Agriculture and Forestry	1	8	-	-	-	-	-	-
b. Transport[1]	**306**	**322**	**470**	**429**	**376**	**404**	**406**	**436**
Domestic Aviation	34	35	47	46	39	35	38	40
Road Transportation	220	256	394	357	314	343	344	373
Light-Duty Gasoline Vehicles	72	36	34	31	30	31	35	34
Light-Duty Gasoline Trucks	32	80	86	77	78	81	91	92
Heavy-Duty Gasoline Vehicles	15	25	34	32	33	37	43	45
Motorcycles	0.26	0.24	0.43	0.40	0.42	0.41	0.42	0.38
Light-Duty Diesel Vehicles	2	0.92	2	1	1	1	0.98	1
Light-Duty Diesel Trucks	0.28	7	9	8	6	6	5	6
Heavy-Duty Diesel Vehicles	96	107	228	208	165	186	169	195
Propane and Natural Gas Vehicles	1	-	-	-	-	-	-	-
Railways	-	-	-	-	-	-	-	-
Domestic Navigation	-	-	-	-	-	-	-	-
Other Transportation	52	31	29	26	23	26	23	23
Off-Road Agriculture & Forestry	0.48	0.31	0.28	0.25	0.20	0.25	0.99	0.28
Off-Road Commercial & Institutional	3	3	3	3	3	3	1	0.68
Off-Road Manufacturing, Mining & Construction	28	18	18	16	13	15	13	13
Off-Road Residential	0.69	x	x	x	x	x	x	x
Off-Road Other Transportation	20	8	6	5	6	7	7	7
Pipeline Transport	-	x	x	x	x	x	x	x
c. Fugitive Sources	**0.02**	**10**	**11**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**
Coal Mining	-	-	-	-	-	-	-	-
Oil and Natural Gas	0.02	10	11	0.03	0.03	0.03	0.03	0.03
Oil	-	-	-	-	-	-	-	-
Natural Gas	0.02	2	0.59	0.03	0.03	0.03	0.03	0.03
Venting	-	6	8	-	-	-	-	-
Flaring	-	1	2	-	-	-	-	-
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**2**	**8**	**15**	**14**	**15**	**16**	**17**	**19**
a. Mineral Products	**0.11**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Cement Production	-	-	-	-	-	-	-	-
Lime Production	-	-	-	-	-	-	-	-
Mineral Products Use	0.11	-	-	-	-	-	-	-
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**7**	**13**	**13**	**14**	**15**	**16**	**18**
e. Non-Energy Products from Fuels and Solvent Use	**2**	**0.45**	**2**	**0.68**	**0.90**	**0.23**	**-**	**-**
f. Other Product Manufacture and Use	**0.17**	**0.36**	**0.38**	**0.40**	**0.41**	**0.47**	**0.54**	**0.67**
AGRICULTURE	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
a. Enteric Fermentation	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
b. Manure Management	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
c. Agricultural Soils	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Direct Sources	-	-	-	-	-	-	-	-
Indirect Sources	-	-	-	-	-	-	-	-
d. Field Burning of Agricultural Residues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
WASTE	**5**	**6**	**9**	**9**	**9**	**9**	**10**	**10**
a. Solid Waste Disposal	**0.94**	**2**	**4**	**4**	**4**	**4**	**4**	**4**
b. Biological Treatment of Solid Waste	**-**	**0.20**	**0.40**	**0.40**	**0.40**	**0.50**	**0.50**	**0.40**
c. Wastewater Treatment and Discharge	**4**	**4**	**5**	**5**	**5**	**5**	**5**	**5**
d. Incineration and Open Burning of Waste	**-**	**0.00**	**-**	**-**	**-**	**-**	**-**	**-**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.

- Indicates no emissions

0.00 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–23 2017 GHG Emission Summary for Yukon

Greenhouse Gas Categories	CO_2	CH_4	CH_4	N_2O	N_2O	HFCs[4]	PFCs[4]	SF_6	NF_3	TOTAL
	Greenhouse Gases									
Global Warming Potential			25		298			22 800	17 200	
Unit	kt	kt	kt CO_2 eq	kt	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
TOTAL	**495**	**0.40**	**10**	**0.03**	**9**	**18**	**0.00**	**-**	**-**	**532**
ENERGY	**495**	**0.05**	**1**	**0.03**	**8**	**-**	**-**	**-**	**-**	**504**
a. Stationary Combustion Sources	**67**	**0.00**	**0.06**	**0.01**	**1**	**-**	**-**	**-**	**-**	**68**
Public Electricity and Heat Production	23	0.00	0.05	0.00	0.90	-	-	-	-	24
Petroleum Refining Industries	-	-	-	-	-	-	-	-	-	-
Oil and Gas Extraction	-	-	-	-	-	-	-	-	-	-
Mining	5	0.00	0.00	0.00	0.10	-	-	-	-	5
Manufacturing Industries	16	0.00	0.00	0.00	0.05	-	-	-	-	16
Construction	0.86	0.00	0.00	0.00	0.01	-	-	-	-	0.88
Commercial and Institutional	17	0.00	0.01	0.00	0.20	-	-	-	-	17
Residential	5	0.00	0.00	0.00	0.08	-	-	-	-	5
Agriculture and Forestry	-	-	-	-	-	-	-	-	-	-
b. Transport[1]	**428**	**0.05**	**1**	**0.02**	**6**	**-**	**-**	**-**	**-**	**436**
Domestic Aviation	40	0.00	0.08	0.00	0.40	-	-	-	-	40
Road Transportation	367	0.02	0.50	0.02	6	-	-	-	-	373
Light-Duty Gasoline Vehicles	34	0.00	0.06	0.00	0.32	-	-	-	-	34
Light-Duty Gasoline Trucks	91	0.01	0.20	0.00	0.85	-	-	-	-	92
Heavy-Duty Gasoline Vehicles	44	0.00	0.04	0.00	1	-	-	-	-	45
Motorcycles	0.38	0.00	0.00	0.00	0.00	-	-	-	-	0.38
Light-Duty Diesel Vehicles	1	0.00	0.00	0.00	0.03	-	-	-	-	1
Light-Duty Diesel Trucks	6	0.00	0.00	0.00	0.13	-	-	-	-	6
Heavy-Duty Diesel Vehicles	191	0.01	0.20	0.01	3	-	-	-	-	195
Propane and Natural Gas Vehicles	-	-	-	-	-	-	-	-	-	-
Railways	-	-	-	-	-	-	-	-	-	-
Domestic Navigation	-	-	-	-	-	-	-	-	-	-
Other Transportation	22	0.02	0.55	0.00	0.30	-	-	-	-	23
Off-Road Agriculture & Forestry	0.27	0.00	0.00	0.00	0.01	-	-	-	-	0.28
Off-Road Commercial & Institutional	0.66	0.00	0.02	0.00	0.01	-	-	-	-	0.68
Off-Road Manufacturing, Mining & Construction	13	0.00	0.04	0.00	0.20	-	-	-	-	13
Off-Road Residential	x	x	x	x	x	x	x	x	x	x
Off-Road Other Transportation	7	0.02	0.41	0.00	0.05	-	-	-	-	7
Pipeline Transport	x	x	x	x	x	x	x	x	x	x
c. Fugitive Sources	**-**	**0.00**	**0.03**	**-**	**-**	**-**	**-**	**-**	**-**	**0.03**
Coal Mining	-	-	-	-	-	-	-	-	-	-
Oil and Natural Gas	-	0.00	0.03	-	-	-	-	-	-	0.03
Oil	–	–	–	–	–	–	–	–	–	–
Natural Gas	–	0.00	0.03	-	-	-	-	-	-	0.03
Venting	–	–	–	–	–	–	–	–	–	–
Flaring	–	–	–	–	–	–	–	–	–	–
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**0.12**	**-**	**-**	**0.00**	**0.55**	**18**	**0.00**	**-**	**-**	**19**
a. Mineral Products	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Cement Production	-	-	-	-	-	-	-	-	-	-
Lime Production	-	-	-	-	-	-	-	-	-	-
Mineral Products Use	-	-	-	-	-	-	-	-	-	-
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**-**	**-**	**-**	**-**	**18**	**0.00**	**-**	**-**	**18**
e. Non-Energy Products from Fuels and Solvent Use	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
f. Other Product Manufacture and Use	**0.12**	**-**	**-**	**0.00**	**0.55**	**-**	**-**	**-**	**-**	**0.67**
AGRICULTURE	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
a. Enteric Fermentation	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
b. Manure Management	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
c. Agricultural Soils	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Direct Sources	-	-	-	-	-	-	-	-	-	-
Indirect Sources	-	-	-	-	-	-	-	-	-	-
d. Field Burning of Agricultural Residues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
WASTE	**-**	**0.36**	**9**	**0.00**	**0.70**	**-**	**-**	**-**	**-**	**10**
a. Solid Waste Disposal	**-**	**0.16**	**4**	**-**	**-**	**-**	**-**	**-**	**-**	**4**
b. Biological Treatment of Solid Waste	**-**	**0.01**	**0.20**	**0.00**	**0.20**	**-**	**-**	**-**	**-**	**0.40**
c. Wastewater Treatment and Discharge	**-**	**0.19**	**5**	**0.00**	**0.50**	**-**	**-**	**-**	**-**	**5**
d. Incineration and Open Burning of Waste	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.
4. IPCC's Fourth Assessment Report provides global warming potentials (GWPs) for the various species of HFCs and PFCs. Chapter 1, Table 1-1 of this report provides a list of GWPs used.

- Indicates no emissions
0.00 Indicates emissions truncated due to rounding
x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–24 GHG Emission Summary for Northwest Territories, Selected Years

Greenhouse Gas Categories	1999	2005	2012	2013	2014	2015	2016	2017
	kt CO_2 eq							
TOTAL	**1 210**	**1 560**	**1 470**	**1 300**	**1 480**	**1 690**	**1 580**	**1 260**
ENERGY	**1 200**	**1 540**	**1 440**	**1 270**	**1 440**	**1 650**	**1 540**	**1 220**
a. Stationary Combustion Sources	**604**	**728**	**697**	**572**	**591**	**625**	**574**	**409**
Public Electricity and Heat Production	91	x	x	x	86	123	71	64
Petroleum Refining Industries	-	-	-	-	-	-	-	-
Oil and Gas Extraction	128	214	73	2	2	1	5	13
Mining	107	169	287	227	218	213	229	212
Manufacturing Industries	-	0.26	x	x	x	x	x	x
Construction	0.83	x	x	x	x	x	x	x
Commercial and Institutional	192	141	174	187	181	190	200	71
Residential	85	102	95	89	104	97	67	48
Agriculture and Forestry	0.02	2	-	-	-	-	-	-
b. Transport[1]	**580**	**790**	**714**	**673**	**834**	**1 010**	**955**	**810**
Domestic Aviation	125	170	135	131	112	114	108	104
Road Transportation	277	473	451	422	551	670	672	569
Light-Duty Gasoline Vehicles	41	12	15	11	15	14	16	15
Light-Duty Gasoline Trucks	26	41	66	52	68	69	77	74
Heavy-Duty Gasoline Vehicles	16	9	17	14	18	20	24	24
Motorcycles	0.16	0.12	0.29	0.23	0.30	0.29	0.30	0.26
Light-Duty Diesel Vehicles	3	2	2	2	2	2	3	2
Light-Duty Diesel Trucks	0.74	19	12	10	13	16	16	13
Heavy-Duty Diesel Vehicles	191	390	340	333	435	548	538	441
Propane and Natural Gas Vehicles	0.80	-	-	-	-	-	-	-
Railways	3	6	11	11	x	16	14	14
Domestic Navigation	4	-	-	1	x	1	4	2
Other Transportation	170	141	117	108	150	210	157	121
Off-Road Agriculture & Forestry	0.65	0.58	0.37	0.34	0.44	0.64	0.57	0.59
Off-Road Commercial & Institutional	11	9	7	7	9	12	2	0.74
Off-Road Manufacturing, Mining & Construction	130	116	95	89	126	180	137	103
Off-Road Residential	2	2	2	x	3	3	3	2
Off-Road Other Transportation	21	10	10	8	12	14	15	14
Pipeline Transport	5	3	3	x	1	0.79	0.28	0.28
c. Fugitive Sources	**15**	**18**	**25**	**20**	**19**	**15**	**16**	**5**
Coal Mining	-	-	-	-	-	-	-	-
Oil and Natural Gas	15	18	25	20	19	15	16	5
Oil	4	4	3	2	2	2	2	0.20
Natural Gas	5	5	6	5	5	4	5	3
Venting	2	2	1	0.90	0.86	0.74	0.69	0.03
Flaring	4	7	15	12	12	8	8	0.83
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**9**	**20**	**23**	**24**	**27**	**27**	**29**	**29**
a. Mineral Products	**0.01**	**0.16**	**0.09**	**0.04**	**0.05**	**0.05**	**0.04**	**0.04**
Cement Production	-	-	-	-	-	-	-	-
Lime Production	-	-	-	-	-	-	-	-
Mineral Products Use	0.01	0.16	0.09	0.04	0.05	0.05	0.04	0.04
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**5**	**12**	**19**	**19**	**20**	**22**	**24**	**26**
e. Non-Energy Products from Fuels and Solvent Use	**4**	**7**	**4**	**5**	**6**	**5**	**4**	**2**
f. Other Product Manufacture and Use	**0.53**	**0.49**	**0.47**	**0.50**	**0.59**	**0.72**	**0.85**	**0.91**
AGRICULTURE	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
a. Enteric Fermentation	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
b. Manure Management	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
c. Agricultural Soils	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Direct Sources	-	-	-	-	-	-	-	-
Indirect Sources	-	-	-	-	-	-	-	-
d. Field Burning of Agricultural Residues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
WASTE	**7**	**8**	**9**	**9**	**9**	**9**	**9**	**9**
a. Solid Waste Disposal	**5**	**6**	**6**	**6**	**6**	**7**	**7**	**7**
b. Biological Treatment of Solid Waste	**-**	**-**	**0.03**	**0.02**	**0.03**	**0.06**	**0.08**	**0.10**
c. Wastewater Treatment and Discharge	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
d. Incineration and Open Burning of Waste	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.

- Indicates no emissions

0.00 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–25 2017 GHG Emission Summary for Northwest Territories

Greenhouse Gas Categories	CO_2	CH_4	CH_4	N_2O	N_2O	HFCs[4]	PFCs[4]	SF_6	NF_3	TOTAL
	Greenhouse Gases									
Global Warming Potential			25		298			22 800	17 200	
Unit	kt	kt	kt CO_2 eq	kt	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
TOTAL	**1 190**	**0.60**	**15**	**0.09**	**26**	**26**	**0.00**	**-**	**-**	**1 260**
ENERGY	**1 190**	**0.25**	**6**	**0.08**	**30**	**-**	**-**	**-**	**-**	**1 220**
a. Stationary Combustion Sources	**396**	**0.05**	**1**	**0.04**	**10**	**-**	**-**	**-**	**-**	**409**
Public Electricity and Heat Production	62	0.00	0.12	0.01	2	-	-	-	-	64
Petroleum Refining Industries	-	-	-	-	-	-	-	-	-	-
Oil and Gas Extraction	12	0.03	0.80	0.00	0.09	-	-	-	-	13
Mining	203	0.01	0.20	0.03	9	-	-	-	-	212
Manufacturing Industries	x	x	x	x	x	x	x	x	x	x
Construction	x	x	x	x	x	x	x	x	x	x
Commercial and Institutional	71	0.00	0.02	0.00	0.50	-	-	-	-	71
Residential	48	0.00	0.01	0.00	0.20	-	-	-	-	48
Agriculture and Forestry	-	-	-	-	-	-	-	-	-	-
b. Transport[1]	**796**	**0.06**	**1**	**0.04**	**13**	**-**	**-**	**-**	**-**	**810**
Domestic Aviation	103	0.01	0.20	0.00	0.90	-	-	-	-	104
Road Transportation	559	0.03	0.70	0.03	9	-	-	-	-	569
Light-Duty Gasoline Vehicles	14	0.00	0.03	0.00	0.14	-	-	-	-	15
Light-Duty Gasoline Trucks	74	0.01	0.10	0.00	0.69	-	-	-	-	74
Heavy-Duty Gasoline Vehicles	23	0.00	0.02	0.00	0.58	-	-	-	-	24
Motorcycles	0.26	0.00	0.00	0.00	0.00	-	-	-	-	0.26
Light-Duty Diesel Vehicles	2	0.00	0.00	0.00	0.05	-	-	-	-	2
Light-Duty Diesel Trucks	13	0.00	0.01	0.00	0.31	-	-	-	-	13
Heavy-Duty Diesel Vehicles	434	0.02	0.40	0.02	7	-	-	-	-	441
Propane and Natural Gas Vehicles	-	-	-	-	-	-	-	-	-	-
Railways	12	0.00	0.02	0.01	1	-	-	-	-	14
Domestic Navigation	2	0.00	0.01	0.00	0.02	-	-	-	-	2
Other Transportation	118	0.02	0.58	0.01	2	-	-	-	-	121
Off-Road Agriculture & Forestry	0.58	0.00	0.00	0.00	0.01	-	-	-	-	0.59
Off-Road Commercial & Institutional	0.71	0.00	0.02	0.00	0.01	-	-	-	-	0.74
Off-Road Manufacturing, Mining & Construction	101	0.00	0.10	0.01	2	-	-	-	-	103
Off-Road Residential	2	0.00	0.07	0.00	0.02	-	-	-	-	2
Off-Road Other Transportation	13	0.02	0.40	0.00	0.10	-	-	-	-	14
Pipeline Transport	0.27	0.00	0.00	0.00	0.01	-	-	-	-	0.28
c. Fugitive Sources	**0.79**	**0.15**	**4**	**0.00**	**0.00**	**-**	**-**	**-**	**-**	**5**
Coal Mining	-	-	-	-	-	-	-	-	-	-
Oil and Natural Gas	0.79	0.15	4	0.00	0.00	-	-	-	-	5
Oil	0.00	0.01	0.20	-	-	-	-	-	-	0.20
Natural Gas	0.00	0.14	3	-	-	-	-	-	-	3
Venting	0.00	0.00	0.03	-	-	-	-	-	-	0.03
Flaring	0.79	0.00	0.04	0.00	0.00	-	-	-	-	0.83
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**2**	**-**	**-**	**0.00**	**0.64**	**26**	**0.00**	**-**	**-**	**29**
a. Mineral Products	**0.04**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.04**
Cement Production	-	-	-	-	-	-	-	-	-	-
Lime Production	-	-	-	-	-	-	-	-	-	-
Mineral Products Use	0.04	-	-	-	-	-	-	-	-	0.04
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**-**	**-**	**-**	**-**	**26**	**0.00**	**-**	**-**	**26**
e. Non-Energy Products from Fuels and Solvent Use	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**
f. Other Product Manufacture and Use	**0.27**	**-**	**-**	**0.00**	**0.64**	**-**	**-**	**-**	**-**	**0.91**
AGRICULTURE	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
a. Enteric Fermentation	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
b. Manure Management	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
c. Agricultural Soils	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Direct Sources	-	-	-	-	-	-	-	-	-	-
Indirect Sources	-	-	-	-	-	-	-	-	-	-
d. Field Burning of Agricultural Residues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
WASTE	**-**	**0.35**	**9**	**0.00**	**0.60**	**-**	**-**	**-**	**-**	**9**
a. Solid Waste Disposal	**-**	**0.28**	**7**	**-**	**-**	**-**	**-**	**-**	**-**	**7**
b. Biological Treatment of Solid Waste	**-**	**0.00**	**0.07**	**0.00**	**0.05**	**-**	**-**	**-**	**-**	**0.10**
c. Wastewater Treatment and Discharge	**-**	**0.07**	**2**	**0.00**	**0.60**	**-**	**-**	**-**	**-**	**2**
d. Incineration and Open Burning of Waste	**-**	**0.00**	**0.00**	**0.00**	**0.00**	**-**	**-**	**-**	**-**	**0.00**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.
4. IPCC's Fourth Assessment Report provides global warming potentials (GWPs) for the various species of HFCs and PFCs. Chapter 1, Table 1-1 of this report provides a list of GWPs used.

- Indicates no emissions
0.00 Indicates emissions truncated due to rounding
x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–26 GHG Emission Summary for Nunavut, Selected Years

Greenhouse Gas Categories	1999	2005	2012	2013	2014	2015	2016	2017
	kt CO_2 eq							
TOTAL	**261**	**441**	**543**	**686**	**681**	**604**	**586**	**588**
ENERGY	**254**	**428**	**526**	**668**	**662**	**584**	**564**	**564**
a. Stationary Combustion Sources	**108**	**133**	**76**	**72**	**123**	**118**	**140**	**143**
Public Electricity and Heat Production	18	x	x	x	123	118	140	143
Petroleum Refining Industries	-	-	-	-	-	-	-	-
Oil and Gas Extraction	-	-	-	-	-	-	-	-
Mining	90	0.26	-	-	-	-	-	-
Manufacturing Industries	-	x	x	x	-	-	-	-
Construction	-	-	-	-	-	-	-	-
Commercial and Institutional	-	8	-	-	-	-	-	-
Residential	-	-	-	-	-	-	-	-
Agriculture and Forestry	-	-	-	-	-	-	-	-
b. Transport[1]	**145**	**296**	**450**	**597**	**540**	**466**	**423**	**421**
Domestic Aviation	111	140	137	141	128	121	113	123
Road Transportation	19	94	215	231	202	163	236	243
Light-Duty Gasoline Vehicles	3	2	2	2	2	2	2	2
Light-Duty Gasoline Trucks	5	18	30	30	29	28	36	36
Heavy-Duty Gasoline Vehicles	3	4	8	8	8	8	11	12
Motorcycles	0.01	0.02	0.06	0.06	0.05	0.04	0.05	0.05
Light-Duty Diesel Vehicles	0.07	0.03	0.25	0.39	0.16	0.10	0.14	0.13
Light-Duty Diesel Trucks	-	1	3	4	4	3	4	4
Heavy-Duty Diesel Vehicles	8	69	172	185	159	122	183	190
Propane and Natural Gas Vehicles	0.86	-	-	-	-	-	-	-
Railways	-	-	-	-	-	-	-	-
Domestic Navigation	-	-	-	122	130	118	-	-
Other Transportation	16	62	98	103	80	64	74	55
Off-Road Agriculture & Forestry	-	-	-	-	-	-	-	-
Off-Road Commercial & Institutional	2	7	10	11	8	7	1	0.89
Off-Road Manufacturing, Mining & Construction	10	45	69	72	54	42	54	36
Off-Road Residential	0.62	x	x	x	4	4	3	2
Off-Road Other Transportation	4	8	14	15	13	12	15	16
Pipeline Transport	-	x	x	x	-	-	-	-
c. Fugitive Sources	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Coal Mining	-	-	-	-	-	-	-	-
Oil and Natural Gas	-	-	-	-	-	-	-	-
Oil	-	-	-	-	-	-	-	-
Natural Gas	-	-	-	-	-	-	-	-
Venting	-	-	-	-	-	-	-	-
Flaring	-	-	-	-	-	-	-	-
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**3**	**7**	**11**	**12**	**13**	**14**	**16**	**18**
a. Mineral Products	**0.01**	**0.16**	**0.09**	**0.04**	**0.05**	**0.05**	**0.04**	**0.04**
Cement Production	-	-	-	-	-	-	-	-
Lime Production	-	-	-	-	-	-	-	-
Mineral Products Use	0.01	0.16	0.09	0.04	0.05	0.05	0.04	0.04
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**2**	**6**	**11**	**12**	**12**	**14**	**15**	**17**
e. Non-Energy Products from Fuels and Solvent Use	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
f. Other Product Manufacture and Use	**0.35**	**0.34**	**0.35**	**0.38**	**0.41**	**0.43**	**0.55**	**0.66**
AGRICULTURE	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
a. Enteric Fermentation	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
b. Manure Management	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
c. Agricultural Soils	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Direct Sources	-	-	-	-	-	-	-	-
Indirect Sources	-	-	-	-	-	-	-	-
d. Field Burning of Agricultural Residues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
WASTE	**5**	**6**	**6**	**6**	**6**	**6**	**6**	**7**
a. Solid Waste Disposal	**3**	**4**	**5**	**5**	**5**	**6**	**6**	**6**
b. Biological Treatment of Solid Waste	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
c. Wastewater Treatment and Discharge	**1**	**2**	**0.66**	**0.67**	**0.68**	**0.69**	**0.70**	**0.71**
d. Incineration and Open Burning of Waste	**-**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.

- Indicates no emissions

0.00 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–27 2017 GHG Emission Summary for Nunavut

Greenhouse Gas Categories	CO_2	CH_4	CH_4	N_2O	N_2O	HFCs[4]	PFCs[4]	SF_6	NF_3	TOTAL
	Greenhouse Gases									
Global Warming Potential			25		298			22 800	17 200	
Unit	kt	kt	kt CO_2 eq	kt	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq	kt CO_2 eq
TOTAL	**551**	**0.30**	**7**	**0.04**	**13**	**17**	**0.00**	**-**	**-**	**588**
ENERGY	**551**	**0.05**	**1**	**0.04**	**10**	**-**	**-**	**-**	**-**	**564**
a. Stationary Combustion Sources	**136**	**0.01**	**0.20**	**0.02**	**6**	**-**	**-**	**-**	**-**	**143**
Public Electricity and Heat Production	136	0.01	0.17	0.02	6	-	-	-	-	143
Petroleum Refining Industries	-	-	-	-	-	-	-	-	-	-
Oil and Gas Extraction	-	-	-	-	-	-	-	-	-	-
Mining	-	-	-	-	-	-	-	-	-	-
Manufacturing Industries	–	–	–	–	–	–	–	–	–	–
Construction	-	-	-	-	-	-	-	-	-	-
Commercial and Institutional	-	-	-	-	-	-	-	-	-	-
Residential	-	-	-	-	-	-	-	-	-	-
Agriculture and Forestry	-	-	-	-	-	-	-	-	-	-
b. Transport[1]	**414**	**0.05**	**1**	**0.02**	**6**	**-**	**-**	**-**	**-**	**421**
Domestic Aviation	122	0.00	0.06	0.00	1	-	-	-	-	123
Road Transportation	239	0.01	0.30	0.01	4	-	-	-	-	243
Light-Duty Gasoline Vehicles	2	0.00	0.00	0.00	0.02	-	-	-	-	2
Light-Duty Gasoline Trucks	36	0.00	0.07	0.00	0.33	-	-	-	-	36
Heavy-Duty Gasoline Vehicles	12	0.00	0.01	0.00	0.29	-	-	-	-	12
Motorcycles	0.05	0.00	0.00	0.00	0.00	-	-	-	-	0.05
Light-Duty Diesel Vehicles	0.12	0.00	0.00	0.00	0.00	-	-	-	-	0.13
Light-Duty Diesel Trucks	4	0.00	0.00	0.00	0.09	-	-	-	-	4
Heavy-Duty Diesel Vehicles	186	0.01	0.20	0.01	3	-	-	-	-	190
Propane and Natural Gas Vehicles	-	-	-	-	-	-	-	-	-	-
Railways	-	-	-	-	-	-	-	-	-	-
Domestic Navigation	-	-	-	-	-	-	-	-	-	-
Other Transportation	54	0.03	0.78	0.00	0.70	-	-	-	-	55
Off-Road Agriculture & Forestry	-	-	-	-	-	-	-	-	-	-
Off-Road Commercial & Institutional	0.85	0.00	0.03	0.00	0.01	-	-	-	-	0.89
Off-Road Manufacturing, Mining & Construction	36	0.00	0.04	0.00	0.60	-	-	-	-	36
Off-Road Residential	2	0.00	0.09	0.00	0.02	-	-	-	-	2
Off-Road Other Transportation	15	0.03	0.62	0.00	0.10	-	-	-	-	16
Pipeline Transport	-	-	-	-	-	-	-	-	-	-
c. Fugitive Sources	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Coal Mining	-	-	-	-	-	-	-	-	-	-
Oil and Natural Gas	-	-	-	-	-	-	-	-	-	-
Oil	–	–	–	–	–	–	–	–	–	–
Natural Gas	–	–	–	–	–	–	–	–	–	–
Venting	–	–	–	–	–	–	–	–	–	–
Flaring	–	–	–	–	–	–	–	–	–	–
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**0.16**	**-**	**-**	**0.00**	**0.55**	**17**	**0.00**	**-**	**-**	**18**
a. Mineral Products	**0.04**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.04**
Cement Production	-	-	-	-	-	-	-	-	-	-
Lime Production	-	-	-	-	-	-	-	-	-	-
Mineral Products Use	0.04	-	-	-	-	-	-	-	-	0.04
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**-**	**-**	**-**	**-**	**17**	**0.00**	**-**	**-**	**17**
e. Non-Energy Products from Fuels and Solvent Use	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
f. Other Product Manufacture and Use	**0.12**	**-**	**-**	**0.00**	**0.55**	**-**	**-**	**-**	**-**	**0.66**
AGRICULTURE	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
a. Enteric Fermentation	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
b. Manure Management	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
c. Agricultural Soils	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Direct Sources	-	-	-	-	-	-	-	-	-	-
Indirect Sources	-	-	-	-	-	-	-	-	-	-
d. Field Burning of Agricultural Residues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
WASTE	**-**	**0.24**	**6**	**0.00**	**0.50**	**-**	**-**	**-**	**-**	**7**
a. Solid Waste Disposal	**-**	**0.24**	**6**	**-**	**-**	**-**	**-**	**-**	**-**	**6**
b. Biological Treatment of Solid Waste	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
c. Wastewater Treatment and Discharge	**-**	**0.01**	**0.21**	**0.00**	**0.50**	**-**	**-**	**-**	**-**	**0.71**
d. Incineration and Open Burning of Waste	**-**	**0.00**	**0.00**	**0.00**	**0.00**	**-**	**-**	**-**	**-**	**0.00**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.
4. IPCC's Fourth Assessment Report provides global warming potentials (GWPs) for the various species of HFCs and PFCs. Chapter 1, Table 1-1 of this report provides a list of GWPs used.

- Indicates no emissions
0.00 Indicates emissions truncated due to rounding
x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

Table A11–28 GHG Emission Summary for Northwest Territories & Nunavut, 1990–1998

Greenhouse Gas Categories	1990	1991	1992	1993	1994	1995	1996	1997	1998
	kt CO_2 eq								
TOTAL	**1 630**	**1 600**	**1 400**	**1 670**	**1 830**	**1 950**	**1 890**	**1 710**	**1 550**
ENERGY	**1 620**	**1 570**	**1 390**	**1 630**	**1 710**	**1 860**	**1 880**	**1 700**	**1 530**
a. Stationary Combustion Sources	**922**	**992**	**854**	**952**	**1 010**	**1 160**	**1 030**	**981**	**740**
Public Electricity and Heat Production	163	162	131	142	145	161	123	135	180
Petroleum Refining Industries	8	6	7	5	12	11	4	-	-
Oil and Gas Extraction	276	195	111	136	135	139	149	130	125
Mining	36	42	18	36	109	217	156	164	137
Manufacturing Industries	26	16	18	8	14	20	-	-	-
Construction	6	5	6	3	4	21	0.68	0.70	0.53
Commercial and Institutional	250	367	357	389	401	474	405	371	207
Residential	156	188	192	230	190	118	196	181	90
Agriculture and Forestry	2	9	12	2	2	0.01	-	0.01	0.02
b. Transport[1]	**600**	**478**	**445**	**588**	**637**	**631**	**781**	**702**	**779**
Domestic Aviation	245	218	223	236	240	224	234	229	229
Road Transportation	173	130	116	170	183	155	236	227	273
Light-Duty Gasoline Vehicles	49	43	44	60	60	50	58	59	46
Light-Duty Gasoline Trucks	23	20	21	28	29	26	31	33	27
Heavy-Duty Gasoline Vehicles	11	10	10	14	15	12	16	18	16
Motorcycles	0.18	0.14	0.13	0.16	0.16	0.12	0.14	0.13	0.09
Light-Duty Diesel Vehicles	2	1	0.79	1	1	1	2	2	3
Light-Duty Diesel Trucks	0.08	0.07	0.07	0.14	0.18	0.18	0.40	0.39	0.66
Heavy-Duty Diesel Vehicles	86	54	39	65	75	64	127	114	178
Propane and Natural Gas Vehicles	0.80	0.79	2	1	3	2	1	1	1
Railways	3	2	2	2	1	2	1	3	2
Domestic Navigation	0.14	0.21	0.53	0.46	0.10	63	-	-	-
Other Transportation	180	129	104	179	212	186	309	243	274
Off-Road Agriculture & Forestry	0.38	0.26	0.20	0.37	0.45	0.40	0.70	0.56	0.75
Off-Road Commercial & Institutional	12	9	7	12	15	13	23	18	23
Off-Road Manufacturing, Mining & Construction	128	90	69	126	151	135	234	180	207
Off-Road Residential	3	2	1	3	3	3	5	4	5
Off-Road Other Transportation	37	28	26	38	40	34	47	40	39
Pipeline Transport	-	-	-	-	2	0.14	0.09	0.04	-
c. Fugitive Sources	**97**	**100**	**89**	**94**	**65**	**65**	**61**	**12**	**10**
Coal Mining	-	-	-	-	-	-	-	-	-
Oil and Natural Gas	97	100	89	94	65	65	61	12	10
Oil	5	5	5	5	5	5	4	4	4
Natural Gas	0.92	0.98	0.96	1	0.89	0.91	0.86	0.83	0.80
Venting	2	2	2	2	3	3	2	2	2
Flaring	89	95	81	86	57	57	53	6	4
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**5**	**13**	**4**	**26**	**106**	**88**	**3**	**4**	**6**
a. Mineral Products	**-**	**-**	**-**	**-**	**-**	**0.03**	**0.03**	**0.03**	**0.00**
Cement Production	-	-	-	-	-	-	-	-	-
Lime Production	-	-	-	-	-	-	-	-	-
Mineral Products Use	-	-	-	-	-	0.03	0.03	0.03	0.00
b. Chemical Industry[2]	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	-	-	-	-	-	-	-	-	-
c. Metal Production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Iron and Steel Production	-	-	-	-	-	-	-	-	-
Aluminum Production	-	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	-	-
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**-**	**-**	**-**	**-**	**-**	**1**	**2**	**3**	**5**
e. Non-Energy Products from Fuels and Solvent Use	**5**	**13**	**3**	**26**	**110**	**86**	**0.23**	**0.40**	**0.04**
f. Other Product Manufacture and Use	**-**	**0.36**	**0.30**	**0.34**	**0.38**	**0.46**	**0.47**	**0.50**	**0.86**
AGRICULTURE	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
a. Enteric Fermentation	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
b. Manure Management	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
c. Agricultural Soils	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Direct Sources	-	-	-	-	-	-	-	-	-
Indirect Sources	-	-	-	-	-	-	-	-	-
d. Field Burning of Agricultural Residues	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
WASTE	**8**	**9**	**9**	**9**	**10**	**10**	**10**	**11**	**11**
a. Solid Waste Disposal	**5**	**6**	**6**	**6**	**6**	**7**	**7**	**7**	**8**
b. Biological Treatment of Solid Waste	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
c. Wastewater Treatment and Discharge	**3**	**3**	**3**	**3**	**3**	**4**	**4**	**4**	**4**
d. Incineration and Open Burning of Waste	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.

- Indicates no emissions

0.00 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2017) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

ANNEX 12

PROVINCIAL/ TERRITORIAL GREENHOUSE GAS EMISSION TABLES BY CANADIAN ECONOMIC SECTOR, 1990–2017

This annex contains summary tables (Table A12-2 to Table A12-15) illustrating GHG emissions by province/ territory, allocated to Canadian economic sectors, from 1990–2017. To account for the creation of Nunavut in 1999, a time series from 1999–2017 is provided for both Northwest Territories and Nunavut (Table A12-13 and Table A12-14), and the years 1990–1998 are presented as a combined region in Table A12-15. In addition, Table A12-1 provides a brief description of each economic sector.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex 11 of this report.

Reallocating provincial/territorial emissions from IPCC sectors into Canadian economic sectors is useful for the purposes of analyzing trends and policies, as most people associate GHG emissions with a particular economic activity (e.g. producing electricity, farming, or driving a car). This re-allocation simply re-categorizes emissions under different headings but does not change the overall magnitude of the provincial/territorial emission estimates. Estimates for each economic sector include emissions from energy-related and non-energy-related processes.

Although the UNFCCC reporting guidelines require that only national-level detail be reported, provincial- and territorial-level detail is important, owing to the regional differences in emission levels and trends. Note that provincial and territorial emission estimates may not necessarily sum to the national totals due to rounding.

Provincial/territorial greenhouse gas emission tables are also available in electronic file format online at: https://open.canada.ca.

Table A12–1 **Canadian Economic Sector Descriptions**

Economic Sector	Description
OIL AND GAS	
Upstream Oil and Gas	Stationary combustion, onsite transportation, electricity and steam production, fugitive and process emissions from:
Natural Gas Production and Processing	– natural gas production and processing
Conventional Light Oil Production	– conventional light crude oil production
Conventional Heavy Oil Production	– conventinoal heavy crude oil production
Frontier Oil Production	– offshore and arctic production of crude oil
Oil Sands (Mining, In-situ, Upgrading)	Stationary combustion, onsite transportation, electricity and steam production, fugitive and process emissions from:
Mining and Extraction	– crude bitumen mining and extraction
In-situ	– in-situ extraction of crude bitumen including primary extraction, cyclic steam stimulation (CSS), steam-assisted gravity drainage (SAGD) and other experimental techniques.
Upgrading	– crude bitumen and heavy oil upgrading to synthetic crude oil
Oil and Natural Gas Transmission	Combustion and fugitive emissions from the transport and storage of crude oil and natural gas
Downstream Oil and Gas	Emissions resulting from:
Petroleum Refining	Stationary combustion, onsite transportation, electricity and steam production, fugitive and process emissions from petroleum refining industries
Natural Gas Distribution	Combustion and fugitive emissions from local distribution of natural gas
ELECTRICITY	Combustion and process emissions from utility electricity generation, steam production (for sale) and transmission. Excludes utility owned cogeneration at industrial sites.
TRANSPORTATION	Mobile related emissions including all fossil fuels and non-CO2 emission from biofuels.
Passenger Transport	Mobile related combustion, process and refrigerant emissions from the vehicles that primarily move people around.
Cars, Light Trucks and Motorcycles	– Light duty cars and trucks up to 4 500 lb. GVWR and motorcycles.
Bus, Rail and Domestic Aviation	– All buses and the passenger component of rail and domestic aviation
Freight Transport	Mobile related combustion, process and refrigerant emissions from the vehicles that primarily move cargo or freight around.
Heavy Duty Trucks, Rail	– Vehicles above 4 500 lb. GVWR and the freight component of rail
Domestic Aviation and Marine	– Cargo component of domestic aviation and all domestic navigation
Other: Recreational, Commercial and Residential	Combustion emissions from the non-industrial use of off-road engines (e.g., ATVs, snowmobiles, personal watercraft), including portable engines (e.g., generators, lawn mowers, chain saws).
HEAVY INDUSTRY	Stationary combustion, onsite transportation, electricty and steam production, and process emissions from:
Mining	– Metal and non-metal mines, stone quarries, and gravel pits
Smelting and Refining (Non Ferrous Metals)	– Non-ferrous Metals (aluminium, magnesium and other production)
Pulp and Paper	– Pulp and Paper (primarily pulp, paper, and paper product manufacturers)
Iron and Steel	– Iron and Steel (steel foundries, casting, rolling mills and iron making)
Cement	– Cement and other non-metallic mineral production
Lime & Gypsum	– Lime and Gypsum product manufacturing
Chemicals & Fertilizers	– Chemical (fertilizer manufacturing, organic and inorganic chemical manufacturing)
BUILDINGS	Stationary combustion and process (i.e. air conditioning) emissions from:
Service Industry	– Service industries related to mining, communication, wholesale and retail trade, finance and insurance, real estate, education, etc.; offices, health, arts, accommodation, food, information & cultural; Federal, provincial and municipal establishments; National Defence and Canadian Coast Guard; Train stations, airports and warehouses
Residential	– Personal residences (homes, apartment hotels, condominiums and farm houses)
AGRICULTURE	Emissions resulting from:
On Farm Fuel Use	– Stationary combustion, onsite transportation and process emissions from the agricultural, hunting and trapping industry (excluding food processing, farm machinery manufacturing, and repair)
Crop Production	– Application of inorganic nitrogen fertilizers, decomposition of crop residues, loss of soil organic carbon, cultivation of organic soils, indirect emissions from leaching and volatilization, field burning of agricultural residues, liming, and urea application
Animal Production	– Animal housing, manure storage, manure deposited by grazing animals, and application of manure to managed soils
WASTE	Non-CO2 Emissions from biomass resulting from:
Solid Waste	– Municipal solid waste management sites (landfills), dedicated wood waste landfills, and composting of municipal solid waste
Waste Water	– Municipal and industrial wastewater treatment
Waste Incineration	– Municipal solid, hazardous and clinical waste, and sewage sludge incineration
COAL PRODUCTION	Stationary combustion, onsite transportation and fugitive emissions from underground and surface coal mines
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	Stationary combustion, onsite transportation, electricty and steam production, and process emissions from (excluding LULUCF):
Light Manufacturing	– All other manufacturing industries not included in the Heavy Industry category above
Construction	– Construction of buildings, highways etc.
Forest Resources	– Forestry and logging service industry

Table A12–2 **GHG Emissions for Newfoundland and Labrador by Canadian Economic Sector, Selected Years**

	1990	2005	2012	2013	2014	2015	2016	2017
	Mt CO_2 eq							
NATIONAL GHG TOTAL	9.4	9.9	9.4	9.4	10.4	10.7	10.9	10.5
OIL AND GAS	**1.1**	**2.6**	**2.4**	**2.6**	**2.7**	**2.7**	**2.9**	**2.9**
Upstream Oil and Gas	0.0	1.6	1.3	1.6	1.7	1.6	1.7	1.8
Natural Gas Production and Processing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Conventional Oil Production	0.0	1.6	1.3	1.6	1.7	1.6	1.7	1.8
Conventional Light Oil Production	-	-	-	-	0.0	-	-	-
Conventional Heavy Oil Production	-	-	-	-	-	-	-	-
Frontier Oil Production	0.0	1.6	1.3	1.6	1.7	1.6	1.7	1.8
Oil Sands (Mining, In-situ, Upgrading)	-	-	-	-	-	-	-	-
Mining and Extraction	-	-	-	-	-	-	-	-
In-situ	-	-	-	-	-	-	-	-
Upgrading	-	-	-	-	-	-	-	-
Oil and Natural Gas Transmission	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Downstream Oil and Gas	1.1	1.0	1.1	1.0	1.0	1.1	1.3	1.1
Petroleum Refining	1.1	1.0	1.1	1.0	1.0	1.1	1.3	1.1
Natural Gas Distribution	-	-	-	-	-	-	-	-
ELECTRICITY	**1.6**	**0.8**	**0.8**	**0.9**	**1.2**	**1.3**	**1.5**	**1.5**
TRANSPORTATION	**2.8**	**3.1**	**3.6**	**3.2**	**3.6**	**3.8**	**3.8**	**3.5**
Passenger Transport	1.3	1.5	2.0	1.9	2.1	2.1	2.1	2.2
Cars, Light Trucks and Motorcycles	1.1	1.3	1.8	1.6	1.8	1.9	1.9	2.0
Bus, Rail and Domestic Aviation	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Freight Transport	1.1	1.4	1.4	1.2	1.4	1.5	1.6	1.2
Heavy Duty Trucks, Rail	0.4	0.8	1.0	1.0	1.1	1.2	1.3	1.0
Domestic Aviation and Marine	0.7	0.6	0.4	0.3	0.2	0.3	0.3	0.2
Other: Recreational, Commercial and Residential	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2
HEAVY INDUSTRY	**1.8**	**1.6**	**0.9**	**0.8**	**0.9**	**0.8**	**0.5**	**0.5**
Mining	1.3	1.3	0.9	0.8	0.8	0.8	0.4	0.5
Smelting and Refining (Non Ferrous Metals)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pulp and Paper	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.1
Iron and Steel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cement	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lime & Gypsum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chemicals & Fertilizers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BUILDINGS	**1.2**	**0.9**	**0.8**	**1.1**	**1.2**	**1.1**	**1.1**	**1.2**
Service Industry	0.3	0.4	0.3	0.6	0.7	0.7	0.7	0.7
Residential	0.8	0.4	0.5	0.4	0.5	0.4	0.5	0.4
AGRICULTURE	**0.1**	**0.1**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
On Farm Fuel Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crop Production	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Animal Production	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
WASTE	**0.7**	**0.6**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.6**
Solid Waste	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Wastewater	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waste Incineration	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
COAL PRODUCTION	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.3**	**0.3**	**0.3**
Light Manufacturing	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Construction	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Forest Resources	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

Totals may not add up due to rounding.

National GHG emissions allocated to IPCC sectors are provided in Annex 9 of this report.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex 11 of this report.

Estimates presented here are under continual improvement. Historical emissions may be change in future publications as new data becomes available and methods and models are refined and improved.

Emission estimates for Solid Waste include emissions from municipal solid waste landfills, wood waste landfills and municipal solid waste composting.

0 Indicates emissions of less than 0.5 Mt CO_2 eq; truncated due to rounding

- Indicates no emissions

Table A12–3 **GHG Emissions for Nova Scotia by Canadian Economic Sector, Selected Years**

	1990	2005	2012	2013	2014	2015	2016	2017
	Mt CO_2 eq							
NATIONAL GHG TOTAL	19.6	23.2	19.2	18.2	16.4	16.6	15.6	15.6
OIL AND GAS	**0.7**	**1.5**	**1.6**	**1.4**	**0.8**	**0.6**	**0.5**	**0.3**
Upstream Oil and Gas	0.0	0.4	0.6	0.6	0.8	0.6	0.5	0.3
Natural Gas Production and Processing	0.0	0.4	0.6	0.6	0.8	0.6	0.5	0.3
Conventional Oil Production	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Conventional Light Oil Production	-	-	-	-	-	-	-	-
Conventional Heavy Oil Production	-	-	-	-	-	-	-	-
Frontier Oil Production	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oil Sands (Mining, In-situ, Upgrading)	-	-	-	-	-	-	-	-
Mining and Extraction	-	-	-	-	-	-	-	-
In-situ	-	-	-	-	-	-	-	-
Upgrading	-	-	-	-	-	-	-	-
Oil and Natural Gas Transmission	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Downstream Oil and Gas	0.7	1.1	1.0	0.9	0.0	0.0	0.0	0.0
Petroleum Refining	0.7	1.1	1.0	0.8	x	x	x	x
Natural Gas Distribution	-	0.0	0.0	0.0	x	x	x	x
ELECTRICITY	**6.9**	**10.8**	**7.6**	**7.6**	**7.2**	**7.0**	**6.6**	**6.5**
TRANSPORTATION	**4.5**	**5.6**	**5.2**	**4.8**	**4.3**	**4.8**	**4.8**	**4.8**
Passenger Transport	2.5	2.9	3.0	2.6	2.4	2.9	3.0	3.0
Cars, Light Trucks and Motorcycles	2.3	2.6	2.7	2.3	2.1	2.6	2.7	2.8
Bus, Rail and Domestic Aviation	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Freight Transport	1.5	2.5	2.0	1.9	1.7	1.7	1.6	1.5
Heavy Duty Trucks, Rail	0.9	1.6	1.6	1.6	1.4	1.4	1.4	1.3
Domestic Aviation and Marine	0.6	0.9	0.4	0.3	0.3	0.2	0.2	0.2
Other: Recreational, Commercial and Residential	0.5	0.3	0.2	0.2	0.2	0.3	0.3	0.3
HEAVY INDUSTRY	**1.0**	**0.8**	**0.6**	**0.5**	**0.4**	**0.5**	**0.5**	**0.5**
Mining	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0
Smelting and Refining (Non Ferrous Metals)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pulp and Paper	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.1
Iron and Steel	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cement	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3
Lime & Gypsum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chemicals & Fertilizers	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0
BUILDINGS	**3.1**	**2.8**	**2.6**	**2.5**	**2.2**	**2.3**	**2.0**	**2.2**
Service Industry	0.8	1.4	0.8	0.9	0.7	0.8	0.7	0.8
Residential	2.2	1.4	1.8	1.6	1.5	1.5	1.3	1.4
AGRICULTURE	**0.6**	**0.6**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.4**
On Farm Fuel Use	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0
Crop Production	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Animal Production	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3
WASTE	**0.7**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.4**	**0.4**
Solid Waste	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4
Wastewater	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1
Waste Incineration	0.0	0.0	-	-	-	-	-	-
COAL PRODUCTION	**1.6**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**0.4**
Light Manufacturing	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2
Construction	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Forest Resources	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

Totals may not add up due to rounding.

National GHG emissions allocated to IPCC sectors are provided in Annex 9 of this report.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex 11 of this report.

Estimates presented here are under continual improvement. Historical emissions may be change in future publications as new data becomes available and methods and models are refined and improved.

Emission estimates for Solid Waste include emissions from municipal solid waste landfills, wood waste landfills and municipal solid waste composting.

0 Indicates emissions of less than 0.5 Mt CO_2 eq; truncated due to rounding

- Indicates no emissions

Table A12–4 GHG Emissions for Prince Edward Island by Canadian Economic Sector, Selected Years

	1990	2005	2012	2013	2014	2015	2016	2017
	Mt CO_2 eq							
NATIONAL GHG TOTAL	1.9	2.0	2.1	1.7	1.7	1.7	1.8	1.8
OIL AND GAS	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Upstream Oil and Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas Production and Processing	-	-	-	-	-	-	-	-
Conventional Oil Production	-	-	-	-	-	-	-	-
Conventional Light Oil Production	-	-	-	-	-	-	-	-
Conventional Heavy Oil Production	-	-	-	-	-	-	-	-
Frontier Oil Production	-	-	-	-	-	-	-	-
Oil Sands (Mining, In-situ, Upgrading)	-	-	-	-	-	-	-	-
Mining and Extraction	-	-	-	-	-	-	-	-
In-situ	-	-	-	-	-	-	-	-
Upgrading	-	-	-	-	-	-	-	-
Oil and Natural Gas Transmission	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Downstream Oil and Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum Refining	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas Distribution	-	-	-	-	-	-	-	-
ELECTRICITY	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TRANSPORTATION	**0.6**	**0.8**	**0.8**	**0.7**	**0.7**	**0.8**	**0.9**	**0.9**
Passenger Transport	0.4	0.5	0.5	0.5	0.4	0.4	0.5	0.5
Cars, Light Trucks and Motorcycles	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.5
Bus, Rail and Domestic Aviation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Freight Transport	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3
Heavy Duty Trucks, Rail	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Domestic Aviation and Marine	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other: Recreational, Commercial and Residential	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAVY INDUSTRY	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Mining	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Smelting and Refining (Non Ferrous Metals)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pulp and Paper	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iron and Steel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lime & Gypsum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chemicals & Fertilizers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BUILDINGS	**0.6**	**0.5**	**0.5**	**0.5**	**0.4**	**0.4**	**0.3**	**0.4**
Service Industry	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Residential	0.4	0.3	0.4	0.3	0.3	0.2	0.3	0.3
AGRICULTURE	**0.4**	**0.5**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**
On Farm Fuel Use	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Crop Production	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2
Animal Production	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
WASTE	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
Solid Waste	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Wastewater	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waste Incineration	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL PRODUCTION	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	**0.1**	**0.2**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
Light Manufacturing	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1
Construction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Forest Resources	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

Totals may not add up due to rounding.

National GHG emissions allocated to IPCC sectors are provided in Annex 9 of this report.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex 11 of this report.

Estimates presented here are under continual improvement. Historical emissions may be change in future publications as new data becomes available and methods and models are refined and improved.

Emission estimates for Solid Waste include emissions from municipal solid waste landfills, wood waste landfills and municipal solid waste composting.

0 Indicates emissions of less than 0.5 Mt CO_2 eq; truncated due to rounding

- Indicates no emissions

Table A12–5 GHG Emissions for New Brunswick by Canadian Economic Sector, Selected Years

	1990	2005	2012	2013	2014	2015	2016	2017
	Mt CO_2 eq							
NATIONAL GHG TOTAL	16.1	20.0	16.7	14.8	14.3	14.2	15.2	14.3
OIL AND GAS	**1.2**	**2.8**	**3.6**	**3.6**	**3.2**	**3.0**	**3.3**	**3.5**
Upstream Oil and Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Natural Gas Production and Processing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Conventional Oil Production	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Conventional Light Oil Production	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Conventional Heavy Oil Production	-	-	-	-	-	-	-	-
Frontier Oil Production	-	-	-	-	-	-	-	-
Oil Sands (Mining, In-situ, Upgrading)	-	-	-	-	-	-	-	-
Mining and Extraction	-	-	-	-	-	-	-	-
In-situ	-	-	-	-	-	-	-	-
Upgrading	-	-	-	-	-	-	-	-
Oil and Natural Gas Transmission	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Downstream Oil and Gas	1.2	2.7	3.6	3.5	3.1	3.0	3.2	3.4
Petroleum Refining	1.2	2.7	3.6	3.5	x	x	x	x
Natural Gas Distribution	-	0.0	0.0	0.0	x	x	x	x
ELECTRICITY	**6.0**	**7.8**	**3.7**	**3.8**	**4.0**	**3.6**	**4.3**	**3.6**
TRANSPORTATION	**3.8**	**4.9**	**4.9**	**3.9**	**3.7**	**3.9**	**4.3**	**3.9**
Passenger Transport	1.6	2.2	2.5	2.0	1.8	2.2	2.4	2.2
Cars, Light Trucks and Motorcycles	1.5	2.1	2.3	1.9	1.7	2.0	2.3	2.1
Bus, Rail and Domestic Aviation	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Freight Transport	1.1	2.2	2.1	1.7	1.6	1.5	1.5	1.4
Heavy Duty Trucks, Rail	0.9	1.8	1.8	1.4	1.3	1.3	1.3	1.2
Domestic Aviation and Marine	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.2
Other: Recreational, Commercial and Residential	1.0	0.5	0.3	0.2	0.2	0.3	0.3	0.3
HEAVY INDUSTRY	**1.8**	**1.2**	**1.1**	**0.9**	**0.8**	**0.9**	**0.8**	**0.8**
Mining	0.2	0.3	0.3	0.1	0.1	0.1	0.1	0.1
Smelting and Refining (Non Ferrous Metals)	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Pulp and Paper	1.3	0.7	0.5	0.5	0.4	0.5	0.4	0.3
Iron and Steel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lime & Gypsum	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Chemicals & Fertilizers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BUILDINGS	**1.8**	**1.5**	**1.9**	**1.1**	**1.2**	**1.3**	**1.2**	**1.1**
Service Industry	0.6	0.7	1.0	0.5	0.5	0.6	0.5	0.4
Residential	1.2	0.8	0.9	0.6	0.6	0.8	0.7	0.7
AGRICULTURE	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.5**	**0.6**	**0.5**
On Farm Fuel Use	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Crop Production	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2
Animal Production	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2
WASTE	**0.6**	**0.6**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
Solid Waste	0.5	0.6	0.5	0.5	0.5	0.5	0.4	0.4
Wastewater	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Waste Incineration	-	0.0	0.0	0.0	0.0	0.0	-	-
COAL PRODUCTION	**0.0**	**0.0**	**-**	**-**	**-**	**-**	**-**	**-**
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	**0.4**	**0.5**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.4**
Light Manufacturing	0.2	0.4	0.2	0.3	0.2	0.2	0.2	0.2
Construction	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Forest Resources	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Notes:

Totals may not add up due to rounding.

National GHG emissions allocated to IPCC sectors are provided in Annex 9 of this report.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex 11 of this report.

Estimates presented here are under continual improvement. Historical emissions may be change in future publications as new data becomes available and methods and models are refined and improved.

Emission estimates for Solid Waste include emissions from municipal solid waste landfills, wood waste landfills and municipal solid waste composting.

0 Indicates emissions of less than 0.5 Mt CO_2 eq; truncated due to rounding

- Indicates no emissions

Table A12–6 GHG Emissions for Quebec by Canadian Economic Sector, Selected Years

	1990	2005	2012	2013	2014	2015	2016	2017
	Mt CO_2 eq							
NATIONAL GHG TOTAL	86.1	86.5	79.7	80.3	77.9	78.1	77.7	78.0
OIL AND GAS	**3.9**	**4.4**	**2.7**	**2.7**	**2.6**	**2.8**	**2.4**	**2.1**
Upstream Oil and Gas	0.2	0.3	0.2	0.3	0.3	0.3	0.2	0.1
Natural Gas Production and Processing	-	-	-	-	-	-	-	-
Conventional Oil Production	-	-	-	-	-	-	-	-
Conventional Light Oil Production	-	-	-	-	-	-	-	-
Conventional Heavy Oil Production	-	-	-	-	-	-	-	-
Frontier Oil Production	-	-	-	-	-	-	-	-
Oil Sands (Mining, In-situ, Upgrading)	-	-	-	-	-	-	-	-
Mining and Extraction	-	-	-	-	-	-	-	-
In-situ	-	-	-	-	-	-	-	-
Upgrading	-	-	-	-	-	-	-	-
Oil and Natural Gas Transmission	0.2	0.3	0.2	0.3	0.3	0.3	0.2	0.1
Downstream Oil and Gas	3.7	4.1	2.5	2.4	2.3	2.5	2.2	2.0
Petroleum Refining	3.6	4.0	2.5	2.3	2.2	2.4	2.1	1.9
Natural Gas Distribution	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
ELECTRICITY	**1.5**	**0.7**	**0.5**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**
TRANSPORTATION	**24.7**	**31.3**	**32.9**	**32.5**	**30.7**	**31.1**	**31.9**	**31.9**
Passenger Transport	15.4	19.3	19.2	18.9	18.2	18.6	19.0	18.8
Cars, Light Trucks and Motorcycles	14.6	18.2	17.9	17.7	17.1	17.5	17.8	17.7
Bus, Rail and Domestic Aviation	0.9	1.0	1.2	1.2	1.1	1.1	1.1	1.1
Freight Transport	5.5	10.2	12.2	12.0	11.0	10.9	11.2	11.2
Heavy Duty Trucks, Rail	4.0	8.7	11.2	11.0	10.2	10.1	10.3	10.1
Domestic Aviation and Marine	1.6	1.4	0.9	1.0	0.8	0.8	0.8	1.1
Other: Recreational, Commercial and Residential	3.7	1.8	1.6	1.6	1.6	1.7	1.8	1.9
HEAVY INDUSTRY	**24.9**	**19.5**	**17.0**	**17.4**	**17.2**	**16.6**	**15.2**	**15.6**
Mining	2.1	1.5	1.9	1.9	1.7	1.6	1.6	1.2
Smelting and Refining (Non Ferrous Metals)	12.9	9.8	7.6	7.8	7.3	7.4	7.3	7.7
Pulp and Paper	4.5	2.8	1.4	1.6	1.2	1.3	1.4	1.4
Iron and Steel	1.2	0.9	1.5	2.1	2.2	1.2	1.1	1.2
Cement	2.5	2.5	2.5	2.2	2.2	2.3	2.1	2.4
Lime & Gypsum	0.5	0.9	0.9	0.7	0.8	0.8	0.8	0.8
Chemicals & Fertilizers	1.2	1.1	1.2	1.1	1.8	1.9	1.0	1.1
BUILDINGS	**13.0**	**13.2**	**10.0**	**10.2**	**10.7**	**10.9**	**11.1**	**10.9**
Service Industry	4.7	6.5	5.4	5.6	5.9	6.1	6.1	6.4
Residential	8.3	6.8	4.6	4.6	4.8	4.8	5.0	4.5
AGRICULTURE	**8.1**	**8.5**	**8.8**	**8.7**	**8.6**	**8.8**	**8.9**	**9.0**
On Farm Fuel Use	1.1	0.9	1.0	1.0	0.9	1.0	0.9	0.8
Crop Production	1.8	1.9	2.6	2.4	2.5	2.6	2.7	2.8
Animal Production	5.1	5.7	5.3	5.3	5.2	5.2	5.3	5.3
WASTE	**4.7**	**4.9**	**3.1**	**3.6**	**3.7**	**3.8**	**4.1**	**4.1**
Solid Waste	4.3	4.4	2.8	3.2	3.4	3.5	3.7	3.7
Wastewater	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Waste Incineration	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
COAL PRODUCTION	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	**5.3**	**4.1**	**4.7**	**4.9**	**4.1**	**3.8**	**3.8**	**4.2**
Light Manufacturing	3.7	2.9	3.2	3.6	2.9	2.5	2.5	2.7
Construction	1.4	1.0	1.2	1.1	1.0	1.0	1.1	1.2
Forest Resources	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.3

Notes:

Totals may not add up due to rounding.

National GHG emissions allocated to IPCC sectors are provided in Annex 9 of this report.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex 11 of this report.

Estimates presented here are under continual improvement. Historical emissions may be change in future publications as new data becomes available and methods and models are refined and improved.

Emission estimates for Solid Waste include emissions from municipal solid waste landfills, wood waste landfills and municipal solid waste composting.

0 Indicates emissions of less than 0.5 Mt CO_2 eq; truncated due to rounding

- Indicates no emissions

Table A12–7 GHG Emissions for Ontario by Canadian Economic Sector, Selected Years

	1990	2005	2012	2013	2014	2015	2016	2017
	Mt CO_2 eq							
NATIONAL GHG TOTAL	180.0	203.9	168.8	168.4	166.3	164.5	161.8	158.7
OIL AND GAS	**10.3**	**11.8**	**10.0**	**10.3**	**10.8**	**10.2**	**9.7**	**9.3**
Upstream Oil and Gas	3.3	3.9	1.5	1.8	2.3	2.3	1.9	1.4
Natural Gas Production and Processing	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2
Conventional Oil Production	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Conventional Light Oil Production	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Conventional Heavy Oil Production	-	-	-	-	-	-	-	-
Frontier Oil Production	-	-	-	-	-	-	-	-
Oil Sands (Mining, In-situ, Upgrading)	-	-	-	-	-	-	-	-
Mining and Extraction	-	-	-	-	-	-	-	-
In-situ	-	-	-	-	-	-	-	-
Upgrading	-	-	-	-	-	-	-	-
Oil and Natural Gas Transmission	3.0	3.6	1.3	1.5	2.1	2.1	1.7	1.2
Downstream Oil and Gas	7.0	7.9	8.5	8.5	8.5	7.9	7.7	7.9
Petroleum Refining	6.6	7.3	8.0	8.0	8.0	7.4	7.2	7.3
Natural Gas Distribution	0.4	0.6	0.5	0.5	0.5	0.5	0.6	0.6
ELECTRICITY	**25.9**	**33.9**	**12.8**	**9.2**	**4.9**	**5.0**	**4.6**	**2.0**
TRANSPORTATION	**41.6**	**57.1**	**53.8**	**56.4**	**54.5**	**55.5**	**55.9**	**56.1**
Passenger Transport	26.2	35.8	32.2	33.9	33.1	33.9	34.6	34.2
Cars, Light Trucks and Motorcycles	24.1	33.3	29.5	31.2	30.5	31.3	32.0	31.6
Bus, Rail and Domestic Aviation	2.1	2.5	2.7	2.7	2.6	2.6	2.6	2.6
Freight Transport	8.4	17.4	18.6	19.3	18.2	18.4	18.0	18.4
Heavy Duty Trucks, Rail	7.0	16.2	17.3	17.7	16.7	16.9	16.6	17.0
Domestic Aviation and Marine	1.4	1.2	1.3	1.5	1.5	1.5	1.4	1.4
Other: Recreational, Commercial and Residential	7.0	3.9	3.0	3.1	3.2	3.2	3.3	3.5
HEAVY INDUSTRY	**43.1**	**35.1**	**31.4**	**28.9**	**30.1**	**29.3**	**30.4**	**28.9**
Mining	1.0	0.9	1.3	1.3	1.3	1.2	1.3	1.2
Smelting and Refining (Non Ferrous Metals)	1.5	1.9	1.0	0.9	0.8	0.7	1.0	1.2
Pulp and Paper	3.2	2.1	1.9	2.0	1.8	1.7	1.6	1.5
Iron and Steel	15.0	15.1	14.8	12.4	13.7	13.0	13.7	14.1
Cement	4.5	6.4	4.8	4.4	4.4	4.2	4.2	4.5
Lime & Gypsum	1.7	1.7	1.2	1.1	1.1	1.1	1.1	1.2
Chemicals & Fertilizers	16.2	7.0	6.5	6.8	7.0	7.5	7.5	5.3
BUILDINGS	**28.0**	**36.3**	**32.9**	**35.9**	**39.0**	**37.3**	**34.6**	**35.2**
Service Industry	9.8	15.4	14.4	15.3	16.7	16.1	15.8	16.4
Residential	18.2	20.8	18.5	20.5	22.3	21.3	18.8	18.8
AGRICULTURE	**12.3**	**12.4**	**12.5**	**12.8**	**12.2**	**12.0**	**12.3**	**12.1**
On Farm Fuel Use	2.1	2.3	2.9	2.8	2.5	2.5	2.5	2.3
Crop Production	3.1	2.8	3.5	3.8	3.5	3.3	3.7	3.6
Animal Production	7.2	7.3	6.2	6.2	6.1	6.2	6.2	6.2
WASTE	**6.3**	**6.4**	**6.1**	**6.1**	**6.5**	**6.4**	**6.2**	**6.2**
Solid Waste	5.9	5.8	5.5	5.5	5.8	5.7	5.5	5.5
Wastewater	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Waste Incineration	0.1	0.3	0.2	0.2	0.3	0.3	0.3	0.3
COAL PRODUCTION	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	**12.5**	**11.1**	**9.3**	**8.9**	**8.4**	**8.8**	**8.2**	**9.0**
Light Manufacturing	9.9	8.0	6.8	6.5	6.2	6.2	5.9	6.2
Construction	2.5	2.9	2.4	2.3	2.2	2.5	2.2	2.6
Forest Resources	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1

Notes:

Totals may not add up due to rounding.

National GHG emissions allocated to IPCC sectors are provided in Annex 9 of this report.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex 11 of this report.

Estimates presented here are under continual improvement. Historical emissions may be change in future publications as new data becomes available and methods and models are refined and improved.

Emission estimates for Solid Waste include emissions from municipal solid waste landfills, wood waste landfills and municipal solid waste composting.

0 Indicates emissions of less than 0.5 Mt CO_2 eq; truncated due to rounding

- Indicates no emissions

Table A12–8 GHG Emissions for Manitoba by Canadian Economic Sector, Selected Years

	1990	2005	2012	2013	2014	2015	2016	2017
	Mt CO_2 eq							
NATIONAL GHG TOTAL	18.3	20.1	20.2	20.9	20.8	20.6	21.0	21.7
OIL AND GAS	**1.3**	**0.8**	**0.5**	**0.6**	**0.7**	**0.7**	**0.6**	**0.5**
Upstream Oil and Gas	1.3	0.8	0.4	0.5	0.7	0.7	0.6	0.5
Natural Gas Production and Processing	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Conventional Oil Production	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.3
Conventional Light Oil Production	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.3
Conventional Heavy Oil Production	-	-	-	-	-	-	-	-
Frontier Oil Production	-	-	-	-	-	-	-	-
Oil Sands (Mining, In-situ, Upgrading)	-	-	-	-	-	-	-	-
Mining and Extraction	-	-	-	-	-	-	-	-
In-situ	-	-	-	-	-	-	-	-
Upgrading	-	-	-	-	-	-	-	-
Oil and Natural Gas Transmission	1.2	0.6	0.0	0.1	0.3	0.3	0.3	0.2
Downstream Oil and Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum Refining	0.0	-	0.0	0.0	-	-	-	0.0
Natural Gas Distribution	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	**0.5**	**0.4**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
TRANSPORTATION	**5.0**	**5.5**	**7.1**	**6.9**	**7.1**	**6.9**	**7.1**	**7.2**
Passenger Transport	2.9	3.3	3.9	3.9	3.9	3.8	3.9	3.8
Cars, Light Trucks and Motorcycles	2.5	2.8	3.4	3.4	3.4	3.3	3.4	3.3
Bus, Rail and Domestic Aviation	0.4	0.5	0.5	0.5	0.5	0.4	0.5	0.5
Freight Transport	1.4	1.8	2.9	2.7	2.9	2.7	2.9	3.1
Heavy Duty Trucks, Rail	1.3	1.7	2.8	2.6	2.8	2.7	2.9	3.1
Domestic Aviation and Marine	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1
Other: Recreational, Commercial and Residential	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3
HEAVY INDUSTRY	**1.3**	**1.5**	**1.2**	**1.4**	**1.2**	**1.3**	**1.3**	**1.2**
Mining	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Smelting and Refining (Non Ferrous Metals)	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.1
Pulp and Paper	0.2	0.2	0.0	0.0	0.1	0.1	0.1	0.0
Iron and Steel	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Cement	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lime & Gypsum	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Chemicals & Fertilizers	0.3	0.9	0.8	1.0	0.8	0.9	0.9	0.9
BUILDINGS	**3.1**	**2.7**	**2.5**	**2.9**	**3.0**	**2.6**	**2.6**	**2.9**
Service Industry	1.4	1.6	1.4	1.6	1.7	1.5	1.5	1.7
Residential	1.7	1.1	1.1	1.3	1.3	1.1	1.1	1.2
AGRICULTURE	**5.8**	**7.7**	**7.0**	**7.5**	**7.1**	**7.3**	**7.4**	**7.6**
On Farm Fuel Use	1.1	1.4	1.1	1.0	1.0	0.9	0.9	0.9
Crop Production	2.2	2.0	2.5	3.1	2.8	3.0	3.2	3.3
Animal Production	2.5	4.3	3.4	3.4	3.3	3.3	3.3	3.4
WASTE	**0.6**	**0.8**	**0.8**	**0.8**	**0.7**	**0.7**	**0.8**	**0.8**
Solid Waste	0.6	0.8	0.8	0.7	0.7	0.7	0.7	0.7
Wastewater	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waste Incineration	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL PRODUCTION	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	**0.6**	**0.8**	**1.0**	**0.8**	**0.8**	**1.0**	**1.0**	**1.3**
Light Manufacturing	0.4	0.5	0.7	0.5	0.6	0.8	0.8	0.9
Construction	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3
Forest Resources	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

Totals may not add up due to rounding.

National GHG emissions allocated to IPCC sectors are provided in Annex 9 of this report.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex 11 of this report.

Estimates presented here are under continual improvement. Historical emissions may be change in future publications as new data becomes available and methods and models are refined and improved.

Emission estimates for Solid Waste include emissions from municipal solid waste landfills, wood waste landfills and municipal solid waste composting.

0 Indicates emissions of less than 0.5 Mt CO_2 eq; truncated due to rounding

- Indicates no emissions

Table A12–9 GHG Emissions for Saskatchewan by Canadian Economic Sector, Selected Years

	1990	2005	2012	2013	2014	2015	2016	2017
	Mt CO_2 eq							
NATIONAL GHG TOTAL	44.4	68.0	70.6	73.4	76.5	78.7	75.7	77.9
OIL AND GAS	**11.9**	**24.4**	**22.0**	**23.2**	**26.6**	**27.3**	**24.6**	**25.3**
Upstream Oil and Gas	10.7	23.3	20.6	21.8	25.2	25.7	23.0	23.7
Natural Gas Production and Processing	2.1	3.8	3.3	3.2	3.3	3.2	3.4	3.5
Conventional Oil Production	6.2	14.7	12.0	13.3	16.5	17.4	14.5	15.6
Conventional Light Oil Production	1.6	2.6	4.6	5.9	7.7	8.2	7.0	7.7
Conventional Heavy Oil Production	4.6	12.1	7.5	7.5	8.8	9.1	7.5	7.9
Frontier Oil Production	-	-	-	-	-	-	-	-
Oil Sands (Mining, In-situ, Upgrading)	0.0	2.5	2.8	2.7	2.5	2.6	2.7	2.6
Mining and Extraction	-	-	-	-	-	-	-	-
In-situ	-	-	-	-	-	-	-	-
Upgrading	0.0	2.5	2.8	2.7	2.5	2.6	2.7	2.6
Oil and Natural Gas Transmission	2.4	2.3	2.5	2.5	2.8	2.5	2.3	2.1
Downstream Oil and Gas	1.2	1.1	1.4	1.4	1.5	1.6	1.6	1.6
Petroleum Refining	0.7	0.8	1.3	1.2	1.3	1.4	1.4	1.4
Natural Gas Distribution	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2
ELECTRICITY	**11.1**	**14.8**	**14.7**	**14.0**	**14.2**	**15.1**	**15.0**	**15.5**
TRANSPORTATION	**5.3**	**6.2**	**9.3**	**10.2**	**10.2**	**10.7**	**10.7**	**10.7**
Passenger Transport	3.0	3.4	4.7	4.9	4.6	5.1	5.2	5.1
Cars, Light Trucks and Motorcycles	2.8	3.2	4.4	4.6	4.3	4.8	4.9	4.8
Bus, Rail and Domestic Aviation	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Freight Transport	1.6	2.5	4.2	4.9	5.1	5.2	5.1	5.2
Heavy Duty Trucks, Rail	1.6	2.4	4.2	4.9	5.1	5.2	5.1	5.2
Domestic Aviation and Marine	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other: Recreational, Commercial and Residential	0.6	0.4	0.4	0.4	0.4	0.5	0.4	0.4
HEAVY INDUSTRY	**1.6**	**2.2**	**4.0**	**3.6**	**3.3**	**3.4**	**3.2**	**3.1**
Mining	1.0	1.3	3.0	2.6	2.6	2.6	2.4	2.4
Smelting and Refining (Non Ferrous Metals)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pulp and Paper	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Iron and Steel	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Cement	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lime & Gypsum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chemicals & Fertilizers	0.2	0.6	0.7	0.8	0.5	0.6	0.6	0.5
BUILDINGS	**3.2**	**3.3**	**3.1**	**3.3**	**3.3**	**3.1**	**3.3**	**3.6**
Service Industry	1.0	1.6	1.3	1.4	1.4	1.4	1.5	1.7
Residential	2.1	1.6	1.8	1.9	1.9	1.8	1.7	1.9
AGRICULTURE	**10.2**	**16.0**	**16.1**	**17.6**	**17.2**	**17.5**	**17.6**	**18.1**
On Farm Fuel Use	2.4	3.5	4.0	4.5	4.8	4.7	4.5	4.7
Crop Production	3.5	4.6	5.9	7.0	6.4	6.8	7.0	7.4
Animal Production	4.3	7.9	6.2	6.2	6.0	5.9	6.0	6.0
WASTE	**0.6**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**
Solid Waste	0.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Wastewater	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waste Incineration	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL PRODUCTION	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	**0.6**	**0.4**	**0.7**	**0.7**	**0.9**	**0.8**	**0.7**	**0.7**
Light Manufacturing	0.5	0.2	0.5	0.4	0.6	0.5	0.4	0.5
Construction	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2
Forest Resources	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

Totals may not add up due to rounding.

National GHG emissions allocated to IPCC sectors are provided in Annex 9 of this report.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex 11 of this report.

Estimates presented here are under continual improvement. Historical emissions may be change in future publications as new data becomes available and methods and models are refined and improved.

Emission estimates for Solid Waste include emissions from municipal solid waste landfills, wood waste landfills and municipal solid waste composting.

0 Indicates emissions of less than 0.5 Mt CO_2 eq; truncated due to rounding

- Indicates no emissions

Table A12–10 **GHG Emissions for Alberta by Canadian Economic Sector, Selected Years**

	1990	2005	2012	2013	2014	2015	2016	2017
	Mt CO_2 eq							
NATIONAL GHG TOTAL	172.6	231.1	261.3	271.4	275.6	274.8	264.0	272.8
OIL AND GAS	**67.5**	**96.9**	**119.3**	**127.1**	**131.1**	**131.1**	**129.8**	**137.1**
Upstream Oil and Gas	63.9	92.2	114.7	121.8	125.7	125.6	124.0	130.8
Natural Gas Production and Processing	28.8	42.7	38.3	39.8	38.8	37.6	36.4	35.0
Conventional Oil Production	15.8	12.5	16.3	16.8	18.5	16.4	13.4	13.1
Conventional Light Oil Production	8.7	7.8	8.5	9.2	10.7	9.8	8.4	9.1
Conventional Heavy Oil Production	7.1	4.7	7.8	7.6	7.7	6.6	5.0	4.1
Frontier Oil Production	-	-	-	-	-	-	-	-
Oil Sands (Mining, In-situ, Upgrading)	15.4	33.0	57.6	62.0	65.3	68.2	69.8	77.9
Mining and Extraction	4.5	8.7	12.1	13.0	13.9	14.5	14.5	16.4
In-situ	4.8	11.3	25.0	27.5	30.0	33.4	37.4	41.7
Upgrading	6.2	13.0	20.5	21.5	21.4	20.3	17.9	19.9
Oil and Natural Gas Transmission	3.9	4.0	2.5	3.2	3.1	3.4	4.4	4.7
Downstream Oil and Gas	3.6	4.7	4.6	5.2	5.5	5.6	5.8	6.4
Petroleum Refining	3.2	4.4	4.5	5.1	5.3	5.4	5.6	6.2
Natural Gas Distribution	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2
ELECTRICITY	**39.6**	**48.8**	**43.5**	**44.7**	**45.8**	**47.8**	**42.6**	**44.3**
TRANSPORTATION	**17.0**	**25.1**	**31.7**	**33.3**	**34.4**	**32.2**	**30.8**	**30.7**
Passenger Transport	9.1	10.6	11.2	12.0	12.5	12.1	12.6	12.3
Cars, Light Trucks and Motorcycles	8.0	9.1	9.6	10.3	10.8	10.4	11.0	10.8
Bus, Rail and Domestic Aviation	1.1	1.4	1.6	1.7	1.7	1.6	1.5	1.5
Freight Transport	5.8	13.3	19.5	20.4	20.8	19.0	17.2	17.5
Heavy Duty Trucks, Rail	5.5	13.1	19.3	20.2	20.6	18.9	17.1	17.3
Domestic Aviation and Marine	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other: Recreational, Commercial and Residential	2.1	1.2	0.9	1.0	1.1	1.1	1.0	0.9
HEAVY INDUSTRY	**12.4**	**17.1**	**18.0**	**18.7**	**18.0**	**18.1**	**16.9**	**15.6**
Mining	0.2	0.3	0.4	0.5	0.5	0.6	0.5	0.4
Smelting and Refining (Non Ferrous Metals)	0.4	0.6	0.0	0.8	0.7	0.7	0.6	0.5
Pulp and Paper	0.5	0.8	0.8	0.8	1.0	1.0	1.0	1.2
Iron and Steel	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Cement	1.2	1.8	1.6	1.5	1.4	1.5	1.3	1.5
Lime & Gypsum	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Chemicals & Fertilizers	9.8	13.2	15.0	14.8	14.0	14.0	13.2	11.8
BUILDINGS	**12.1**	**16.2**	**22.8**	**20.3**	**19.3**	**18.7**	**17.7**	**19.0**
Service Industry	5.3	8.5	14.0	11.4	10.0	10.3	10.3	10.2
Residential	6.9	7.7	8.8	8.9	9.3	8.4	7.3	8.8
AGRICULTURE	**16.5**	**22.7**	**21.0**	**21.6**	**21.4**	**21.3**	**20.8**	**20.9**
On Farm Fuel Use	2.9	3.5	3.3	3.3	3.2	3.1	2.7	2.8
Crop Production	3.7	4.0	5.6	6.1	6.1	6.2	5.9	5.9
Animal Production	9.9	15.2	12.1	12.2	12.1	12.1	12.2	12.1
WASTE	**1.2**	**1.7**	**1.7**	**1.8**	**1.8**	**1.8**	**1.8**	**1.9**
Solid Waste	1.1	1.5	1.5	1.6	1.6	1.7	1.7	1.7
Wastewater	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Waste Incineration	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
COAL PRODUCTION	**0.6**	**0.5**	**0.7**	**0.8**	**0.6**	**0.7**	**0.6**	**0.4**
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	**5.6**	**2.2**	**2.7**	**3.1**	**3.1**	**2.9**	**3.0**	**2.7**
Light Manufacturing	4.8	1.4	2.1	2.4	2.4	2.2	2.3	1.9
Construction	0.7	0.7	0.5	0.5	0.6	0.5	0.6	0.7
Forest Resources	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.2

Notes:

Totals may not add up due to rounding.

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Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex 11 of this report.

Estimates presented here are under continual improvement. Historical emissions may be change in future publications as new data becomes available and methods and models are refined and improved.

Emission estimates for Solid Waste include emissions from municipal solid waste landfills, wood waste landfills and municipal solid waste composting.

0 Indicates emissions of less than 0.5 Mt CO_2 eq; truncated due to rounding

- Indicates no emissions

Table A12–11 GHG Emissions for British Columbia by Canadian Economic Sector, Selected Years

	1990	2005	2012	2013	2014	2015	2016	2017
	Mt CO_2 eq							
NATIONAL GHG TOTAL	51.6	63.1	60.4	61.0	60.5	59.5	61.3	62.1
OIL AND GAS	**7.6**	**11.9**	**14.2**	**14.5**	**14.5**	**13.5**	**13.7**	**13.4**
Upstream Oil and Gas	6.2	11.3	13.4	13.8	13.8	12.7	12.8	12.7
Natural Gas Production and Processing	3.9	9.2	11.8	11.9	12.0	10.7	10.6	10.5
Conventional Oil Production	0.8	0.7	0.6	0.6	0.6	0.5	0.5	0.5
Conventional Light Oil Production	0.8	0.7	0.6	0.6	0.6	0.5	0.5	0.5
Conventional Heavy Oil Production	-	-	-	-	-	-	-	-
Frontier Oil Production	-	-	-	-	-	-	-	-
Oil Sands (Mining, In-situ, Upgrading)	-	-	-	-	-	-	-	-
Mining and Extraction	-	-	-	-	-	-	-	-
In-situ	-	-	-	-	-	-	-	-
Upgrading	-	-	-	-	-	-	-	-
Oil and Natural Gas Transmission	1.5	1.4	1.0	1.4	1.2	1.5	1.6	1.6
Downstream Oil and Gas	1.5	0.6	0.8	0.7	0.7	0.8	0.9	0.8
Petroleum Refining	1.3	0.5	0.7	0.6	0.6	0.7	0.8	0.6
Natural Gas Distribution	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
ELECTRICITY	**0.9**	**1.0**	**0.3**	**0.4**	**0.3**	**0.3**	**0.2**	**0.2**
TRANSPORTATION	**15.7**	**21.5**	**21.3**	**21.7**	**21.6**	**22.1**	**22.6**	**23.0**
Passenger Transport	7.9	10.3	9.3	9.6	9.8	10.3	11.2	11.0
Cars, Light Trucks and Motorcycles	6.7	8.8	8.0	8.3	8.5	8.9	9.9	9.6
Bus, Rail and Domestic Aviation	1.2	1.5	1.3	1.3	1.3	1.3	1.4	1.4
Freight Transport	5.5	9.9	11.0	11.1	10.8	10.7	10.3	11.0
Heavy Duty Trucks, Rail	4.3	7.2	8.2	8.7	8.7	8.7	9.1	9.1
Domestic Aviation and Marine	1.2	2.7	2.8	2.3	2.1	2.0	1.1	1.8
Other: Recreational, Commercial and Residential	2.3	1.4	1.0	1.0	1.1	1.1	1.1	1.0
HEAVY INDUSTRY	**8.7**	**7.1**	**5.7**	**5.4**	**5.7**	**5.7**	**6.3**	**6.4**
Mining	0.5	0.3	0.2	0.3	0.3	0.4	0.3	0.4
Smelting and Refining (Non Ferrous Metals)	2.0	1.7	1.4	1.3	1.0	0.9	1.3	1.2
Pulp and Paper	4.1	1.9	1.9	1.8	2.0	1.9	2.0	2.1
Iron and Steel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cement	1.0	2.0	1.5	1.5	1.8	2.0	2.1	2.2
Lime & Gypsum	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.1
Chemicals & Fertilizers	0.9	0.9	0.4	0.3	0.3	0.3	0.3	0.3
BUILDINGS	**7.7**	**8.5**	**8.1**	**8.0**	**8.0**	**7.4**	**7.7**	**8.2**
Service Industry	3.1	3.8	3.7	3.6	3.7	3.3	3.4	3.6
Residential	4.6	4.7	4.4	4.4	4.2	4.2	4.2	4.7
AGRICULTURE	**2.8**	**3.1**	**2.7**	**2.8**	**2.8**	**2.8**	**3.1**	**3.1**
On Farm Fuel Use	0.6	0.3	0.6	0.6	0.6	0.6	0.7	0.7
Crop Production	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.4
Animal Production	1.8	2.4	1.9	1.9	1.9	2.0	2.0	2.0
WASTE	**3.9**	**3.9**	**3.8**	**3.7**	**3.6**	**3.6**	**3.6**	**3.6**
Solid Waste	3.8	3.7	3.6	3.5	3.5	3.5	3.5	3.5
Wastewater	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Waste Incineration	0.0	-	-	-	-	-	0.0	0.0
COAL PRODUCTION	**1.8**	**1.7**	**2.0**	**2.0**	**1.8**	**1.6**	**1.8**	**1.6**
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	**2.6**	**4.3**	**2.3**	**2.5**	**2.2**	**2.3**	**2.3**	**2.6**
Light Manufacturing	1.4	3.1	1.5	1.6	1.4	1.4	1.3	1.4
Construction	0.6	0.5	0.4	0.4	0.3	0.4	0.6	0.6
Forest Resources	0.5	0.7	0.4	0.5	0.4	0.5	0.4	0.5

Notes:

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Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex 11 of this report.

Estimates presented here are under continual improvement. Historical emissions may be change in future publications as new data becomes available and methods and models are refined and improved.

Emission estimates for Solid Waste include emissions from municipal solid waste landfills, wood waste landfills and municipal solid waste composting.

0 Indicates emissions of less than 0.5 Mt CO_2 eq; truncated due to rounding

- Indicates no emissions

Table A12–12 **GHG Emissions for Yukon by Canadian Economic Sector, Selected Years**

	1990	2005	2012	2013	2014	2015	2016	2017
	Mt CO_2 eq							
NATIONAL GHG TOTAL	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.5
OIL AND GAS	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Upstream Oil and Gas	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas Production and Processing	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Conventional Oil Production	-	-	-	-	-	-	-	-
Conventional Light Oil Production	-	-	-	-	-	-	-	-
Conventional Heavy Oil Production	-	-	-	-	-	-	-	-
Frontier Oil Production	-	-	-	-	-	-	-	-
Oil Sands (Mining, In-situ, Upgrading)	-	-	-	-	-	-	-	-
Mining and Extraction	-	-	-	-	-	-	-	-
In-situ	-	-	-	-	-	-	-	-
Upgrading	-	-	-	-	-	-	-	-
Oil and Natural Gas Transmission	-	-	-	-	-	-	-	-
Downstream Oil and Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum Refining	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas Distribution	-	-	-	-	-	-	-	-
ELECTRICITY	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
TRANSPORTATION	**0.3**	**0.3**	**0.5**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**
Passenger Transport	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Cars, Light Trucks and Motorcycles	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Bus, Rail and Domestic Aviation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Freight Transport	0.1	0.1	0.3	0.2	0.2	0.2	0.2	0.2
Heavy Duty Trucks, Rail	0.1	0.1	0.3	0.2	0.2	0.2	0.2	0.2
Domestic Aviation and Marine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other: Recreational, Commercial and Residential	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAVY INDUSTRY	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Mining	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Smelting and Refining (Non Ferrous Metals)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pulp and Paper	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iron and Steel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lime & Gypsum	0.0	-	0.0	-	0.0	0.0	-	-
Chemicals & Fertilizers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BUILDINGS	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**
Service Industry	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Residential	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AGRICULTURE	**0.0**	**0.0**	**-**	**-**	**-**	**-**	**0.0**	**-**
On Farm Fuel Use	0.0	0.0	-	-	-	-	0.0	-
Crop Production	-	-	-	-	-	-	-	-
Animal Production	-	-	-	-	-	-	-	-
WASTE	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Solid Waste	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wastewater	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waste Incineration	-	0.0	-	-	-	-	-	-
COAL PRODUCTION	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Light Manufacturing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Forest Resources	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

Totals may not add up due to rounding.

National GHG emissions allocated to IPCC sectors are provided in Annex 9 of this report.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex 11 of this report.

Estimates presented here are under continual improvement. Historical emissions may be change in future publications as new data becomes available and methods and models are refined and improved.

Emission estimates for Solid Waste include emissions from municipal solid waste landfills, wood waste landfills and municipal solid waste composting.

0 Indicates emissions of less than 0.5 Mt CO_2 eq; truncated due to rounding

- Indicates no emissions

Table A12–13 **GHG Emissions for Northwest Territories by Canadian Economic Sector, Selected Years**

	1999	2005	2012	2013	2014	2015	2016	2017
	Mt CO_2 eq							
NATIONAL GHG TOTAL	1.2	1.6	1.5	1.3	1.5	1.7	1.6	1.3
OIL AND GAS	**0.2**	**0.2**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Upstream Oil and Gas	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0
Natural Gas Production and Processing	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Conventional Oil Production	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Conventional Light Oil Production	-	-	-	-	-	-	-	-
Conventional Heavy Oil Production	-	-	-	-	-	-	-	-
Frontier Oil Production	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Oil Sands (Mining, In-situ, Upgrading)	-	-	-	-	-	-	-	-
Mining and Extraction	-	-	-	-	-	-	-	-
In-situ	-	-	-	-	-	-	-	-
Upgrading	-	-	-	-	-	-	-	-
Oil and Natural Gas Transmission	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Downstream Oil and Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum Refining	-	-	-	-	-	-	-	-
Natural Gas Distribution	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	**0.1**	**X**	**X**	**X**	**0.1**	**0.1**	**0.1**	**0.1**
TRANSPORTATION	**0.4**	**0.7**	**0.6**	**0.6**	**0.7**	**0.8**	**0.8**	**0.7**
Passenger Transport	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Cars, Light Trucks and Motorcycles	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Bus, Rail and Domestic Aviation	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Freight Transport	0.2	0.4	0.4	0.4	0.5	0.6	0.6	0.5
Heavy Duty Trucks, Rail	0.2	0.4	0.4	0.4	0.5	0.6	0.6	0.5
Domestic Aviation and Marine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other: Recreational, Commercial and Residential	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAVY INDUSTRY	**0.2**	**0.3**	**0.4**	**0.3**	**0.3**	**0.4**	**0.3**	**0.3**
Mining	0.2	0.3	0.4	0.3	0.3	0.4	0.3	0.3
Smelting and Refining (Non Ferrous Metals)	-	0.0	-	-	0.0	0.0	-	-
Pulp and Paper	-	0.0	-	-	0.0	0.0	-	-
Iron and Steel	-	0.0	-	-	0.0	0.0	-	-
Cement	-	0.0	-	-	0.0	0.0	-	-
Lime & Gypsum	-	0.0	-	-	0.0	0.0	-	-
Chemicals & Fertilizers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BUILDINGS	**0.3**	**0.2**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.1**
Service Industry	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1
Residential	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
AGRICULTURE	**0.0**	**0.0**	**-**	**-**	**-**	**-**	**-**	**-**
On Farm Fuel Use	0.0	0.0	-	-	-	-	-	-
Crop Production	-	-	-	-	-	-	-	-
Animal Production	-	-	-	-	-	-	-	-
WASTE	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Solid Waste	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wastewater	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waste Incineration	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL PRODUCTION	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	**0.0**	**X**	**X**	**X**	**0.0**	**0.0**	**0.0**	**0.0**
Light Manufacturing	0.0	x	x	x	0.0	0.0	0.0	0.0
Construction	0.0	x	x	x	0.0	0.0	0.0	0.0
Forest Resources	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

Totals may not add up due to rounding.

National GHG emissions allocated to IPCC sectors are provided in Annex 9 of this report.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex 11 of this report.

Estimates presented here are under continual improvement. Historical emissions may be change in future publications as new data becomes available and methods and models are refined and improved.

Emission estimates for Solid Waste include emissions from municipal solid waste landfills, wood waste landfills and municipal solid waste composting.

0 Indicates emissions of less than 0.5 Mt CO_2 eq; truncated due to rounding

- Indicates no emissions

Table A12–14 GHG Emissions for Nunavut by Canadian Economic Sector, Selected Years

	1999	2005	2012	2013	2014	2015	2016	2017
	Mt CO_2 eq							
NATIONAL GHG TOTAL	0.3	0.4	0.5	0.7	0.7	0.6	0.6	0.6
OIL AND GAS	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Upstream Oil and Gas	-	-	-	-	-	-	-	-
Natural Gas Production and Processing	-	-	-	-	-	-	-	-
Conventional Oil Production	-	-	-	-	-	-	-	-
Conventional Light Oil Production	-	-	-	-	-	-	-	-
Conventional Heavy Oil Production	-	-	-	-	-	-	-	-
Frontier Oil Production	-	-	-	-	-	-	-	-
Oil Sands (Mining, In-situ, Upgrading)	-	-	-	-	-	-	-	-
Mining and Extraction	-	-	-	-	-	-	-	-
In-situ	-	-	-	-	-	-	-	-
Upgrading	-	-	-	-	-	-	-	-
Oil and Natural Gas Transmission	-	-	-	-	-	-	-	-
Downstream Oil and Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum Refining	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas Distribution	-	-	-	-	-	-	-	-
ELECTRICITY	**0.0**	**X**	**X**	**X**	**0.1**	**0.1**	**0.1**	**0.1**
TRANSPORTATION	**0.1**	**0.3**	**0.4**	**0.5**	**0.5**	**0.4**	**0.4**	**0.4**
Passenger Transport	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2
Cars, Light Trucks and Motorcycles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bus, Rail and Domestic Aviation	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Freight Transport	0.0	0.1	0.2	0.3	0.3	0.3	0.2	0.2
Heavy Duty Trucks, Rail	0.0	0.1	0.2	0.2	0.2	0.1	0.2	0.2
Domestic Aviation and Marine	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0
Other: Recreational, Commercial and Residential	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAVY INDUSTRY	**0.1**	**0.0**	**0.1**	**0.1**	**0.0**	**0.0**	**0.1**	**0.0**
Mining	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0
Smelting and Refining (Non Ferrous Metals)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pulp and Paper	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iron and Steel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lime & Gypsum	-	-	-	-	-	-	-	-
Chemicals & Fertilizers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BUILDINGS	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Service Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Residential	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AGRICULTURE	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
On Farm Fuel Use	-	-	-	-	-	-	-	-
Crop Production	-	-	-	-	-	-	-	-
Animal Production	-	-	-	-	-	-	-	-
WASTE	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Solid Waste	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wastewater	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waste Incineration	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL PRODUCTION	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	**0.0**	**X**	**X**	**X**	**0.0**	**0.0**	**0.0**	**0.0**
Light Manufacturing	0.0	x	x	x	0.0	0.0	0.0	0.0
Construction	0.0	x	x	x	0.0	0.0	0.0	0.0
Forest Resources	-	-	-	-	-	-	-	-

Notes:

Totals may not add up due to rounding.

National GHG emissions allocated to IPCC sectors are provided in Annex 9 of this report.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex 11 of this report.

Estimates presented here are under continual improvement. Historical emissions may be change in future publications as new data becomes available and methods and models are refined and improved.

Emission estimates for Solid Waste include emissions from municipal solid waste landfills, wood waste landfills and municipal solid waste composting.

0 Indicates emissions of less than 0.5 Mt CO_2 eq; truncated due to rounding

- Indicates no emissions

Table A12–15 **GHG Emissions for Northwest Territories & Nunavut by Canadian Economic Sector, 1990–1998**

	1990	1991	1992	1993	1994	1995	1996	1997	1998
	Mt CO_2 eq								
NATIONAL GHG TOTAL	1.6	1.6	1.4	1.7	1.8	2.0	1.9	1.7	1.5
OIL AND GAS	**0.4**	**0.3**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.1**	**0.1**
Upstream Oil and Gas	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1
Natural Gas Production and Processing	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Conventional Oil Production	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1
Conventional Light Oil Production	-	-	-	-	-	-	-	-	-
Conventional Heavy Oil Production	-	-	-	-	-	-	-	-	-
Frontier Oil Production	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1
Oil Sands (Mining, In-situ, Upgrading)	-	-	-	-	-	-	-	-	-
Mining and Extraction	-	-	-	-	-	-	-	-	-
In-situ	-	-	-	-	-	-	-	-	-
Upgrading	-	-	-	-	-	-	-	-	-
Oil and Natural Gas Transmission	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Downstream Oil and Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum Refining	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas Distribution	-	-	-	-	-	-	-	-	-
ELECTRICITY	**0.2**	**0.2**	**0.1**	**0.1**	**0.1**	**0.2**	**0.1**	**0.1**	**0.2**
TRANSPORTATION	**0.5**	**0.4**	**0.4**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.6**
Passenger Transport	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Cars, Light Trucks and Motorcycles	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Bus, Rail and Domestic Aviation	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Freight Transport	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
Heavy Duty Trucks, Rail	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2
Domestic Aviation and Marine	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0
Other: Recreational, Commercial and Residential	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1
HEAVY INDUSTRY	**0.1**	**0.1**	**0.1**	**0.1**	**0.2**	**0.3**	**0.4**	**0.3**	**0.3**
Mining	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.3	0.3
Smelting and Refining (Non Ferrous Metals)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pulp and Paper	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iron and Steel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lime & Gypsum	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-
Chemicals & Fertilizers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BUILDINGS	**0.4**	**0.6**	**0.6**	**0.6**	**0.7**	**0.7**	**0.6**	**0.6**	**0.3**
Service Industry	0.3	0.4	0.4	0.4	0.5	0.6	0.4	0.4	0.2
Residential	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1
AGRICULTURE	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**-**	**0.0**	**0.0**
On Farm Fuel Use	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Crop Production	-	-	-	-	-	-	-	-	-
Animal Production	-	-	-	-	-	-	-	-	-
WASTE	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Solid Waste	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wastewater	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waste Incineration	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL PRODUCTION	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
LIGHT MANUFACTURING, CONSTRUCTION & FOREST RESOURCES	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Light Manufacturing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Forest Resources	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

Totals may not add up due to rounding.

National GHG emissions allocated to IPCC sectors are provided in Annex 9 of this report.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex 11 of this report.

Estimates presented here are under continual improvement. Historical emissions may be change in future publications as new data becomes available and methods and models are refined and improved.

Emission estimates for Solid Waste include emissions from municipal solid waste landfills, wood waste landfills and municipal solid waste composting.

0 Indicates emissions of less than 0.5 Mt CO_2 eq; truncated due to rounding

- Indicates no emissions

Annex 13

ELECTRICITY IN CANADA: SUMMARY AND INTENSITY TABLES

This annex presents detailed greenhouse gas (GHG) information related to the generation of electricity by the Public Electricity and Heat Production category (IPCC Category 1.A.1.a), on a national and provincial level.

The Canadian electricity generation industry produces electricity by transforming the energy in falling water, coal, natural gas, refined petroleum products (RPPs), other miscellaneous fuels, biomass, nuclear, wind and solar resources. The process of supplying electricity to the public involves not only power generation at the plant, but also distribution through the electricity grid. The efficiency of the transmission system has an impact on the amount of electricity available to consumers. GHG emission estimates and electricity generation values are therefore based on activities that occur at the generating plant, and efforts have been made to include the impact of the transmission and distribution infrastructure (including sulphur hexafluoride (SF_6) emissions associated with switchgear and other electrical equipment, which is accounted for in the Industrial Processes and Product Use sector).

The electricity generation industry in Canada is composed of entities whose main activity is the production of electricity (main activity producers) and those who generate either partially or wholly for their own use (autoproducers). Main activity producers sell their electricity to the grid, can be either public or private generators and are reported under North American Industrial Classification System (NAICS) code 22111. Autoproducers are generally private companies that are generating electricity either to feed their operations or as a by-product of their operation. They may sell some or all of their electricity to the grid. Any industry that generates electricity, but whose main business is something other than electric power generation, is reported under the NAICS code associated with their primary business activity. However, in some cases, a company may have divided their operations so that the electric power generation is a separate business entity (even if the operations are on the same site). In this case, the electric power generation is included under the Public Electricity and Heat Production category.

The analysis in this section only includes main activity producers. This analysis relies on a variety of data sources; fuel consumption and electricity production data are published by Statistics Canada in the *Report on Energy Supply and Demand in Canada* (RESD) (Statistics Canada 57-003-X), in the publication *Electric Power Generation, Transmission and Distribution* (EPGTD) (Statistics Canada 57-202-X) and online via Statistics Canada (StatCan) Data Tables 25-10-0019-01, 25-10-0020-01 and 25-10-0021-01 (formerly CANSIM Tables 127-0006,127-0007 and 127-0008).

A "generation intensity" indicator is derived to reflect the GHG emissions intensity of electricity as it is delivered to the electricity grid. Electricity generation intensity values were derived for each fuel type using GHG emission estimates and electricity generation data. The methodology used to develop the GHG emissions is discussed in Chapter 3 and Annex 3.1 of this report. GHG emissions are based on the total fuel consumed by the public utility sector, as provided in the RESD,[1] while generation data are from StatCan Data Tables (2005–2017) and the EPGTD publication (1990–2004).

A "consumption intensity" indicator was also derived to reflect the GHG emissions intensity of electricity as it is delivered to the consumer. Accordingly, electric energy losses (mainly) in transmission and distribution are subtracted from overall total electricity generation, while SF_6 emissions associated with equipment used in electricity transmission and distribution are added to overall total GHG emissions. The electric energy losses in transmission, distribution and anywhere else are taken to be the utility sector's

1 Occasionally, Statistics Canada revises some of its historic data, which can affect the values provided in Table A13–1 to Table A13–14.

share of "unallocated energy," as presented in Table A13–1 to Table A13–14 and calculated from data provided by StatCan Data Table 25-10-0021-01. Likewise, the SF_6 emission values are based on the electric utility sector's share of total SF_6 emissions from equipment used in electricity transmission and distribution.

Electricity intensity values for Canada, the provinces and the territories are provided in Table A13–1 to Table A13–14.

Table A13–1 **Electricity Generation and GHG Emission Details for Canada[1]**

	1990	2000	2005	2012	2013	2014	2015	2016	2017[2]
Greenhouse Gas Emissions[3]									
	kt CO_2 equivalent								
Combustion	**94 300**	**132 000**	**125 000**	**91 000**	**87 200**	**84 300**	**87 300**	**82 000**	**79 100**
Coal	80 200	109 000	97 900	63 100	63 600	60 800	62 700	58 400	57 900
Natural Gas	2 720	13 800	15 400	23 900	19 300	18 600	19 300	18 300	16 300
Other Fuels[4]	11 300	9 400	11 300	3 980	4 280	4 930	5 370	5 300	4 890
Other Emissions[5]	**0**	**27**	**52**	**82**	**63**	**73**	**87**	**80**	**80**
Overall Total[6,7]	**94 300**	**132 000**	**125 000**	**91 000**	**87 200**	**84 400**	**87 400**	**82 000**	**79 200**
Electricity Generation[8,9]									
	GWh								
Combustion[10]	**101 000**	**146 000**	**140 000**	**107 000**	**104 000**	**110 000**	**108 000**	**106 000**	**99 000**
Coal	82 200	106 000	93 900	60 200	60 900	61 600	57 800	58 000	55 900
Natural Gas	4 140	26 600	29 800	39 100	35 600	40 000	41 200	39 200	35 000
Other Fuels	14 800	13 400	16 700	7 460	7 900	8 640	8 560	9 080	8 260
Refined Petroleum Products	14 700	10 600	10 800	2 320	2 160	3 170	3 550	3 450	3 210
Biomass	14	1 830	1 780	1 990	2 050	2 030	1 980	2 180	2 140
Other	91	960	4 100	3 100	3 700	3 400	3 000	3 500	2 900
Nuclear	**68 800**	**68 700**	**86 800**	**89 500**	**97 600**	**101 200**	**96 000**	**95 400**	**95 400**
Hydro	**263 000**	**323 000**	**327 000**	**345 000**	**357 000**	**348 000**	**345 000**	**353 000**	**362 000**
Other Renewables[11]	**26**	**264**	**1 580**	**11 500**	**11 400**	**12 900**	**27 500**	**29 500**	**28 900**
Other Generation[12,13]	**0**	**0**	**32**	**10 260**	**9 550**	**2 240**	**140**	**130**	**200**
Overall Total[7]	**433 000**	**539 000**	**556 000**	**563 000**	**580 000**	**575 000**	**576 000**	**584 000**	**586 000**
Greenhouse Gas Intensity[14]									
	g GHG / kWh electricity generated								
CO_2 intensity (g CO_2 / kWh)	220	240	220	160	150	150	150	140	130
CH_4 intensity (g CH_4 / kWh)	0	0	0	0	0	0	0	0	0
N_2O intensity (g N_2O / kWh)	0	0	0	0	0	0	0	0	0
Generation Intensity (g CO_2 eq / kWh)[7]	**220**	**240**	**220**	**160**	**150**	**150**	**150**	**140**	**130**
Unallocated Energy (GWh)[15,16]	31 000	42 000	34 000	42 000	38 000	28 000	13 000	17 000	21 000
SF_6 Emissions (kt CO_2 eq)[17]	200	200	160	190	220	130	190	190	140
Consumption Intensity (g CO_2 eq / kWh)[18]	**240**	**270**	**240**	**180**	**160**	**150**	**150**	**140**	**140**

Notes:

1. Data presented include emissions, generation and intensity for facilities classified under NAICS code 22111—Electric Power Generation.
2. Preliminary data.
3. Emissions based on data taken from the *Report on Energy Supply-Demand in Canada*, Catalogue No. 57-003-XIB, Statistics Canada.
4. Includes GHG emissions from the combustion of refined petroleum products (light fuel oil, heavy fuel oil, and diesel), petroleum coke, still gas and other fuels not easily categorized.
5. GHG emissions from on-site combustion of fuel not directly related to electricity generation.
6. GHG emissions from the flooding of land for hydro dams are not included.
7. Totals may not add up to overall total due to rounding.
8. Taken from StatCan Data Tables 25-10-0019-01 and 25-10-0020-01 (2005–2017).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-XIB, Statistics Canada (for 1990-2004).
10. From 2014 onward, this includes the electricity generated from the by-product steam associated with the fuel combustion. Prior to 2014, it was not possible to break this data into the original fuel source, so it was included in Other Generation.
11. Other Renewables - includes electricity generation by wind, tidal and solar.
12. NAICS category 221119, Other Electric Power Generation.
13. Prior to 2014, this includes electricity generation from steam from waste heat. From 2014 onward, electricity generation from steam from waste heat is reported as part of its original fuel source.
14. Intensity values have been rounded so as to present the estimated level of accuracy.
15. Adapted from StatCan Data Table 25--10-0021-001 (2005–2017) or Cat. No. 57-202-XIB (1990–2004).
16. Includes transmission line losses, metering differences and other losses.
17. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF_6).
18. Consumption intensity values are impacted by unallocated energy and SF_6 transmission emissions.

– Indicates no emissions or no electricity generation

0 Indicates emissions or electricity generation value less than 0.1

Table A13–2 Electricity Generation and GHG Emission Details for Newfoundland and Labrador[1]

	1990	2000	2005	2012	2013	2014	2015	2016	2017[2]
Greenhouse Gas Emissions[3]									
	kt CO_2 equivalent								
Combustion	**1 640**	**823**	**819**	**769**	**867**	**1 206**	**1 340**	**1 523**	**1 529**
Coal	–	–	–	–	–	–	–	–	–
Natural Gas	–	–	–	–	–	–	–	–	–
Other Fuels[4]	1 640	823	819	769	867	1 206	1 340	1 523	1 529
Other Emissions[5]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[6,7]	**1 640**	**823**	**819**	**769**	**867**	**1 210**	**1 340**	**1 520**	**1 530**
Electricity Generation[8,9]									
	GWh								
Combustion[10]	**2 090**	**1 020**	**1 360**	**970**	**1 090**	**1 470**	**1 560**	**1 940**	**1 920**
Coal	–	–	–	–	–	–	–	–	–
Natural Gas	–	–	–	–	–	–	–	–	–
Other Fuels	2 090	1 020	1 360	970	1 090	1 470	1 560	1 940	1 920
Nuclear	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Hydro	**34 300**	**41 800**	**38 900**	**41 300**	**40 500**	**38 200**	**38 800**	**38 600**	**35 900**
Other Renewables[11]	**0**	**–**	**–**	**195**	**192**	**177**	**172**	**190**	**186**
Other Generation[12,13]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[7]	**36 400**	**42 800**	**40 300**	**42 500**	**41 800**	**39 800**	**40 500**	**40 800**	**38 000**
Greenhouse Gas Intensity[14]									
	g GHG / kWh electricity generated								
CO_2 intensity (g CO_2 / kWh)	45	19	20	18	21	30	33	37	40
CH_4 intensity (g CH_4 / kWh)	0.0006	0.0002	0.0002	0.0003	0.0003	0.0004	0.0005	0.0006	0.0006
N_2O intensity (g N_2O / kWh)	0.001	0.0005	0.0	0.0	0.0	0.001	0.001	0.001	0.001
Generation Intensity (g CO_2 eq / kWh)[7]	**45**	**19**	**20**	**18**	**21**	**30**	**33**	**37**	**40**
Unallocated Energy (GWh)[15, 16]	990	1 300	800	1 200	1 400	1 100	1 100	650	90
SF_6 Emissions (kt CO_2 eq)[17]	0.94	0.92	0.50	1.0	1.0	1.3	3.4	3.8	1.7
Consumption Intensity (g CO_2 eq / kWh)[18]	**46**	**20**	**21**	**19**	**21**	**31**	**34**	**38**	**40**

Notes:

1. Data presented include emissions, generation and intensity for facilities classified under NAICS code 22111 – Electric Power Generation.
2. Preliminary data.
3. Emissions based on data taken from the *Report on Energy Supply-Demand in Canada*, Catalogue No. 57-003-XIB, Statistics Canada.
4. Includes GHG emissions from the combustion of refined petroleum products (light fuel oil, heavy fuel oil, and diesel), petroleum coke, still gas and other fuels not easily categorized.
5. GHG emissions from on-site combustion of fuel not directly related to electricity generation.
6. GHG emissions from the flooding of land for hydro dams are not included.
7. Totals may not add up to overall total due to rounding.
8. Taken from StatCan Data Tables 25-10-0019-01 and 25-10-0020-01 (2005–2017).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-XIB, Statistics Canada (for 1990–2004).
10. From 2014 onward, this includes the electricity generated from the by-product steam associated with the fuel combustion. Prior to 2014, it was not possible to break this data into the original fuel source, so it was included in Other Generation.
11. Other Renewables – includes electricity generation by wind, tidal and solar.
12. NAICS category 221119, Other Electric Power Generation.
13. Prior to 2014, this includes electricity generation from steam from waste heat. From 2014 onward, electricity generation from steam from waste heat is reported as part of its original fuel source.
14. Intensity values have been rounded so as to present the estimated level of accuracy.
15. Adapted from StatCan Data Table 25--10-0021-001 (2005–2017) or Cat. No. 57-202-XIB (1990–2004).
16. Includes transmission line losses, metering differences and other losses.
17. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF_6).
18. Consumption intensity values are impacted by unallocated energy and SF_6 transmission emissions.

– Indicates no emissions or no electricity generation

0 Indicates emissions or electricity generation value less than 0.1

Table A13–3 Electricity Generation and GHG Emission Details for Prince Edward Island[1]

	1990	2000	2005	2012	2013	2014	2015	2016	2017[2]
Greenhouse Gas Emissions[3]									
	kt CO_2 equivalent								
Combustion	**104**	**53.0**	**4.76**	**10.8**	**3.9**	**4.3**	**13.9**	**4.2**	**8.6**
Coal	–	–	–	–	–	–	–	–	–
Natural Gas	–	–	–	–	–	–	–	–	–
Other Fuels[4]	104	53.0	4.76	10.8	3.9	4.3	13.9	4.2	8.6
Other Emissions[5]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[6,7]	**104**	**53.0**	**4.76**	**10.8**	**3.9**	**4.3**	**13.9**	**4.2**	**8.6**
Electricity Generation[8,9]									
	GWh								
Combustion[10]	**81.1**	**48.1**	**6.31**	**14.5**	**8.2**	**8.3**	**9.8**	**9.9**	**5.6**
Coal	–	–	–	–	–	–	–	–	–
Natural Gas	–	–	–	–	–	–	–	–	–
Other Fuels	81.1	48.1	6.31	14.5	8.2	8.3	9.8	9.9	5.6
Nuclear	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Hydro	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Other Renewables[11]	**–**	**–**	**40.1**	**468**	**499**	**611**	**606**	**594**	**598**
Other Generation[12,13]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[7]	**81.1**	**48.1**	**46.4**	**482**	**507**	**620**	**616**	**604**	**604**
Greenhouse Gas Intensity[14]									
	g GHG / kWh electricity generated								
CO_2 intensity (g CO_2 / kWh)	1 300	1 100	100	22	8	7	22	7	14
CH_4 intensity (g CH_4 / kWh)	0.02	0.01	0.001	0.0005	0.0002	0.0001	0.0007	0.0002	0.0005
N_2O intensity (g N_2O / kWh)	0.03	0.02	0.002	0.0004	0.0001	0.0001	0.0004	0.0001	0.0002
Generation Intensity (g CO_2 eq / kWh)[7]	**1 300**	**1 100**	**100**	**22**	**8**	**7**	**23**	**7**	**14**
Unallocated Energy (GWh)[15, 16]	unk	unk	unk	55	55	80	140	96	220
SF_6 Emissions (kt CO_2 eq)[17]	0	0	–	0	0	0	0	0	0
Consumption Intensity (g CO_2 eq / kWh)[18]	**	**	**	**	**	**	**	**	**

Notes:

1. Data presented include emissions, generation and intensity for facilities classified under NAICS code 22111 – Electric Power Generation.
2. Preliminary data.
3. Emissions based on data taken from the *Report on Energy Supply-Demand in Canada*, Catalogue No. 57-003-XIB, Statistics Canada.
4. Includes GHG emissions from the combustion of refined petroleum products (light fuel oil, heavy fuel oil, and diesel), petroleum coke, still gas and other fuels not easily categorized.
5. GHG emissions from on-site combustion of fuel not directly related to electricity generation.
6. GHG emissions from the flooding of land for hydro dams are not included.
7. Totals may not add up to overall total due to rounding.
8. Taken from StatCan Data Tables 25-10-0019-01 and 25-10-0020-01 (2005–2017).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-XIB, Statistics Canada (for 1990–2004).
10. From 2014 onward, this includes the electricity generated from the by-product steam associated with the fuel combustion. Prior to 2014, it was not possible to break this data into the original fuel source, so it was included in Other Generation.
11. Other Renewables – includes electricity generation by wind, tidal and solar.
12. NAICS category 221119, Other Electric Power Generation.
13. Prior to 2014, this includes electricity generation from steam from waste heat. From 2014 onward, electricity generation from steam from waste heat is reported as part of its original fuel source.
14. Intensity values have been rounded so as to present the estimated level of accuracy.
15. Adapted from StatCan Data Table 25--10-0021-001 (2005–2017) or Cat. No. 57-202-XIB (1990–2004).
16. Includes transmission line losses, metering differences and other losses.
17. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF_6).
18. Consumption intensity values are impacted by unallocated energy and SF_6 transmission emissions.

– Indicates no emissions or no electricity generation

0 Indicates emissions or electricity generation value less than 0.1

unk Indicates unknown as appropriate data were unavailable

* For years where unallocated energy data was not available, values were interpolated

** Due to the high level of imports from New Brunswick, values for New Brunswick are more indicative of GHG consumption intensity.

Table A13–4 Electricity Generation and GHG Emission Details for Nova Scotia[1]

	1990	2000	2005	2012	2013	2014	2015	2016	2017[2]
Greenhouse Gas Emissions[3]									
	kt CO_2 equivalent								
Combustion	**6 900**	**9 430**	**10 700**	**7 620**	**7 530**	**7 200**	**6 970**	**6 600**	**6 460**
Coal	5 110	8 150	5 460	5 110	5 100	4 800	4 400	4 350	4 450
Natural Gas	–	–	x	x	x	760	690	640	740
Other Fuels[4]	1 790	1 280	x	x	x	1 640	1 890	1 610	1 270
Other Emissions[5]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[6,7]	**6 900**	**9 430**	**10 700**	**7 620**	**7 530**	**7 200**	**6 970**	**6 600**	**6 460**
Electricity Generation[8,9]									
	GWh								
Combustion[10]	**8 440**	**10 500**	**11 100**	**9 210**	**8 770**	**8 560**	**8 220**	**7 610**	**7 590**
Coal	6 020	8 850	6 770	5 390	5 500	5 250	4 870	4 810	4 840
Natural Gas	–	–	181	2 260	1 370	1 470	1 300	1 240	1 430
Other Fuels	2 430	1 610	4 110	1 560	1 890	1 840	2 050	1 560	1 320
Nuclear	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Hydro	**1 120**	**887**	**1 040**	**806**	**964**	**1 096**	**1 009**	**862**	**893**
Other Renewables[11]	**26.1**	**0**	**113**	**827**	**780**	**764**	**821**	**983**	**1 169**
Other Generation[12,13]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[7]	**9 590**	**11 300**	**12 200**	**10 800**	**10 500**	**10 400**	**10 000**	**9 450**	**9 650**
Greenhouse Gas Intensity[14]									
	g GHG / kWh electricity generated								
CO_2 intensity (g CO_2 / kWh)	720	830	880	700	710	690	690	700	670
CH_4 intensity (g CH_4 / kWh)	0.007	0.009	0.02	0.04	0.03	0.03	0.03	0.03	0.03
N_2O intensity (g N_2O / kWh)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Generation Intensity (g CO_2 eq / kWh)[7]	**720**	**830**	**880**	**700**	**720**	**690**	**690**	**700**	**670**
Unallocated Energy (GWh)[15, 16]	580	830	730	1 100	570	650	590	640	600
SF_6 Emissions (kt CO_2 eq)[17]	23	23	29	22	39	33	33	28	40
Consumption Intensity (g CO_2 eq / kWh)[18]	**770**	**900**	**940**	**780**	**760**	**740**	**740**	**750**	**720**

Notes:

1. Data presented include emissions, generation and intensity for facilities classified under NAICS code 22111– Electric Power Generation.
2. Preliminary data.
3. Emissions based on data taken from the *Report on Energy Supply-Demand in Canada*, Catalogue No. 57-003-XIB, Statistics Canada.
4. Includes GHG emissions from the combustion of refined petroleum products (light fuel oil, heavy fuel oil, and diesel), petroleum coke, still gas and other fuels not easily categorized.
5. GHG emissions from on-site combustion of fuel not directly related to electricity generation.
6. GHG emissions from the flooding of land for hydro dams are not included.
7. Totals may not add up to overall total due to rounding.
8. Taken from StatCan Data Tables 25-10-0019-01 and 25-10-0020-01 (2005–2017).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-XIB, Statistics Canada (for 1990–2004).
10. From 2014 onward, this includes the electricity generated from the by-product steam associated with the fuel combustion. Prior to 2014, it was not possible to break this data into the original fuel source, so it was included in Other Generation.
11. Other Renewables – includes electricity generation by wind, tidal and solar.
12. NAICS category 221119, Other Electric Power Generation.
13. Prior to 2014, this includes electricity generation from steam from waste heat. From 2014 onward, electricity generation from steam from waste heat is reported as part of its original fuel source.
14. Intensity values have been rounded so as to present the estimated level of accuracy.
15. Adapted from StatCan Data Table 25--10-0021-001 (2005–2017) or Cat. No. 57-202-XIB (1990–2004).
16. Includes transmission line losses, metering differences and other losses.
17. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF_6).
18. Consumption intensity values are impacted by unallocated energy and SF_6 transmission emissions.

– Indicates no emissions or no electricity generation

0 Indicates emissions or electricity generation value less than 0.1

x Indicates data not shown due to statistical limitations

* For years where unallocated energy data was not available, values were interpolated

Table A13–5 Electricity Generation and GHG Emission Details for New Brunswick[1]

	1990	2000	2005	2012	2013	2014	2015	2016	2017[2]
Greenhouse Gas Emissions[3]									
	kt CO_2 equivalent								
Combustion	**6 020**	**8 970**	**8 060**	**4 060**	**4 190**	**4 390**	**3 950**	**4 690**	**3 980**
Coal	1 180	3 130	2 910	x	x	1 930	1 410	2 180	2 000
Natural Gas	–	–	x	x	x	1 040	1 040	1 000	580
Other Fuels[4]	4 840	5 840	x	1 330	1 150	1 410	1 500	1 510	1 400
Other Emissions[5]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[6,7]	**6 020**	**8 970**	**8 060**	**4 060**	**4 190**	**4 390**	**3 950**	**4 690**	**3 980**
Electricity Generation[8,9]									
	GWh								
Combustion[10]	**7 630**	**11 000**	**12 100**	**5 160**	**5 310**	**6 980**	**5 630**	**6 100**	**4 390**
Coal	1 270	3 820	2 920	1 900	2 250	2 560	1 650	2 160	2 090
Natural Gas	–	–	1 970	1 780	1 770	2 570	2 320	2 360	1 300
Other Fuels	6 360	7 210	7 210	1 490	1 290	1 850	1 650	1 580	1 000
Nuclear	**5 340**	**3 960**	**4 380**	**414**	**4 481**	**5 012**	**4 277**	**4 545**	**4 770**
Hydro	**3 460**	**3 220**	**3 820**	**2 860**	**3 400**	**2 960**	**2 620**	**3 130**	**2 600**
Other Renewables[11]	**–**	**–**	**–**	**733**	**737**	**786**	**792**	**856**	**892**
Other Generation[12,13]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[7]	**16 400**	**18 200**	**20 300**	**9 700**	**14 500**	**15 700**	**13 300**	**14 600**	**12 700**
Greenhouse Gas Intensity[14]									
	g GHG / kWh electricity generated								
CO_2 intensity (g CO_2 / kWh)	360	490	390	420	290	280	290	320	310
CH_4 intensity (g CH_4 / kWh)	0.004	0.005	0.01	0.03	0.02	0.02	0.02	0.02	0.02
N_2O intensity (g N_2O / kWh)	0.007	0.009	0.007	0.007	0.004	0.004	0.005	0.005	0.004
Generation Intensity (g CO_2 eq / kWh)[7]	**370**	**490**	**400**	**420**	**290**	**280**	**300**	**320**	**310**
Unallocated Energy (GWh)[15, 16]	990	1 300	1 000	530	530	580	560	560	520
SF_6 Emissions (kt CO_2 eq)[17]	0.71	0.70	–	0.53	0.82	0.58	0.83	0.59	1.50
Consumption Intensity (g CO_2 eq / kWh)[18]	**390**	**530**	**420**	**440**	**300**	**290**	**310**	**330**	**330**

Notes:

1. Data presented include emissions, generation and intensity for facilities classified under NAICS code 22111 – Electric Power Generation.
2. Preliminary data.
3. Emissions based on data taken from the *Report on Energy Supply-Demand in Canada*, Catalogue No. 57-003-XIB, Statistics Canada.
4. Includes GHG emissions from the combustion of refined petroleum products (light fuel oil, heavy fuel oil, and diesel), petroleum coke, still gas and other fuels not easily categorized.
5. GHG emissions from on-site combustion of fuel not directly related to electricity generation.
6. GHG emissions from the flooding of land for hydro dams are not included.
7. Totals may not add up to overall total due to rounding.
8. Taken from StatCan Data Tables 25-10-0019-01 and 25-10-0020-01 (2005–2017).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-XIB, Statistics Canada (for 1990–2004).
10. From 2014 onward, this includes the electricity generated from the by-product steam associated with the fuel combustion. Prior to 2014, it was not possible to break this data into the original fuel source, so it was included in Other Generation.
11. Other Renewables – includes electricity generation by wind, tidal and solar.
12. NAICS category 221119, Other Electric Power Generation.
13. Prior to 2014, this includes electricity generation from steam from waste heat. From 2014 onward, electricity generation from steam from waste heat is reported as part of its original fuel source.
14. Intensity values have been rounded so as to present the estimated level of accuracy.
15. Adapted from StatCan Data Table 25--10-0021-001 (2005–2017) or Cat. No. 57-202-XIB (1990–2004).
16. Includes transmission line losses, metering differences and other losses.
17. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF_6).
18. Consumption intensity values are impacted by unallocated energy and SF_6 transmission emissions.

– Indicates no emissions or no electricity generation

0 Indicates emissions or electricity generation value less than 0.1

x Indicates data not shown due to statistical limitations

* For years where unallocated energy data was not available, values were interpolated

Table A13–6 Electricity Generation and GHG Emission Details for Quebec[1]

	1990	2000	2005	2012	2013	2014	2015	2016	2017[2]
Greenhouse Gas Emissions[3]									
	kt CO_2 equivalent								
Combustion	**1 500**	**569**	**617**	**488**	**371**	**248**	**208**	**237**	**243**
Coal	–	–	–	–	–	–	–	–	–
Natural Gas	114	194	269	266	144	13	0	1	1
Other Fuels[4]	1 380	375	348	222	227	235	208	236	242
Other Emissions[5]	**–**	**2.5**	**4.6**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[6,7]	**1 500**	**571**	**622**	**488**	**371**	**248**	**208**	**237**	**243**
Electricity Generation[8,9]									
	GWh								
Combustion[10]	**1 980**	**1 150**	**1 390**	**1 260**	**1 140**	**1 010**	**960**	**1 370**	**1 310**
Coal	–	–	–	–	–	–	–	–	–
Natural Gas	–	191	212	191	14	14	0	0	0
Other Fuels	1 980	961	1 170	1 070	1 130	1 000	960	1 370	1 310
Nuclear	**4 070**	**4 890**	**4 480**	**4 210**	**0**	**0**	**0**	**0**	**0**
Hydro	**112 000**	**153 000**	**155 000**	**171 000**	**182 000**	**177 000**	**175 000**	**177 000**	**182 000**
Other Renewables[11]	**–**	**173**	**416**	**1 011**	**1 031**	**1 010**	**6 422**	**7 001**	**7 932**
Other Generation[12,13]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[7]	**118 000**	**160 000**	**161 000**	**178 000**	**184 000**	**179 000**	**182 000**	**185 000**	**191 000**
Greenhouse Gas Intensity[14]									
	g GHG / kWh electricity generated								
CO_2 intensity (g CO_2 / kWh)	13	3.5	3.7	2.7	2.0	1.4	1.1	1.2	1.2
CH_4 intensity (g CH_4 / kWh)	0.0004	0.0005	0.0009	0.0004	0.0002	0.0001	0.0	0.0	0.0
N_2O intensity (g N_2O / kWh)	0.0003	0.0002	0.0005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Generation Intensity (g CO_2 eq / kWh)[7]	**13**	**3.6**	**3.9**	**2.7**	**2.0**	**1.4**	**1.1**	**1.3**	**1.3**
Unallocated Energy (GWh)[15, 16]	7 300	13 000	10 200	13 000	13 000	15 000	2 900	13 000	12 000
SF_6 Emissions (kt CO_2 eq)[17]	37	36	30	54	67	17	74	81	22
Consumption Intensity (g CO_2 eq / kWh)[18]	**14**	**4.1**	**4.3**	**3.3**	**2.6**	**1.6**	**1.6**	**1.8**	**1.5**

Notes:

1. Data presented include emissions, generation and intensity for facilities classified under NAICS code 22111 – Electric Power Generation.
2. Preliminary data.
3. Emissions based on data taken from the *Report on Energy Supply-Demand in Canada*, Catalogue No. 57-003-XIB, Statistics Canada.
4. Includes GHG emissions from the combustion of refined petroleum products (light fuel oil, heavy fuel oil, and diesel), petroleum coke, still gas and other fuels not easily categorized.
5. GHG emissions from on-site combustion of fuel not directly related to electricity generation.
6. GHG emissions from the flooding of land for hydro dams are not included.
7. Totals may not add up to overall total due to rounding.
8. Taken from StatCan Data Tables 25-10-0019-01 and 25-10-0020-01 (2005–2017).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-XIB, Statistics Canada (for 1990–2004).
10. From 2014 onward, this includes the electricity generated from the by-product steam associated with the fuel combustion. Prior to 2014, it was not possible to break this data into the original fuel source, so it was included in Other Generation.
11. Other Renewables – includes electricity generation by wind, tidal and solar.
12. NAICS category 221119, Other Electric Power Generation.
13. Prior to 2014, this includes electricity generation from steam from waste heat. From 2014 onward, electricity generation from steam from waste heat is reported as part of its original fuel source.
14. Intensity values have been rounded so as to present the estimated level of accuracy.
15. Adapted from StatCan Data Table 25--10-0021-001 (2005–2017) or Cat. No. 57-202-XIB (1990–2004).
16. Includes transmission line losses, metering differences and other losses.
17. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF_6).
18. Consumption intensity values are impacted by unallocated energy and SF_6 transmission emissions.

– Indicates no emissions or no electricity generation

0 Indicates emissions or electricity generation value less than 0.1

x Indicates data not shown due to statistical limitations

Table A13–7 Electricity Generation and GHG Emission Details for Ontario[1]

	1990	2000	2005	2012	2013	2014	2015	2016	2017[2]
Greenhouse Gas Emissions[3]									
	kt CO_2 equivalent								
Combustion	**25 800**	**44 200**	**35 400**	**14 300**	**10 300**	**6 030**	**6 250**	**5 540**	**2 530**
Coal	24 700	38 800	29 000	4 390	3 150	100	–	–	–
Natural Gas	8	4 930	6 210	9 800	7 040	5 810	6 170	5 420	2 380
Other Fuels[4]	1 160	475	182	68	60	130	80	120	140
Other Emissions[5]	**–**	**0.77**	**1.4**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[6,7]	**25 800**	**44 200**	**35 400**	**14 300**	**10 300**	**6 030**	**6 250**	**5 540**	**2 530**
Electricity Generation[8,9]									
	GWh								
Combustion[10]	**29 200**	**52 200**	**40 900**	**22 400**	**17 500**	**15 600**	**15 900**	**13 700**	**6 800**
Coal	27 800	40 800	29 400	4 100	2 850	80	–	–	–
Natural Gas	3.18	10 200	10 000	17 600	13 900	14 700	15 300	12 800	5 900
Other Fuels	1 430	1 140	1 440	703	722	778	640	908	867
Nuclear	**59 400**	**59 800**	**78 000**	**84 900**	**93 100**	**96 200**	**91 800**	**90 900**	**90 600**
Hydro	**38 700**	**36 600**	**34 600**	**33 000**	**36 900**	**38 200**	**34 800**	**34 900**	**39 500**
Other Renewables[11]	**–**	**1.22**	**26.0**	**4 320**	**4 240**	**3 660**	**12 240**	**11 870**	**10 740**
Other Generation[12,13]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[7]	**127 000**	**149 000**	**153 000**	**149 000**	**155 000**	**154 000**	**155 000**	**151 000**	**148 000**
Greenhouse Gas Intensity[14]									
	g GHG / kWh electricity generated								
CO_2 intensity (g CO_2 / kWh)	200	300	230	95	65	39	40	36	17
CH_4 intensity (g CH_4 / kWh)	0.002	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.0
N_2O intensity (g N_2O / kWh)	0.003	0.005	0.004	0.002	0.002	0.001	0.001	0.001	0.001
Generation Intensity (g CO_2 eq / kWh)[7]	**200**	**300**	**230**	**96**	**66**	**39**	**40**	**37**	**17**
Unallocated Energy (GWh)[15, 16]	10 000	12 000	12 000	14 000	20 000	9 000	6 000	13 000	14 000
SF_6 Emissions (kt CO_2 eq)[17]	76	75	50	56	64	43	56	62	56
Consumption Intensity (g CO_2 eq / kWh)[18]	**220**	**320**	**250**	**110**	**80**	**40**	**40**	**40**	**20**

Notes:

1. Data presented include emissions, generation and intensity for facilities classified under NAICS code 22111 – Electric Power Generation.
2. Preliminary data.
3. Emissions based on data taken from the *Report on Energy Supply-Demand in Canada*, Catalogue No. 57-003-XIB, Statistics Canada.
4. Includes GHG emissions from the combustion of refined petroleum products (light fuel oil, heavy fuel oil, and diesel), petroleum coke, still gas and other fuels not easily categorized.
5. GHG emissions from on-site combustion of fuel not directly related to electricity generation.
6. GHG emissions from the flooding of land for hydro dams are not included.
7. Totals may not add up to overall total due to rounding.
8. Taken from StatCan Data Tables 25-10-0019-01 and 25-10-0020-01 (2005–2017).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-XIB, Statistics Canada (for 1990–2004).
10. From 2014 onward, this includes the electricity generated from the by-product steam associated with the fuel combustion. Prior to 2014, it was not possible to break this data into the original fuel source, so it was included in Other Generation.
11. Other Renewables – includes electricity generation by wind, tidal and solar.
12. NAICS category 221119, Other Electric Power Generation.
13. Prior to 2014, this includes electricity generation from steam from waste heat. From 2014 onward, electricity generation from steam from waste heat is reported as part of its original fuel source.
14. Intensity values have been rounded so as to present the estimated level of accuracy.
15. Adapted from StatCan Data Table 25--10-0021-001 (2005–2017) or Cat. No. 57-202-XIB (1990–2004).
16. Includes transmission line losses, metering differences and other losses.
17. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF_6).
18. Consumption intensity values are impacted by unallocated energy and SF_6 transmission emissions.

– Indicates no emissions or no electricity generation

0 Indicates emissions or electricity generation value less than 0.1

x Indicates data not shown due to statistical limitations

* For years where unallocated energy data was not available, values were interpolated

Table A13–8 Electricity Generation and GHG Emission Details for Manitoba[1]

	1990	2000	2005	2012	2013	2014	2015	2016	2017[2]
Greenhouse Gas Emissions[3]									
	kt CO_2 equivalent								
Combustion	**518**	**1 067**	**349**	**91.9**	**104.4**	**110.1**	**103.0**	**54.6**	**54.5**
Coal	x	x	x	x	x	x	x	x	x
Natural Gas	x	x	x	x	x	x	x	x	x
Other Fuels[4]	50.7	12.1	15.7	12.9	1.7	1.7	0	13.7	13.2
Other Emissions[5]	**–**	**4.8**	**8.8**	**21**	**16**	**16**	**21**	**15**	**16**
Overall Total[6,7]	**518**	**1 072**	**358**	**112**	**120**	**127**	**124**	**70**	**70**
Electricity Generation[8,9]									
	GWh								
Combustion[10]	**399**	**881**	**447**	**94**	**91**	**96**	**107**	**56**	**62**
Coal	375	869	421	51.5	65.4	68.9	63.4	28.5	29.5
Natural Gas	0.904	–	10.6	27.4	24.0	25.2	29.4	11.7	17.0
Other Fuels	22.4	12.4	15.1	15.2	1.5	1.6	14.4	15.5	15.2
Nuclear	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Hydro	**19 800**	**31 500**	**36 400**	**32 200**	**35 300**	**34 500**	**34 800**	**35 600**	**36 000**
Other Renewables[11]	**–**	**–**	**53.4**	**877**	**868**	**911**	**903**	**863**	**1 006**
Other Generation[12,13]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[7]	**20 200**	**32 400**	**36 900**	**33 200**	**36 300**	**35 500**	**35 800**	**36 500**	**37 100**
Greenhouse Gas Intensity[14]									
	g GHG / kWh electricity generated								
CO_2 intensity (g CO_2 / kWh)	25	33	9.6	3.4	3.3	3.5	3.4	1.9	1.9
CH_4 intensity (g CH_4 / kWh)	0.0005	0.0004	0.0002	0.0002	0.0003	0.0003	0.0003	0.0001	0.0001
N_2O intensity (g N_2O / kWh)	0.001	0.001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Generation Intensity (g CO_2 eq / kWh)[7]	**26**	**33**	**9.7**	**3.4**	**3.3**	**3.6**	**3.5**	**1.9**	**1.9**
Unallocated Energy (GWh)[15, 16]	2 100	3 750	1 800	3 300	3 500	3 500	3 300	2 800	3 600
SF_6 Emissions (kt CO_2 eq)[17]	4.3	4.2	4.0	1.3	1.2	0.9	1.0	2.4	1.1
Consumption Intensity (g CO_2 eq / kWh)[18]	**29**	**38**	**10.3**	**3.8**	**3.7**	**4.0**	**3.8**	**2.1**	**2.1**

Notes:

1. Data presented include emissions, generation and intensity for facilities classified under NAICS code 22111 – Electric Power Generation.
2. Preliminary data.
3. Emissions based on data taken from the *Report on Energy Supply-Demand in Canada*, Catalogue No. 57-003-XIB, Statistics Canada.
4. Includes GHG emissions from the combustion of refined petroleum products (light fuel oil, heavy fuel oil, and diesel), petroleum coke, still gas and other fuels not easily categorized.
5. GHG emissions from on-site combustion of fuel not directly related to electricity generation.
6. GHG emissions from the flooding of land for hydro dams are not included.
7. Totals may not add up to overall total due to rounding.
8. Taken from StatCan Data Tables 25-10-0019-01 and 25-10-0020-01 (2005–2017).
9. Taken from the Electric Power Generation, Transmission and Distribution (EPGTD) publication, Catalogue No. 57-202-XIB, Statistics Canada (for 1990–2004).
10. From 2014 onward, this includes the electricity generated from the by-product steam associated with the fuel combustion. Prior to 2014, it was not possible to break this data into the original fuel source, so it was included in Other Generation.
11. Other Renewables – includes electricity generation by wind, tidal and solar.
12. NAICS category 221119, Other Electric Power Generation.
13. Prior to 2014, this includes electricity generation from steam from waste heat. From 2014 onward, electricity generation from steam from waste heat is reported as part of its original fuel source.
14. Intensity values have been rounded so as to present the estimated level of accuracy.
15. Adapted from StatCan Data Table 25--10-0021-001 (2005–2017) or Cat. No. 57-202-XIB (1990–2004).
16. Includes transmission line losses, metering differences and other losses.
17. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF_6).
18. Consumption intensity values are impacted by unallocated energy and SF_6 transmission emissions.

– Indicates no emissions or no electricity generation

0 Indicates emissions or electricity generation value less than 0.1

x Indicates data not shown due to statistical limitations

Table A13–9 Electricity Generation and GHG Emission Details for Saskatchewan[1]

	1990	2000	2005	2012	2013	2014	2015	2016	2017[2]
Greenhouse Gas Emissions[3]									
	kt CO_2 equivalent								
Combustion	**11 100**	**14 400**	**15 200**	**16 100**	**15 000**	**15 200**	**16 400**	**16 700**	**16 900**
Coal	x	x	x	x	x	x	x	x	x
Natural Gas	x	x	x	x	x	x	x	x	x
Other Fuels[4]	6.74	10.8	4.48	6.64	0.28	6.37	9.13	9.41	9.41
Other Emissions[5]	**–**	**10**	**18**	**31**	**35**	**35**	**39**	**42**	**41**
Overall Total[6,7]	**11 100**	**14 400**	**15 200**	**16 100**	**15 000**	**15 300**	**16 500**	**16 700**	**17 000**
Electricity Generation[8,9]									
	GWh								
Combustion[10]	**9 660**	**14 100**	**14 800**	**13 900**	**15 300**	**14 800**	**19 100**	**20 300**	**20 600**
Coal	9 340	11 400	12 200	11 400	11 800	10 200	12 100	12 000	12 000
Natural Gas	308	2 660	2 610	2 490	3 510	4 530	6 990	8 220	8 660
Other Fuels	8.78	12.5	12.0	9.30	12.42	9.40	0.41	0.41	0.44
Nuclear	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Hydro	**4 210**	**3 050**	**4 570**	**4 240**	**4 450**	**4 710**	**3 430**	**3 280**	**3 530**
Other Renewables[11]	**–**	**–**	**91.9**	**655**	**640**	**615**	**620**	**730**	**976**
Other Generation[12,13]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[7]	**13 900**	**17 100**	**19 500**	**19 300**	**21 300**	**20 100**	**23 100**	**24 300**	**25 100**
Greenhouse Gas Intensity[14]									
	g GHG / kWh electricity generated								
CO_2 intensity (g CO_2 / kWh)	790	840	770	830	700	750	690	650	650
CH_4 intensity (g CH_4 / kWh)	0.02	0.03	0.03	0.05	0.04	0.04	0.05	0.05	0.05
N_2O intensity (g N_2O / kWh)	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Generation Intensity (g CO_2 eq / kWh)[7]	**800**	**840**	**780**	**830**	**710**	**750**	**690**	**660**	**660**
Unallocated Energy (GWh)[15, 16]	1 300	1 700	1 300	1 000	1 800	2 900	1 300	1 900	1 900
SF_6 Emissions (kt CO_2 eq)[17]	1.8	1.7	1.3	0.75	0.91	0.42	0.73	0.38	0.80
Consumption Intensity (g CO_2 eq / kWh)[18]	**880**	**940**	**840**	**880**	**770**	**880**	**740**	**710**	**710**

Notes:

1. Data presented include emissions, generation and intensity for facilities classified under NAICS code 22111 – Electric Power Generation.
2. Preliminary data.
3. Emissions based on data taken from the *Report on Energy Supply-Demand in Canada*, Catalogue No. 57-003-XIB, Statistics Canada.
4. Includes GHG emissions from the combustion of refined petroleum products (light fuel oil, heavy fuel oil, and diesel), petroleum coke, still gas and other fuels not easily categorized.
5. GHG emissions from on-site combustion of fuel not directly related to electricity generation.
6. GHG emissions from the flooding of land for hydro dams are not included.
7. Totals may not add up to overall total due to rounding.
8. Taken from StatCan Data Tables 25-10-0019-01 and 25-10-0020-01 (2005–2017).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-XIB, Statistics Canada (for 1990–2004).
10. From 2014 onward, this includes the electricity generated from the by-product steam associated with the fuel combustion. Prior to 2014, it was not possible to break this data into the original fuel source, so it was included in Other Generation.
11. Other Renewables – includes electricity generation by wind, tidal and solar.
12. NAICS category 221119, Other Electric Power Generation.
13. Prior to 2014, this includes electricity generation from steam from waste heat. From 2014 onward, electricity generation from steam from waste heat is reported as part of its original fuel source.
14. Intensity values have been rounded so as to present the estimated level of accuracy.
15. Adapted from StatCan Data Table 25--10-0021-001 (2005–2017) or Cat. No. 57-202-XIB (1990–2004).
16. Includes transmission line losses, metering differences and other losses.
17. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF_6).
18. Consumption intensity values are impacted by unallocated energy and SF_6 transmission emissions.

– Indicates no emissions or no electricity generation

0 Indicates emissions or electricity generation value less than 0.1

x Indicates data not shown due to statistical limitations

Table A13–10 Electricity Generation and GHG Emission Details for Alberta[1]

	1990	2000	2005	2012	2013	2014	2015	2016	2017[2]
Greenhouse Gas Emissions[3]									
	kt CO_2 equivalent								
Combustion	**39 600**	**50 100**	**51 900**	**46 900**	**48 100**	**49 100**	**51 300**	**45 700**	**46 500**
Coal	37 900	44 100	46 600	38 400	40 600	41 200	43 900	38 900	38 500
Natural Gas	1 700	5 740	5 170	8 490	7 520	7 820	7 360	6 810	8 030
Other Fuels[4]	11.8	301	68.4	18.7	18.4	17.0	17.5	1.4	0
Other Emissions[5]	**–**	**5.7**	**10**	**23**	**6**	**14**	**19**	**17**	**16**
Overall Total[6,7]	**39 600**	**50 100**	**51 900**	**46 900**	**48 100**	**49 100**	**51 300**	**45 700**	**46 500**
Electricity Generation[8,9]									
	GWh								
Combustion[10]	**39 900**	**51 300**	**54 200**	**52 000**	**53 200**	**59 700**	**54 100**	**53 300**	**54 800**
Coal	37 300	40 700	42 200	37 300	38 500	43 400	39 100	38 900	37 000
Natural Gas	2 510	10 200	11 600	14 100	14 100	15 700	14 500	13 900	17 300
Other Fuels	21.6	443	424	630	630	550	517	448	576
Nuclear	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Hydro	**2 060**	**1 760**	**2 240**	**2 570**	**1 990**	**1 820**	**1 980**	**2 280**	**2 060**
Other Renewables[11]	**–**	**88.9**	**837**	**2 290**	**2 260**	**3 520**	**4 090**	**5 390**	**4 410**
Other Generation[12,13]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[7]	**41 900**	**53 200**	**57 300**	**59 100**	**59 700**	**65 200**	**60 300**	**61 100**	**61 500**
Greenhouse Gas Intensity[14]									
	g GHG / kWh electricity generated								
CO_2 intensity (g CO_2 / kWh)	940	940	900	790	800	750	840	740	750
CH_4 intensity (g CH_4 / kWh)	0.02	0.04	0.03	0.04	0.04	0.04	0.04	0.04	0.04
N_2O intensity (g N_2O / kWh)	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01
Generation Intensity (g CO_2 eq / kWh)[7]	**950**	**940**	**910**	**790**	**810**	**750**	**850**	**750**	**750**
Unallocated Energy (GWh)[15, 16]	3 400	4 100	4 600	8 000	8 800	10 600	2 300	8 000	3 500
SF_6 Emissions (kt CO_2 eq)[17]	1.6	1.6	0.43	3.1	2.4	3.1	3.2	2.7	1.4
Consumption Intensity (g CO_2 eq / kWh)[18]	**1 000**	**1 000**	**980**	**920**	**950**	**900**	**880**	**860**	**800**

Notes:

1. Data presented include emissions, generation and intensity for facilities classified under NAICS code 22111 – Electric Power Generation.
2. Preliminary data.
3. Emissions based on data taken from the *Report on Energy Supply-Demand in Canada*, Catalogue No. 57-003-XIB, Statistics Canada.
4. Includes GHG emissions from the combustion of refined petroleum products (light fuel oil, heavy fuel oil, and diesel), petroleum coke, still gas and other fuels not easily categorized.
5. GHG emissions from on-site combustion of fuel not directly related to electricity generation.
6. GHG emissions from the flooding of land for hydro dams are not included.
7. Totals may not add up to overall total due to rounding.
8. Taken from StatCan Data Tables 25-10-0019-01 and 25-10-0020-01 (2005–2017).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-XIB, Statistics Canada (for 1990–2004).
10. From 2014 onward, this includes the electricity generated from the by-product steam associated with the fuel combustion. Prior to 2014, it was not possible to break this data into the original fuel source, so it was included in Other Generation.
11. Other Renewables – includes electricity generation by wind, tidal and solar.
12. NAICS category 221119, Other Electric Power Generation.
13. Prior to 2014, this includes electricity generation from steam from waste heat. From 2014 onward, electricity generation from steam from waste heat is reported as part of its original fuel source.
14. Intensity values have been rounded so as to present the estimated level of accuracy.
15. Adapted from StatCan Data Table 25--10-0021-001 (2005–2017) or Cat. No. 57-202-XIB (1990–2004).
16. Includes transmission line losses, metering differences and other losses.
17. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF_6).
18. Consumption intensity values are impacted by unallocated energy and SF_6 transmission emissions.

– Indicates no emissions or no electricity generation

0 Indicates emissions or electricity generation value less than 0.1

x Indicates data not shown due to statistical limitations

* For years where unallocated energy data was not available, values were interpolated

Table A13–11 Electricity Generation and GHG Emission Details for British Columbia[1]

	1990	2000	2005	2012	2013	2014	2015	2016	2017[2]
Greenhouse Gas Emissions[3]									
	kt CO_2 equivalent								
Combustion	**807**	**1 940**	**1 330**	**503**	**590**	**571**	**496**	**671**	**568**
Coal	–	–	–	–	–	–	–	–	–
Natural Gas	x	x	x	x	x	517	447	628	516
Other Fuels[4]	x	x	x	x	x	54	50	43	51
Other Emissions[5]	**–**	**2.4**	**4.6**	**7.2**	**6.7**	**7.4**	**7.2**	**6.5**	**6.5**
Overall Total[6,7]	**807**	**1 940**	**1 340**	**510**	**596**	**578**	**504**	**678**	**574**
Electricity Generation[8,9]									
	GWh								
Combustion[10]	**1 390**	**3 930**	**3 820**	**1 510**	**1 820**	**1 780**	**1 610**	**1 560**	**1 410**
Coal	–	–	–	–	–	–	–	–	–
Natural Gas	1 310	3 350	3 140	712	892	936	788	603	457
Other Fuels	79.4	585	689	798	926	846	818	957	950
Nuclear	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Hydro	**46 400**	**50 800**	**50 300**	**55 800**	**50 500**	**49 000**	**52 400**	**56 400**	**59 100**
Other Renewables[11]	**–**	**–**	**–**	**158**	**152**	**849**	**868**	**1 056**	**1 015**
Other Generation[12,13]	**–**	**–**	**–**	**2 750**	**2 520**	**2 240**	**0**	**0**	**0**
Overall Total[7]	**47 800**	**54 700**	**54 100**	**60 200**	**55 000**	**53 900**	**54 800**	**59 000**	**61 500**
Greenhouse Gas Intensity[14]									
	g GHG / kWh electricity generated								
CO_2 intensity (g CO_2 / kWh)	17	35	24	8.2	10.5	10.4	8.9	11.2	9.0
CH_4 intensity (g CH_4 / kWh)	0.004	0.009	0.007	0.003	0.003	0.003	0.003	0.003	0.003
N_2O intensity (g N_2O / kWh)	0.0006	0.001	0.0015	0.0007	0.0009	0.0008	0.0008	0.0008	0.0007
Generation Intensity (g CO_2 eq / kWh)[7]	**17**	**35**	**25**	**8.5**	**11**	**11**	**9.2**	**11**	**9.3**
Unallocated Energy (GWh)[15, 16]	2 200	2 300	2 100	900	–	3 700	1 800	1 900	100
SF_6 Emissions (kt CO_2 eq)[17]	57	56	48	47	42	26	20	13	19
Consumption Intensity (g CO_2 eq / kWh)[18]	**19**	**38**	**27**	**9.4**	**12**	**12**	**9.9**	**12**	**9.7**

Notes:

1. Data presented include emissions, generation and intensity for facilities classified under NAICS code 22111 – Electric Power Generation.
2. Preliminary data.
3. Emissions based on data taken from the *Report on Energy Supply-Demand in Canada*, Catalogue No. 57-003-XIB, Statistics Canada.
4. Includes GHG emissions from the combustion of refined petroleum products (light fuel oil, heavy fuel oil, and diesel), petroleum coke, still gas and other fuels not easily categorized.
5. GHG emissions from on-site combustion of fuel not directly related to electricity generation.
6. GHG emissions from the flooding of land for hydro dams are not included.
7. Totals may not add up to overall total due to rounding.
8. Taken from StatCan Data Tables 25-10-0019-01 and 25-10-0020-01 (2005–2017).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-XIB, Statistics Canada (for 1990–2004).
10. From 2014 onward, this includes the electricity generated from the by-product steam associated with the fuel combustion. Prior to 2014, it was not possible to break this data into the original fuel source, so it was included in Other Generation.
11. Other Renewables – includes electricity generation by wind, tidal and solar.
12. NAICS category 221119, Other Electric Power Generation.
13. Prior to 2014, this includes electricity generation from steam from waste heat. From 2014 onward, electricity generation from steam from waste heat is reported as part of its original fuel source.
14. Intensity values have been rounded so as to present the estimated level of accuracy.
15. Adapted from StatCan Data Table 25--10-0021-001 (2005–2017) or Cat. No. 57-202-XIB (1990–2004).
16. Includes transmission line losses, metering differences and other losses.
17. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF_6).
18. Consumption intensity values are impacted by unallocated energy and SF_6 transmission emissions.

– Indicates no emissions or no electricity generation

0 Indicates emissions or electricity generation value less than 0.1

x Indicates data not shown due to statistical limitations

* For years where unallocated energy data was not available, values were interpolated

Table A13–12 Electricity Generation and GHG Emission Details for Yukon[1]

	1990	2000	2005	2012	2013	2014	2015	2016	2017[2]
Greenhouse Gas Emissions[3]									
	kt CO_2 equivalent								
Combustion	**94.0**	**22.2**	**23.0**	**18.5**	**17.7**	**17.1**	**19.0**	**20.0**	**24.4**
Coal	–	–	–	–	–	–	–	–	–
Natural Gas	–	–	–	–	–	–	–	–	–
Other Fuels[4]	94.0	22.2	23.0	18.5	17.7	17.1	18.2	18.2	20.7
Other Emissions[5]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[6,7]	**94.0**	**22.2**	**23.0**	**18.5**	**17.7**	**17.1**	**19.0**	**20.0**	**24.4**
Electricity Generation[8,9]									
	GWh								
Combustion[10]	**62.1**	**36.7**	**22.4**	**24.4**	**23.3**	**22.7**	**25.5**	**27.0**	**36.6**
Coal	–	–	–	–	–	–	–	–	–
Natural Gas	–	–	–	–	–	–	–	–	–
Other Fuels	62.1	36.7	22.4	24.4	23.3	22.7	24.2	23.8	26.8
Nuclear	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Hydro	**423**	**261**	**320**	**430**	**425**	**411**	**422**	**419**	**448**
Other Renewables[11]	**–**	**0.388**	**0.890**	**0.445**	**0.277**	**0.334**	**0.650**	**0.509**	**0.033**
Other Generation[12,13]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[7]	**485**	**298**	**344**	**455**	**449**	**434**	**448**	**447**	**485**
Greenhouse Gas Intensity[14]									
	g GHG / kWh electricity generated								
CO_2 intensity (g CO_2 / kWh)	190	71	64	39	38	38	41	43	48
CH_4 intensity (g CH_4 / kWh)	0.009	0.004	0.003	0.002	0.002	0.002	0.002	0.003	0.004
N_2O intensity (g N_2O / kWh)	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Generation Intensity (g CO_2 eq / kWh)[7]	**190**	**75**	**67**	**41**	**39**	**39**	**42**	**45**	**50**
Unallocated Energy (GWh)[15, 16]	47	24	40	51	49	17	49	44	49
SF_6 Emissions (kt CO_2 eq)[17]	–	–	–	–	–	–	–	–	–
Consumption Intensity (g CO_2 eq / kWh)[18]	**210**	**81**	**76**	**46**	**44**	**41**	**48**	**50**	**57**

Notes:

1. Data presented include emissions, generation and intensity for facilities classified under NAICS code 22111 – Electric Power Generation.
2. Preliminary data.
3. Emissions based on data taken from the *Report on Energy Supply-Demand in Canada*, Catalogue No. 57-003-XIB, Statistics Canada.
4. Includes GHG emissions from the combustion of refined petroleum products (light fuel oil, heavy fuel oil, and diesel), petroleum coke, still gas and other fuels not easily categorized.
5. GHG emissions from on-site combustion of fuel not directly related to electricity generation.
6. GHG emissions from the flooding of land for hydro dams are not included.
7. Totals may not add up to overall total due to rounding.
8. Taken from StatCan Data Tables 25-10-0019-01 and 25-10-0020-01 (2005–2017).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-XIB, Statistics Canada (for 1990–2004).
10. From 2014 onward, this includes the electricity generated from the by-product steam associated with the fuel combustion. Prior to 2014, it was not possible to break this data into the original fuel source, so it was included in Other Generation.
11. Other Renewables – includes electricity generation by wind, tidal and solar.
12. NAICS category 221119, Other Electric Power Generation.
13. Prior to 2014, this includes electricity generation from steam from waste heat. From 2014 onward, electricity generation from steam from waste heat is reported as part of its original fuel source.
14. Intensity values have been rounded so as to present the estimated level of accuracy.
15. Adapted from StatCan Data Table 25--10-0021-001 (2005–2017) or Cat. No. 57-202-XIB (1990–2004).
16. Includes transmission line losses, metering differences and other losses.
17. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF_6).
18. Consumption intensity values are impacted by unallocated energy and SF_6 transmission emissions.

– Indicates no emissions or no electricity generation

0 Indicates emissions or electricity generation value less than 0.1

Table A13–13 Electricity Generation and GHG Emission Details for the Northwest Territories[1]

	1990	2000	2005	2012	2013	2014	2015	2016	2017[2]
Greenhouse Gas Emissions[3]									
	kt CO_2 equivalent								
Combustion	**163**	**109**	**94**	**65**	**67**	**86**	**123**	**71**	**64**
Coal	–	–	–	–	–	–	–	–	–
Natural Gas	x	x	x	x	x	4.82	6.17	7.71	7.71
Other Fuels[4]	x	x	x	x	x	82	117	63	57
Other Emissions[5]	**0**	**2**	**5**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[6,7]	**163**	**110**	**98**	**65**	**67**	**86**	**123**	**71**	**64**
Electricity Generation[8,9]									
	GWh								
Combustion[10]	**227**	**195**	**78**	**83**	**84**	**109**	**161**	**96**	**86**
Coal	–	–	–	–	–	–	–	–	–
Natural Gas	–	15.8	23.3	5.63	5.77	7.53	10.70	14.21	12.94
Other Fuels	227	179	54	77	79	102	150	82	73
Nuclear	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Hydro	**226**	**247**	**259**	**253**	**263**	**234**	**164**	**255**	**271**
Other Renewables[11]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Other Generation[12,13]	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[7]	**453**	**442**	**337**	**336**	**347**	**343**	**325**	**351**	**357**
Greenhouse Gas Intensity[14]									
	g GHG / kWh electricity generated								
CO_2 intensity (g CO_2 / kWh)	340	240	280	190	180	240	360	190	170
CH_4 intensity (g CH_4 / kWh)	0.02	0.01	0.03	0.01	0.01	0.01	0.02	0.01	0.01
N_2O intensity (g N_2O / kWh)	0.05	0.03	0.03	0.03	0.03	0.03	0.05	0.03	0.02
Generation Intensity (g CO_2 eq / kWh)[7]	**360**	**250**	**290**	**190**	**190**	**250**	**380**	**200**	**180**
Unallocated Energy (GWh)[15,16]	21	21	18	10	16	49	8	7	7
SF_6 Emissions (kt CO_2 eq)[17]	–	–	–	–	–	–	–	–	–
Consumption Intensity (g CO_2 eq / kWh)[18]	**380**	**260**	**310**	**200**	**200**	**290**	**390**	**210**	**180**

Notes:

1. Data presented include emissions, generation and intensity for facilities classified under NAICS code 22111 – Electric Power Generation.
2. Preliminary data.
3. Emissions based on data taken from the *Report on Energy Supply-Demand in Canada*, Catalogue No. 57-003-XIB, Statistics Canada.
4. Includes GHG emissions from the combustion of refined petroleum products (light fuel oil, heavy fuel oil, and diesel), petroleum coke, still gas and other fuels not easily categorized.
5. GHG emissions from on-site combustion of fuel not directly related to electricity generation.
6. GHG emissions from the flooding of land for hydro dams are not included.
7. Totals may not add up to overall total due to rounding.
8. Taken from StatCan Data Tables 25-10-0019-01 and 25-10-0020-01 (2005–2017).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-XIB, Statistics Canada (for 1990–2004).
10. From 2014 onward, this includes the electricity generated from the by-product steam associated with the fuel combustion. Prior to 2014, it was not possible to break this data into the original fuel source, so it was included in Other Generation.
11. Other Renewables – includes electricity generation by wind, tidal and solar.
12. NAICS category 221119, Other Electric Power Generation.
13. Prior to 2014, this includes electricity generation from steam from waste heat. From 2014 onward, electricity generation from steam from waste heat is reported as part of its original fuel source.
14. Intensity values have been rounded so as to present the estimated level of accuracy.
15. Adapted from StatCan Data Table 25--10-0021-001 (2005–2017) or Cat. No. 57-202-XIB (1990–2004).
16. Includes transmission line losses, metering differences and other losses.
17. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF_6).
18. Consumption intensity values are impacted by unallocated energy and SF_6 transmission emissions.

– Indicates no emissions or no electricity generation

0 Indicates emissions or electricity generation value less than 0.1

x Indicates data not shown due to statistical limitations

Table A13–14 Electricity Generation and GHG Emission Details for Nunavut[1]

	1990	2000	2005	2012	2013	2014	2015	2016	2017[2]
Greenhouse Gas Emissions[3]									
	kt CO_2 equivalent								
Combustion	**	**	**x**	**x**	**x**	**123**	**118**	**140**	**143**
Coal	**	**	–	–	–	–	–	–	–
Natural Gas	**	**	x	x	x	–	–	–	–
Other Fuels[4]	**	**	x	x	x	123	118	140	143
Other Emissions[5]	**	**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[6,7]	**	**	**x**	**x**	**x**	**123**	**118**	**140**	**143**
Electricity Generation[8,9]									
	GWh								
Combustion[10]	**	**	**142**	**98**	**98**	**158**	**157**	**189**	**190**
Coal	**	**	–	–	–	–	–	–	–
Natural Gas	**	**	–	–	–	–	–	–	–
Other Fuels	**	**	142	98	98	158	157	189	190
Nuclear	**	**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Hydro	**	**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Other Renewables[11]	**	**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Other Generation[12,13]	**	**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Overall Total[7]	**	**	**142**	**98**	**98**	**158**	**157**	**189**	**190**
Greenhouse Gas Intensity[14]									
	g GHG / kWh electricity generated								
CO_2 intensity (g CO_2 / kWh)	**	**	x	x	700	740	720	710	720
CH_4 intensity (g CH_4 / kWh)	**	**	x	x	0.0	0.0	0.0	0.0	0.0
N_2O intensity (g N_2O / kWh)	**	**	x	x	0.0	0.0	0.0	0.0	0.0
Generation Intensity (g CO_2 eq / kWh)[7]	**	**	**x**	**x**	**730**	**780**	**750**	**740**	**750**
Unallocated Energy (GWh)[15,16]	**	**	6	2	2	5	5	7	8
SF_6 Emissions (kt CO_2 eq)[17]	**	**	–	–	–	–	–	–	–
Consumption Intensity (g CO_2 eq / kWh)[18]	**	**	**920**	**790**	**740**	**800**	**780**	**770**	**790**

Notes:

1. Data presented include emissions, generation and intensity for facilities classified under NAICS code 22111 – Electric Power Generation.
2. Preliminary data.
3. Emissions based on data taken from the *Report on Energy Supply-Demand in Canada*, Catalogue No. 57-003-XIB, Statistics Canada.
4. Includes GHG emissions from the combustion of refined petroleum products (light fuel oil, heavy fuel oil, and diesel), petroleum coke, still gas and other fuels not easily categorized.
5. GHG emissions from on-site combustion of fuel not directly related to electricity generation.
6. GHG emissions from the flooding of land for hydro dams are not included.
7. Totals may not add up to overall total due to rounding.
8. Taken from StatCan Data Tables 25-10-0019-01 and 25-10-0020-01 (2005–2017).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-XIB, Statistics Canada (for 1990–2004).
10. From 2014 onward, this includes the electricity generated from the by-product steam associated with the fuel combustion. Prior to 2014, it was not possible to break this data into the original fuel source, so it was included in Other Generation.
11. Other Renewables – includes electricity generation by wind, tidal and solar.
12. NAICS category 221119, Other Electric Power Generation.
13. Prior to 2014, this includes electricity generation from steam from waste heat. From 2014 onward, electricity generation from steam from waste heat is reported as part of its original fuel source.
14. Intensity values have been rounded so as to present the estimated level of accuracy.
15. Adapted from StatCan Data Table 25--10-0021-001 (2005–2017) or Cat. No. 57-202-XIB (1990–2004).
16. Includes transmission line losses, metering differences and other losses.
17. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF_6).
18. Consumption intensity values are impacted by unallocated energy and SF_6 transmission emissions.

– Indicates no emissions or no electricity generation

0 Indicates emissions or electricity generation value less than 0.1

* For years where unallocated energy data was not available, values were interpolated

** Data is only available aggregated with Northwest Territories. Please refer to Table A13–13 for values.

x Indicates data not shown due to statistical limitations

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Statistics Canada. Table 25-10-0021-01 Electric power, electric utilities and industry, annual supply and disposition [released 2018 October 31, accessed 2019 February 14]

Statistics Canada. Table 25-10-0017-01 Electric power generation, annual fuel consumed by electric utility thermal plants [released 2018 October 31, accessed 2019 February 14]