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National Inventory Report 1990-2014: Greenhouse Gas Sources and Sinks in Canada

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Framework Convention on Climate Change

1990–2014

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List of Acronyms, Abbreviations and Units

AAC	Aluminum Association of Canada
AAFC	Agriculture and Agri-Food Canada
AC	air conditioning
AEDT	Aviation Environmental Design Tool
AER	Alberta Energy Regulator
AGEM	Aviation Greenhouse Gas Emission Model
AIA	Association de l'industrie d'aluminium du Québec
Al	aluminium
Al ₂ O ₃	alumina
API	American Petroleum Institute
ASH	manure ash content
Asha	Ash content in baked anodes
Ashp	Ash content in pitch
ATV	all-terrain vehicle
AWMS	animal waste management system
BADA	Base of Aircraft Data
B ₀	maximum methane production potential
BC	average binder content in paste
BOF	basic oxygen furnace
BOD ₅	five-day biochemical oxygen demand
BOD _u	biological oxygen demand ultimate
BSM	emissions of benzene-soluble matter
C	carbon
C&D	construction & demolition
CAC	Criteria Air Contaminant (for Land Use, Land-use Change and Forestry Sector)
CAC	Cement Association of Canada (for Industrial Processes and Product Use Sector)
CaC ₂	calcium carbide
CaCO ₃	calcium carbonate; limestone
CaMg(CO ₃) ₂	dolomite (also CaCO ₃ ·MgCO ₃)
CanFI	Canada's National Forest Inventory
CANSIM	Statistics Canada's key socioeconomic database
CanSIS	Canadian Soil Information System
CanWEA	Canadian Wind Energy Association
CaO	lime; quicklime; calcined limestone
CAPP	Canadian Association of Petroleum Producers
CBM	Carbon Budget Model
CBM-CFS3	Carbon Budget Model for the Canadian Forest Sector, version 3
CBSA	Canada Border Services Agency
CC	baked anode consumption per tonne of aluminium
CCS	carbon capture and storage
CEA	Canadian Electricity Association
CEPA 1999	Canadian Environmental Protection Act, 1999
CESI	Canadian Environmental Sustainability Indicators
CF ₄	carbon tetrafluoride
C ₂ F ₆	carbon hexafluoride
CFC	chlorofluorocarbon
CFS	Canadian Forest Service
CGA	Canadian Gas Association
CH ₃ OH	methanol

CH ₄	methane
C ₂ H ₆	ethane
C ₃ H ₈	propane
C ₄ H ₁₀	butane
C ₂ H ₄	ethylene
C ₆ H ₆	benzene
CHCl ₃	chloroform
CIEEDAC	Canadian Industrial Energy End-Use Data Analysis Centre
CKD	cement kiln dust
CLRTAP	Convention on Long-range Transboundary Air Pollution
CNFDB	Canadian National Fire Database
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ eq	carbon dioxide equivalent
COD	chemical oxygen demand
CORINAIR	Core Inventory of Air Emissions in Europe
CPI	Chemical Process Industry
CPPI	Canadian Petroleum Products Institute
CRF	Common Reporting Format
CRW	crown cover area growth rate
CSI	Cement Sustainability Initiative
CSPA	Canadian Steel Producers Association
CTS	crop and tillage system
CVS	Canadian Vehicle Survey
DE	digestible energy
DEF	diesel exhaust fluid
DM	dry matter
DMI	dry matter intake
DOC	dissolved organic carbon (for LULUCF Sector)
DOC	degradable organic carbon (for Waste Sector)
DOCF	degradable organic carbon dissimilated
DOM	dead organic matter
DRI	direct reduced iron
DSL	Domestic Substances List
EAF	electric arc furnace
ECCC	Environment and Climate Change Canada
EDC	ethylene dichloride
EF	emission factor
EF _{BASE}	base emission factor
EMEP	European Monitoring and Evaluation Programme
EO	Earth Observation
EPA	Environmental Protection Agency (United States)
EPGTD	Electric Power Generation, Transmission and Distribution
EPS	Environmental Protection Series
eq	equivalent
ERCB	Energy Resources Conservation Board
ERS	Economic Research Service (USDA)
ERT	Expert Review Team
EU	European Union
FAA	Federal Aviation Administration (United States)
FAACS	Feasibility Assessment of Afforestation for Carbon Sequestration
FCR	fuel consumption ratio
FGD	flue gas desulphurization

FLCL	forest land converted to cropland
FLFL	forest land remaining forest land
FLWL	forest land converted to wetland
FOCA	Federal Office of Civil Aviation
FOD	first-order decay
FOI	Swedish Defence Research Agency
F _{TILL}	tillage ratio factor
FWD	food waste disposal
g	gram
GCD	great-circle distance
GCV	gross calorific value
GDP	gross domestic product
GE	gross energy
Gg	gigagram
GHG	greenhouse gas
GHGRP	Greenhouse Gas Reporting Program
GIS	geographic information system
GL	guidelines
GO	gross output
Gt	gigatonne
GRI	Gas Research Institute
GTIS	Global Trade Information Services
GVWR	gross vehicle weight rating
GWP	global warming potential
H ₂	hydrogen
H ₂ O	water
H ₂ S	hydrogen sulphide
ha	hectare
HCFC	hydrochlorofluorocarbon
HCl	hydrochloric acid
HDD	heating degree-day
HDDV	heavy-duty diesel vehicle
HDGV	heavy-duty gasoline vehicle
HE	harvest emissions
HF	hydrogen fluoride
HFC	hydrofluorocarbon
HHV	higher heating value
HNO ₃	nitric acid
HQ	Hydro-Québec
HRAI	Heating, Refrigeration and Air Conditioning Institute of Canada
HSS	horizontal stud Söderberg
HW	hazardous waste
HWP	harvested wood products
HWP-C	carbon stored in harvested wood products
IAI	International Aluminium Institute
ICAO	International Civil Aviation Organization
ICI	institutional, commercial and industrial
IE	included elsewhere
IEA	International Energy Agency
IESO	Independent Electricity System Operator
I/M	inspection and maintenance
Impa	fluorine and other impurities
IPCC	Intergovernmental Panel on Climate Change

IPPU	Industrial Processes and Product Use
IT	intensive tillage
KAR	kilometre accumulation rate
K ₂ CO ₃	potassium carbonate
kg	kilogram
kha	kilohectare
km	kilometre
kt	kilotonne
kWh	kilowatt-hour
L ₀	methane generation potential
LDDT	light-duty diesel truck
LDDV	light-duty diesel vehicle
LDGT	light-duty gasoline truck
LDGV	light-duty gasoline vehicle
LFG	landfill gas
LHV	lower heating value
LINEST	Microsoft Excel least squares linear fit function
LMC	land management change
LPG	liquefied petroleum gases
LTO	landing and takeoff
LULUCF	Land Use, Land-use Change and Forestry
m	metre
MARS	Monitoring, Accounting and Reporting System
MC	motorcycle
MCF	methane conversion factor (Agriculture)
MCF	methane correction factor (Waste)
Mg	magnesium; also megagram
MgCO ₃	magnesite; magnesium carbonate
MGEM	Mobile Greenhouse Gas Emission Model
MgO	magnesia; dolomitic lime
Mha	megahectare, equivalent to a million hectares
MI	Manufactured Items
mm	millimetre
MMIC	Motorcycle & Moped Industry Council
MOVES	Motor Vehicle Emission Simulator
MODTF	Modeling and Database Task Force
mol	mole
MOU	Memorandum of Understanding
MP	total aluminum production
MS	manure system distribution factor
MSW	municipal solid waste
Mt	megatonne
MTOW	maximum takeoff weight
MW	megawatt
N	nitrogen
N ₂	nitrogen gas
Na ₂ CO ₃	sodium carbonate; soda ash
Na ₃ AlF ₆	cryolite
NA	not applicable
N/A	not available
NAICS	North American Industry Classification System
NAP	National Action Plan
NBAC	National Burn Area Composite

NCASI	National Council for Air and Stream Improvement
NCV	net calorific value
NE	not estimated
NEB	National Energy Board
NEU	non-energy use
NF ₃	nitrogen trifluoride
NFI	National Forest Inventory
NFR	nomenclature for reporting
NFDP	National Forestry Database Program
NGL	natural gas liquid
NH ₃	ammonia
NH ₄ ⁺	ammonium
NH ₄ NO ₃	ammonium nitrate
NIR	National Inventory Report
NMVOC	non-methane volatile organic compound
N ₂ O	nitrous oxide
N ₂ O-N	Nitrous oxide emissions represented in terms of nitrogen
NO	nitric oxide; also used for not occurring
NO ₂	nitrogen dioxide
NO ₃ ⁻	nitrate
NO _x	nitrogen oxides
NOC	Nitrous Oxide of Canada
NOPP	National Office of Pollution Prevention
NPRI	National Pollutant Release Inventory
NRCan	Natural Resources Canada
NSCR	non-selective catalytic reduction
NT	no tillage
O ₂	oxygen
ODS	ozone-depleting substance
OECD	Organisation for Economic Co-operation and Development
OEM	original equipment manufacturer
OS/HOU	oil sands and heavy oil upgrading
PC	paste consumption
PCI	pulverized coal injection
PFC	perfluorocarbon
PIRD	Pollutant Inventories and Reporting Division
PJ	petajoule
POP	persistent organic pollutant
P/PE	precipitation/potential evapotranspiration
PTRC	Petroleum Technology Research Centre
P&P	pulp and paper
QA	quality assurance
QC	quality control
RA	reference approach
RESO	Report on Energy Supply and Demand in Canada
RPP	refined petroleum product
RT	reduced tillage
RTI	Research Triangle Institute
RU	Reconciliation Unit
SA	sectoral approach
Sa	sulphur content in baked anodes
SAGE	System for assessing Aviation's Global Emissions
SBR	styrene-butadiene

Sc	sulphur content in calcinated coke
SCR	selective catalytic reduction
SF ₆	sulphur hexafluoride
SIC	Standard Industrial Classification
SiC	silicon carbide
SLC	Soil Landscapes of Canada
SMR	steam methane reforming
SO ₂	sulphur dioxide
SOx	sulphur oxides
SOC	soil organic carbon
SON	soil organic nitrogen
Sp	sulphur content in pitch
SUV	sport utility vehicle
t	tonne
TWh	terrawatt-hour
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change
UPCIS	Use Patterns and Controls Implementation Section
UOG	upstream oil and gas
U.S.	United States
UTC	urban tree crown
USDA	United States Department of Agriculture
VCM	vinyl chloride monomer
VKT	vehicle kilometres travelled
VSS	vertical stud Søderberg
VS	volatile solids
WBCSD	World Business Council for Sustainable Development
WMIS	Waste Management Industry Survey
WMO	World Meteorological Organization

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Annex 8

Rounding Protocol

A rounding protocol has been developed for the emission and removal estimates 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 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.

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 in 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 "-"). Because 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 GHG Summary Tables

Greenhouse Gas Categories				Number of Significant Figures				
	CO ₂	CH ₄	N ₂ O	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	2	2	2					3
Petroleum Refining Industries	2	1	1					2
Mining and Upstream Oil and Gas Production	3	2	1					3
Manufacturing Industries	3	2	2					3
Iron and Steel	3	2	1					3
Non Ferrous Metals	3	2	1					3
Chemical	3	2	1					3
Pulp and Paper	1	1	1					2
Cement	3	2	1					3
Other Manufacturing	3	2	1					3
Construction	3	2	1					3
Commercial & Institutional	3	2	1					3
Residential	3	1	1					3
Agriculture & Forestry	3	2	1					3
b. Transport	3	2	2					3
Domestic Aviation	3	1	1					2
Road Transportation	3	1	2					3
Light-Duty Gasoline Vehicles	3	2	2					3
Light-Duty Gasoline Trucks	3	2	2					3
Heavy-Duty Gasoline Vehicles	3	2	2					3
Motorcycles	3	2	2					3
Light-Duty Diesel Vehicles	3	1	1					3
Light-Duty Diesel Trucks	3	1	1					3
Heavy-Duty Diesel Vehicles	3	1	1					3
Propane & Natural Gas Vehicles	3	1	1					2
Railways	3	1	1					2
Domestic Navigation	3	1	1					2
Other Transportation	3	1	1					2
Off-Road Gasoline	3	1	1					2
Off-Road Diesel	3	1	1					2
Pipeline Transport	3	2	1					3
c. Fugitive Sources	2	2	1					2
Coal Mining		1						1
Oil and Natural Gas	2	2	1					2
Oil	2	2	1					2
Natural Gas	2	2						2
Venting	2	2						2
Flaring	2	2	1					2
d. CO ₂ Transport and Storage	1							1
INDUSTRIAL PROCESSES AND PRODUCT USE	3	2	3	2	2	2		3
a. Mineral Products	2							2
Cement Production	2							2
Lime Production	3							3
Mineral Product Use	2							2
b. Chemical Industry	3	2	2					3
Ammonia Production	3							3
Nitric Acid Production			2					2
Adipic Acid Production			2					2
Petrochemical and Carbon Black Production	2	2	2					2
c. Metal Production	3	1			3	3		3
Iron and Steel Production	3	1						3
Aluminum 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	1		2		2	2		2
AGRICULTURE	1	2	2		2	2		2
a. Enteric Fermentation		2						2
b. Manure Management		2	1					2
c. Agriculture 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	2	2	2					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	2	1	1					2
LAND USE, LAND-USE CHANGE AND FORESTRY	2	2	2					2
a. Forest Land	2	2	2					2
b. Cropland	2	1	1					2
c. Grassland		1	1					1
d. Wetlands	1	1	1					1
e. Settlements	1	1	1					1
f. Harvested Wood Products	2							2

Annex 9

Canada's Greenhouse Gas Emission Tables by IPCC Sector, 1990–2014

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 A9–27) 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 various file formats online at <http://www.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
Mining and Upstream Oil and Gas Production	Emissions from fuel consumed by: <ul style="list-style-type: none"> - Metal and non-metal mines, coal mines, stone quarries, and gravel pits - Oil and gas extraction industries - Mineral exploration and contract drilling operations
Manufacturing Industries	Emissions from fuel consumed by the following industries: <ul style="list-style-type: none"> - 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: <ul style="list-style-type: none"> - 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: <ul style="list-style-type: none"> - Forestry and logging service industry - Agricultural, hunting and trapping industry (excluding food processing, farm machinery manufacturing, and repair)
b. Transportation	Emissions resulting from the: <ul style="list-style-type: none"> - Consumption of fossil fuels by aircrafts flying domestically with Canadian purchased fuel - Consumption of fossil fuels (including non-CO₂ emissions from ethanol and biodiesel) by vehicles licensed to operate on roads - Consumption of fossil fuels (including non-CO₂ emissions from biodiesel) by Canadian railways - Consumption of fossil fuels (including non-CO₂ emissions from ethanol and biodiesel) by Canadian registered marine vessels fuelled domestically - Consumption of fossil fuels (including non-CO₂ emissions from ethanol and biodiesel) by combustion devices not licensed to operate on roads - Transportation and distribution of crude oil, natural gas and other products
Domestic Aviation	
Road Transportation	
Railways	
Domestic Navigation	
Others – Off-road	
Others – Pipeline Transport	
c. Fugitive Sources	Intentional and unintentional releases of greenhouse gases from the following activities: <ul style="list-style-type: none"> - Underground and surface mining, abandoned underground coal mines - Conventional and unconventional oil and gas exploration, production, transportation, and distribution
Coal Mining	
Oil and Natural Gas	
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	
a. Mineral Products	Emissions resulting from the following process activities: <ul style="list-style-type: none"> - Production of cement and lime; use of soda ash, limestone & dolomite, and magnesite
b. Chemical Industry	<ul style="list-style-type: none"> - Production of ammonia, nitric acid, adipic acid, carbide, carbon black, ethylene dichloride, ethylene, methanol and styrene - Aluminum production, iron and steel production, magnesium production and casting
c. Metal Production	
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃	<ul style="list-style-type: none"> - 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; use of SF₆ and NF₃ in semiconductor manufacturing
e. Non-Energy Products from Fuels and Solvent Use	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Use of N₂O as an anaesthetic and propellant; use of urea in selective catalytic reduction (SCR) equipped vehicles; use of SF₆ and PFCs in electrical equipment
AGRICULTURE	
a. Enteric Fermentation	Emissions resulting from the: <ul style="list-style-type: none"> - Eructation of CH₄ during the digestion of plant material by (mainly) ruminants
b. Manure Management	<ul style="list-style-type: none"> - Release of CH₄ and N₂O due to microbial activity during the storage of feces, urine and bedding materials from the cleaning of barns and pens - Indirect N₂O emissions from volatilization and leaching of nitrogen from animal manure during storage
c. Agricultural Soils	
Direct sources	<ul style="list-style-type: none"> - Direct N₂O emissions from Synthetic fertilizer, manure on cropland, pasture range and paddock, crop residue, tillage, summer-fallow, irrigation and cultivation of organic soils
Indirect Sources	<ul style="list-style-type: none"> - Indirect N₂O emissions from volatilization and leaching of animal manure nitrogen, synthetic fertilizer nitrogen and crop residue nitrogen
d. Field Burning of Agricultural Residues	<ul style="list-style-type: none"> - CH₄ and N₂O emissions from crop residue burning
e. Liming, Urea Application and Other Carbon-containing Fertilizers	<ul style="list-style-type: none"> - Direct emissions of CO₂ from the application of lime, urea and other fertilizers containing carbon
WASTE	
a. Solid Waste Disposal	Emissions resulting from: <ul style="list-style-type: none"> - Municipal solid waste management sites (landfills) and dedicated wood waste landfills
b. Biological Treatment of Solid Waste	<ul style="list-style-type: none"> - Composting of municipal solid waste
c. Wastewater Treatment and Discharge	<ul style="list-style-type: none"> - Domestic and industrial wastewater treatment
d. Incineration and Open Burning of Waste	<ul style="list-style-type: none"> - Municipal solid, hazardous and clinical waste, and sewage sludge incineration
LAND USE, LAND-USE CHANGE AND FORESTRY	
a. Forest Land	Emissions and removals resulting from: <ul style="list-style-type: none"> - Managed forests and lands converted to forests; includes growth, natural and anthropogenic disturbances (fire, harvest, insects)
b. Cropland	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Managed agricultural grassland
d. Wetlands	<ul style="list-style-type: none"> - Peatlands disturbed for peat extraction, or land flooded from hydro reservoir development
e. Settlements	<ul style="list-style-type: none"> - Forest and grassland converted to built-up land (settlements, transport infrastructure, oil & gas infrastructure, mining, etc); urban tree growth
f. Harvested Wood Products	<ul style="list-style-type: none"> - 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 1990–2014 GHG Emissions by Sector

Greenhouse Gas Categories	1990	2000	2005	2010	2011	2012	2013	2014
<i>kt CO₂ eq.</i>								
TOTAL¹	613 000	744 000	747 000	706 000	710 000	718 000	731 000	732 000
ENERGY	482 000	603 000	597 000	570 000	574 000	576 000	590 000	594 000
a. Stationary Combustion Sources	285 000	352 000	342 000	317 000	320 000	321 000	328 000	331 000
Public Electricity and Heat Production	94 500	131 000	124 000	102 000	94 500	91 500	87 800	85 500
Petroleum Refining Industries	17 000	17 000	20 000	18 000	18 000	19 000	18 000	17 000
Mining and Upstream Oil and Gas Production	41 100	63 400	67 800	80 400	82 100	91 000	98 900	101 000
Manufacturing Industries	56 200	56 100	48 700	41 300	44 800	44 500	45 500	45 800
Iron and Steel	4 950	6 210	5 550	4 440	5 270	5 480	5 560	6 100
Non Ferrous Metals	3 320	3 590	3 620	2 990	3 310	2 930	3 070	2 870
Chemical	8 260	10 800	8 320	9 910	11 100	11 000	11 600	12 100
Pulp and Paper	15 000	13 000	8 700	6 000	6 300	6 000	6 300	6 300
Cement	3 960	4 630	5 430	4 070	4 300	4 010	3 840	4 060
Other Manufacturing	21 200	18 200	17 100	13 900	14 600	15 100	15 200	14 400
Construction	1 880	1 080	1 450	1 510	1 350	1 370	1 280	1 290
Commercial and Institutional	25 800	33 100	32 100	28 200	30 100	28 200	29 400	31 300
Residential	46 300	47 200	45 400	42 500	45 600	42 100	43 600	45 600
Agriculture and Forestry	2 410	2 570	2 110	2 900	3 460	3 560	3 580	3 680
b. Transport ²	148 000	181 000	195 000	199 000	199 000	198 000	204 000	203 000
Domestic Aviation	7 200	7 700	7 600	6 500	6 200	7 300	7 500	7 400
Road Transportation	99 500	121 000	136 000	142 000	140 000	141 000	144 000	140 000
Light-Duty Gasoline Vehicles	50 200	45 200	44 100	40 500	38 200	36 900	37 300	34 300
Light-Duty Gasoline Trucks	20 800	35 500	41 500	45 500	45 100	46 000	48 500	47 900
Heavy-Duty Gasoline Vehicles	5 890	7 330	7 160	7 900	7 510	7 810	8 220	7 910
Motorcycles	76.6	83.6	130	163	161	166	167	161
Light-Duty Diesel Vehicles	479	494	522	624	686	758	850	847
Light-Duty Diesel Trucks	200	384	405	479	479	501	597	636
Heavy-Duty Diesel Vehicles	19 700	30 900	41 800	46 300	46 800	47 700	48 100	47 700
Propane and Natural Gas Vehicles	2 200	1 100	730	780	820	880	720	790
Railways	6 900	6 600	6 600	6 600	7 500	7 600	7 300	7 500
Domestic Navigation	4 800	4 900	6 400	6 800	5 600	5 600	5 100	4 700
Other Transportation	29 000	41 000	38 000	37 000	39 000	37 000	39 000	43 000
Off-Road Gasoline	5 300	5 500	6 100	5 200	4 800	4 500	4 300	6 300
Off-Road Diesel	17 000	24 000	21 000	26 000	29 000	27 000	28 000	29 000
Pipeline Transport	6 910	11 300	10 200	5 720	5 650	5 730	6 720	7 890
c. Fugitive Sources	49 000	70 000	61 000	54 000	55 000	57 000	58 000	60 000
Coal Mining	3 000	2 000	1 000	1 000	1 000	1 000	2 000	1 000
Oil and Natural Gas	46 000	68 000	59 000	53 000	54 000	56 000	57 000	58 000
Oil	5 000	6 500	6 400	6 000	6 200	6 800	7 200	7 500
Natural Gas	13 000	18 000	14 000	12 000	12 000	12 000	12 000	13 000
Venting	23 000	38 000	34 000	30 000	31 000	32 000	32 000	32 000
Flaring	4 600	5 700	5 300	4 700	4 900	5 000	5 400	5 500
d. CO ₂ Transport and Storage	-	0.09	0.09	0.09	0.09	0.09	0.09	0.1
INDUSTRIAL PROCESSES AND PRODUCT USE	55 900	53 500	58 300	50 500	51 400	55 800	52 700	51 000
a. Mineral Products	8 400	10 000	10 000	7 800	7 900	8 500	7 700	7 800
Cement Production	5 800	7 200	7 600	6 000	6 100	6 600	6 000	6 000
Lime Production	1 760	1 870	1 710	1 370	1 430	1 450	1 360	1 430
Mineral Product Use	910	910	910	410	450	440	380	380
b. Chemical Industry	17 300	8 610	9 470	5 470	6 090	6 440	6 400	5 990
Ammonia Production	2 770	2 960	2 710	2 490	2 880	3 000	2 950	2 540
Nitric Acid Production	970	1 200	1 200	1 100	1 100	1 100	990	1 000
Adipic Acid Production	10 000	870	2 500	-	-	-	-	-
Petrochemical and Carbon Black Production	3 300	3 600	3 000	1 900	2 100	2 300	2 500	2 400
c. Metal Production	23 800	23 400	20 200	16 200	17 100	16 900	14 800	14 700
Iron and Steel Production	10 500	11 800	10 300	9 170	10 100	10 200	8 040	8 600
Aluminum Production	10 300	8 890	8 680	6 870	6 810	6 470	6 530	5 840
SF ₆ Used in Magnesium Smelters and Casters	2 960	2 660	1 230	183	183	248	213	229
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	980	3 400	5 700	7 500	8 000	8 300	8 600	9 000
e. Non-Energy Products from Fuels and Solvent Use	5 000	7 500	12 000	13 000	12 000	15 000	15 000	13 000
f. Other Product Manufacture and Use	370	630	530	430	410	510	530	440
AGRICULTURE	49 000	59 000	61 000	57 000	56 000	58 000	60 000	59 000
a. Enteric Fermentation	23 000	28 000	31 000	26 000	25 000	25 000	25 000	25 000
b. Manure Management	7 600	9 100	9 800	8 500	8 400	8 400	8 400	8 500
c. Agriculture Soils	17 000	19 000	19 000	21 000	20 000	22 000	24 000	23 000
Direct Sources	14 000	16 000	15 000	17 000	16 000	18 000	19 000	19 000
Indirect Sources	3 000	4 000	4 000	4 000	4 000	4 000	5 000	4 000
d. Field Burning of Agricultural Residues	200	100	50	30	30	40	50	50
e. Liming, Urea Application and Other Carbon-containing Fertilizers	1 000	2 000	1 000	2 000	2 000	2 000	3 000	3 000
WASTE	26 000	29 000	31 000	29 000	29 000	28 000	28 000	29 000
a. Solid Waste Disposal	24 000	26 000	28 000	26 000	26 000	26 000	26 000	26 000
b. Biological Treatment of Solid Waste	800	1 000	1 000	1 000	1 000	1 000	1 000	1 000
c. Wastewater Treatment and Discharge	870	950	980	1 000	1 000	1 000	1 100	1 100
d. Incineration and Open Burning of Waste	740	740	700	660	650	540	550	560
LAND USE, LAND-USE CHANGE AND FORESTRY	-87 000	-82 000	510	55 000	69 000	41 000	-30 000	72 000
a. Forest Land	-250 000	-250 000	-150 000	-83 000	-71 000	-100 000	-170 000	-64 000
b. Cropland	10 000	-2 000	-8 600	-9 400	-9 400	-9 200	-8 900	-8 400
c. Grassland	600	1 000	900	300	600	2 000	700	700
d. Wetlands	6 000	4 000	4 000	4 000	4 000	4 000	4 000	3 000
e. Settlements	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000
f. Harvested Wood Products	140 000	160 000	150 000	140 000	140 000	140 000	140 000	140 000

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 CF₄ emissions from the use of NF₃.

- Indicates no emissions

0.0 Indicates emissions truncated due to rounding

Estimates for the latest year (2014) 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 2014 GHG Emission Summary for Canada

Greenhouse Gas Categories		Greenhouse Gases									
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
Unit		kt	kt	25 kt CO ₂ eq.	kt	298 kt CO ₂ eq.	kt CO ₂ eq.	kt CO ₂ eq.	22 800 kt CO ₂ eq.	17 200 kt CO ₂ eq.	kt CO ₂ eq.
TOTAL ¹		574 000	4 300	110 000	130	39 000	9 000	1 100	360	0.2	732 000
ENERGY		532 000	2 100	53 000	30	9 000	-	-	-	-	594 000
a.	Stationary Combustion Sources	323 000	200	6 000	9	3 000	-	-	-	-	331 000
	Public Electricity and Heat Production	85 000	5.8	150	1.8	530	-	-	-	-	85 500
	Petroleum Refining Industries	17 000	0.4	9	0.2	50	-	-	-	-	17 000
	Mining and Upstream Oil and Gas Production	98 400	91	2 300	2	600	-	-	-	-	101 000
	Manufacturing Industries	45 100	2.5	63	1.9	580	-	-	-	-	45 800
	Iron and Steel	6 060	0.14	3.5	0.1	40	-	-	-	-	6 100
	Non Ferrous Metals	2 860	0.06	1.5	0.05	10	-	-	-	-	2 870
	Chemical	12 000	0.24	5.9	0.2	60	-	-	-	-	12 100
	Pulp and Paper	6 000	1	30	0.9	300	-	-	-	-	6 300
	Cement	4 040	0.19	4.8	0.05	20	-	-	-	-	4 060
	Other Manufacturing	14 200	0.67	17	0.6	200	-	-	-	-	14 400
	Construction	1 280	0.02	0.56	0.03	10	-	-	-	-	1 290
	Commercial and Institutional	31 100	0.59	15	0.7	200	-	-	-	-	31 300
	Residential	41 800	100	3 000	2	700	-	-	-	-	45 600
	Agriculture and Forestry	3 660	0.07	1.7	0.09	30	-	-	-	-	3 680
b.	Transport ²	196 000	28	700	21	6 400	-	-	-	-	203 000
	Domestic Aviation	7 300	0.3	7	0.2	60	-	-	-	-	7 400
	Road Transportation	138 000	10	300	7.9	2 400	-	-	-	-	140 000
	Light-Duty Gasoline Vehicles	33 700	2.8	71	1.9	560	-	-	-	-	34 300
	Light-Duty Gasoline Trucks	47 100	4	99	2.6	760	-	-	-	-	47 900
	Heavy-Duty Gasoline Vehicles	7 700	0.28	7	0.68	200	-	-	-	-	7 910
	Motorcycles	158	0.06	1.5	0.0	0.9	-	-	-	-	161
	Light-Duty Diesel Vehicles	826	0.02	0.4	0.07	20	-	-	-	-	847
	Light-Duty Diesel Trucks	620	0.02	0.4	0.05	20	-	-	-	-	636
	Heavy-Duty Diesel Vehicles	46 800	2	50	3	800	-	-	-	-	47 700
	Propane and Natural Gas Vehicles	762	1	30	0.02	5	-	-	-	-	790
	Railways	6 740	0.4	10	3	800	-	-	-	-	7 500
	Domestic Navigation	4 650	0.4	10	0.1	40	-	-	-	-	4 700
	Other Transportation	39 600	20	400	10	3 000	-	-	-	-	43 000
	Off-Road Gasoline	6 070	8	200	0.1	40	-	-	-	-	6 300
	Off-Road Diesel	25 900	1	40	10	3 000	-	-	-	-	29 000
	Pipeline Transport	7 640	7.7	190	0.2	60	-	-	-	-	7 890
c.	Fugitive Sources	13 000	1 900	46 000	0.1	40	-	-	-	-	60 000
	Coal Mining	-	50	1 000	-	-	-	-	-	-	1 000
	Oil and Natural Gas	13 000	1 800	45 000	0.1	40	-	-	-	-	58 000
	Oil	210	290	7 200	0.1	30	-	-	-	-	7 500
	Natural Gas	76	510	13 000	-	-	-	-	-	-	13 000
	Venting	7 900	980	24 000	-	-	-	-	-	-	32 000
	Flaring	5 000	20	510	0.03	8	-	-	-	-	5 500
d.	CO ₂ Transport and Storage	0.1	-	-	-	-	-	-	-	-	0.1
INDUSTRIAL PROCESSES AND PRODUCT USE		39 200	3.3	83	4.29	1 280	9 000	1 100	360	-	51 000
a.	Mineral Products	7 800	-	-	-	-	-	-	-	-	7 800
	Cement Production	6 000	-	-	-	-	-	-	-	-	6 000
	Lime Production	1 430	-	-	-	-	-	-	-	-	1 430
	Mineral Product Use	380	-	-	-	-	-	-	-	-	380
b.	Chemical Industry	4 880	3.2	81	3.5	1 000	-	-	-	-	5 990
	Ammonia Production	2 540	-	-	-	-	-	-	-	-	2 540
	Nitric Acid Production	-	-	-	3.4	1 000	-	-	-	-	1 000
	Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
	Petrochemical and Carbon Black Production	2 300	3.2	81	0.04	12	-	-	-	-	2 400
c.	Metal Production	13 300	0.08	2	-	-	-	1 090	236	-	14 700
	Iron and Steel Production	8 600	0.08	2	-	-	-	-	-	-	8 600
	Aluminum Production	4 750	-	-	-	-	-	1 090	6.61	-	5 840
	SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	229	-	229
d.	Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	9 000	3.9	1.2	0.2	9 000
e.	Non-Energy Products from Fuels and Solvent Use	13 000	-	-	-	-	-	-	-	-	13 000
f.	Other Product Manufacture and Use	60	-	-	0.81	240	-	12	130	-	440
AGRICULTURE		3 000	1 200	29 000	93	28 000	-	-	-	-	59 000
a.	Enteric Fermentation	-	1 000	25 000	-	-	-	-	-	-	25 000
b.	Manure Management	-	150	3 700	20	5 000	-	-	-	-	8 500
c.	Agriculture Soils	-	-	-	77	23 000	-	-	-	-	23 000
	Direct Sources	-	-	-	62	19 000	-	-	-	-	19 000
	Indirect Sources	-	-	-	10	4 000	-	-	-	-	4 000
d.	Field Burning of Agricultural Residues	-	1	40	0.04	10	-	-	-	-	50
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	3 000	-	-	-	-	-	-	-	-	3 000
WASTE		410	1 100	27 000	4.3	1 300	-	-	-	-	29 000
a.	Solid Waste Disposal	-	1 000	26 000	-	-	-	-	-	-	26 000
b.	Biological Treatment of Solid Waste	-	20	500	2	500	-	-	-	-	1 000
c.	Wastewater Treatment and Discharge	-	16	400	2	700	-	-	-	-	1 100
d.	Incineration and Open Burning of Waste	410	0.1	3	0.5	100	-	-	-	-	560
LAND USE, LAND-USE CHANGE AND FORESTRY		49 000	620	15 000	26	7 600	-	-	-	-	72 000
a.	Forest Land	-86 000	590	15 000	25	7 400	-	-	-	-	-64 000
b.	Cropland	-8 500	4	100	0.2	60	-	-	-	-	-8 400
c.	Grassland	-	20	500	0.5	200	-	-	-	-	700
d.	Wetlands	3 000	-	-	-	-	-	-	-	-	3 000
e.	Settlements	4 000	5	100	0.2	50	-	-	-	-	4 000
f.	Harvested Wood Products	140 000	-	-	-	-	-	-	-	-	140 000

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

Estimates for the latest year (2014) 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 A9–4 2013 GHG Emission Summary for Canada

Greenhouse Gas Categories		Greenhouse Gases										
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL	
Unit		kt	kt	25 kt CO ₂ eq.	kt	298 kt CO ₂ eq.	kt CO ₂ eq.	kt CO ₂ eq.	22 800 kt CO ₂ eq.	17 200 kt CO ₂ eq.	kt CO ₂ eq.	
TOTAL ¹		573 000	4 300	110 000	140	41 000	8 600	1 600	440	0.2	731 000	
ENERGY		529 000	2 100	51 000	30	9 000	-	-	-	-	590 000	
a.	Stationary Combustion Sources	320 000	200	6 000	9	3 000	-	-	-	-	328 000	
	Public Electricity and Heat Production	87 000	5.9	150	1.8	530	-	-	-	-	87 800	
	Petroleum Refining Industries	18 000	0.4	9	0.1	40	-	-	-	-	18 000	
	Mining and Upstream Oil and Gas Production	96 100	87	2 200	2	600	-	-	-	-	98 900	
	Manufacturing Industries	44 900	2.4	61	1.9	560	-	-	-	-	45 500	
	Iron and Steel	5 530	0.13	3.3	0.1	40	-	-	-	-	5 560	
	Non Ferrous Metals	3 050	0.06	1.4	0.04	10	-	-	-	-	3 070	
	Chemical	11 500	0.23	5.7	0.2	60	-	-	-	-	11 600	
	Pulp and Paper	6 000	1	30	0.9	300	-	-	-	-	6 300	
	Cement	3 820	0.19	4.9	0.05	20	-	-	-	-	3 840	
	Other Manufacturing	15 000	0.66	16	0.6	200	-	-	-	-	15 200	
	Construction	1 260	0.02	0.56	0.03	10	-	-	-	-	1 280	
	Commercial and Institutional	29 100	0.55	14	0.6	200	-	-	-	-	29 400	
	Residential	39 800	100	3 000	2	700	-	-	-	-	43 600	
	Agriculture and Forestry	3 550	0.06	1.6	0.09	30	-	-	-	-	3 580	
	b.	Transport ²	196 000	24	610	22	6 600	-	-	-	-	204 000
Domestic Aviation		7 460	0.3	8	0.2	60	-	-	-	-	7 500	
Road Transportation		141 000	10	300	9.1	2 700	-	-	-	-	144 000	
Light-Duty Gasoline Vehicles		36 500	3.2	79	2.5	730	-	-	-	-	37 300	
Light-Duty Gasoline Trucks		47 400	4.1	100	3.2	950	-	-	-	-	48 500	
Heavy-Duty Gasoline Vehicles		8 000	0.31	7.9	0.68	200	-	-	-	-	8 220	
Motorcycles		165	0.07	1.7	0.0	0.93	-	-	-	-	167	
Light-Duty Diesel Vehicles		829	0.02	0.4	0.07	20	-	-	-	-	850	
Light-Duty Diesel Trucks		582	0.02	0.4	0.05	10	-	-	-	-	597	
Heavy-Duty Diesel Vehicles		47 300	2	50	3	800	-	-	-	-	48 100	
Propane and Natural Gas Vehicles		697	0.6	20	0.01	4	-	-	-	-	720	
Railways		6 540	0.4	9	3	800	-	-	-	-	7 300	
Domestic Navigation		5 050	0.5	10	0.1	40	-	-	-	-	5 100	
Other Transportation		35 800	10	300	10	3 000	-	-	-	-	39 000	
Off-Road Gasoline		4 120	5	100	0.09	30	-	-	-	-	4 300	
Off-Road Diesel		25 200	1	40	10	3 000	-	-	-	-	28 000	
Pipeline Transport		6 500	6.5	160	0.2	50	-	-	-	-	6 720	
c.		Fugitive Sources	13 000	1 800	45 000	0.2	50	-	-	-	-	58 000
		Coal Mining	-	60	2 000	-	-	-	-	-	-	2 000
		Oil and Natural Gas	13 000	1 700	44 000	0.2	50	-	-	-	-	57 000
		Oil	210	280	6 900	0.1	30	-	-	-	-	7 200
		Natural Gas	73	490	12 000	-	-	-	-	-	-	12 000
		Venting	8 100	950	24 000	-	-	-	-	-	-	32 000
d.		Flaring	4 900	20	510	0.04	10	-	-	-	-	5 400
	CO ₂ Transport and Storage	0.09	-	-	-	-	-	-	-	-	0.09	
INDUSTRIAL PROCESSES AND PRODUCT USE		40 700	3.3	81	4.18	1 250	8 600	1 600	440	-	52 700	
a.	Mineral Products	7 700	-	-	-	-	-	-	-	-	7 700	
	Cement Production	6 000	-	-	-	-	-	-	-	-	6 000	
	Lime Production	1 360	-	-	-	-	-	-	-	-	1 360	
	Mineral Product Use	380	-	-	-	-	-	-	-	-	380	
b.	Chemical Industry	5 320	3.2	80	3.4	1 000	-	-	-	-	6 400	
	Ammonia Production	2 950	-	-	-	-	-	-	-	-	2 950	
	Nitric Acid Production	-	-	-	3.3	990	-	-	-	-	990	
	Adipic Acid Production	-	-	-	-	-	-	-	-	-	-	
c.	Petrochemical and Carbon Black Production	2 400	3.2	80	0.04	12	-	-	-	-	2 500	
	Metal Production	13 000	0.07	2	-	-	-	1 590	219	-	14 800	
	Iron and Steel Production	8 040	0.07	2	-	-	-	-	-	-	8 040	
	Aluminum Production	4 930	-	-	-	-	-	1 590	5.39	-	6 530	
d.	SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	213	-	213	
	Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	8 600	4	1.3	0.2	8 600	
e.	Non-Energy Products from Fuels and Solvent Use	15 000	-	-	-	-	-	-	-	-	15 000	
f.	Other Product Manufacture and Use	50	-	-	0.82	250	-	19	220	-	530	
AGRICULTURE		3 000	1 200	29 000	97	29 000	-	-	-	-	60 000	
a.	Enteric Fermentation	-	1 000	25 000	-	-	-	-	-	-	25 000	
b.	Manure Management	-	150	3 700	20	5 000	-	-	-	-	8 400	
c.	Agriculture Soils	-	-	-	81	24 000	-	-	-	-	24 000	
	Direct Sources	-	-	-	65	19 000	-	-	-	-	19 000	
d.	Indirect Sources	-	-	-	20	5 000	-	-	-	-	5 000	
	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		410	1 100	27 000	4.3	1 300	-	-	-	-	28 000	
a.	Solid Waste Disposal	-	1 000	26 000	-	-	-	-	-	-	26 000	
b.	Biological Treatment of Solid Waste	-	20	500	2	500	-	-	-	-	1 000	
c.	Wastewater Treatment and Discharge	-	16	390	2	700	-	-	-	-	1 100	
d.	Incineration and Open Burning of Waste	410	0.1	3	0.5	100	-	-	-	-	550	
LAND USE, LAND-USE CHANGE AND FORESTRY		-39 000	260	6 600	11	3 200	-	-	-	-	-30 000	
a.	Forest Land	-180 000	230	5 900	9.9	2 900	-	-	-	-	-170 000	
b.	Cropland	-9 100	3	90	0.2	50	-	-	-	-	-8 900	
c.	Grassland	-	20	500	0.5	200	-	-	-	-	700	
d.	Wetlands	4 000	-	-	-	-	-	-	-	-	4 000	
e.	Settlements	4 000	5	100	0.2	60	-	-	-	-	4 000	
f.	Harvested Wood Products	140 000	-	-	-	-	-	-	-	-	140 000	

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–5 2012 GHG Emission Summary for Canada

Greenhouse Gas Categories		Greenhouse Gases									
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
Unit		kt	kt	25 kt CO ₂ eq.	kt	298 kt CO ₂ eq.	kt CO ₂ eq.	kt CO ₂ eq.	22 800 kt CO ₂ eq.	17 200 kt CO ₂ eq.	kt CO ₂ eq.
TOTAL ¹		563 000	4 200	110 000	130	39 000	8 300	1 800	440	0.2	718 000
ENERGY		517 000	2 000	50 000	30	9 000	-	-	-	-	576 000
a.	Stationary Combustion Sources	313 000	200	5 000	9	3 000	-	-	-	-	321 000
	Public Electricity and Heat Production	91 000	7.1	180	1.9	570	-	-	-	-	91 500
	Petroleum Refining Industries	19 000	0.4	10	0.1	40	-	-	-	-	19 000
	Mining and Upstream Oil and Gas Production	88 400	80	2 000	2	600	-	-	-	-	91 000
	Manufacturing Industries	43 900	2.4	59	1.8	540	-	-	-	-	44 500
	Iron and Steel	5 450	0.13	3.3	0.1	40	-	-	-	-	5 480
	Non Ferrous Metals	2 920	0.05	1.3	0.04	10	-	-	-	-	2 930
	Chemical	10 900	0.21	5.3	0.2	60	-	-	-	-	11 000
	Pulp and Paper	6 000	1	30	0.9	300	-	-	-	-	6 000
	Cement	3 990	0.21	5.4	0.05	20	-	-	-	-	4 010
	Other Manufacturing	14 900	0.64	16	0.5	200	-	-	-	-	15 100
	Construction	1 360	0.02	0.59	0.04	10	-	-	-	-	1 370
	Commercial and Institutional	28 000	0.53	13	0.6	200	-	-	-	-	28 200
	Residential	38 300	100	3 000	2	600	-	-	-	-	42 100
	Agriculture and Forestry	3 530	0.06	1.6	0.1	30	-	-	-	-	3 560
	Transport ²	191 000	24	600	23	6 700	-	-	-	-	198 000
	Domestic Aviation	7 200	0.3	9	0.2	60	-	-	-	-	7 300
	Road Transportation	138 000	10	300	9.7	2 900	-	-	-	-	141 000
	Light-Duty Gasoline Vehicles	36 000	3.2	80	2.8	830	-	-	-	-	36 900
	Light-Duty Gasoline Trucks	44 800	4	100	3.6	1 100	-	-	-	-	46 000
	Heavy-Duty Gasoline Vehicles	7 610	0.31	7.8	0.65	190	-	-	-	-	7 810
	Motorcycles	163	0.07	1.7	0.0	0.93	-	-	-	-	166
	Light-Duty Diesel Vehicles	739	0.01	0.4	0.06	20	-	-	-	-	758
	Light-Duty Diesel Trucks	489	0.01	0.3	0.04	10	-	-	-	-	501
	Heavy-Duty Diesel Vehicles	46 800	2	50	3	800	-	-	-	-	47 700
	Propane and Natural Gas Vehicles	862	0.7	20	0.02	5	-	-	-	-	880
	Railways	6 790	0.4	10	3	800	-	-	-	-	7 600
	Domestic Navigation	5 530	0.5	10	0.1	40	-	-	-	-	5 600
	Other Transportation	33 800	10	300	10	3 000	-	-	-	-	37 000
	Off-Road Gasoline	4 360	5	100	0.1	30	-	-	-	-	4 500
	Off-Road Diesel	23 900	1	30	9	3 000	-	-	-	-	27 000
	Pipeline Transport	5 540	5.6	140	0.1	40	-	-	-	-	5 730
	Fugitive Sources	13 000	1 800	44 000	0.1	40	-	-	-	-	57 000
	Coal Mining	-	60	1 000	-	-	-	-	-	-	1 000
	Oil and Natural Gas	13 000	1 700	43 000	0.1	40	-	-	-	-	56 000
	Oil	220	260	6 600	0.1	30	-	-	-	-	6 800
	Natural Gas	72	490	12 000	-	-	-	-	-	-	12 000
	Venting	8 400	930	23 000	-	-	-	-	-	-	32 000
	Flaring	4 600	18	460	0.02	6	-	-	-	-	5 000
	CO ₂ Transport and Storage	0.09	-	-	-	-	-	-	-	-	0.09
INDUSTRIAL PROCESSES AND PRODUCT USE		43 800	3	74	4.58	1 360	8 300	1 800	440	-	55 800
a.	Mineral Products	8 500	-	-	-	-	-	-	-	-	8 500
	Cement Production	6 600	-	-	-	-	-	-	-	-	6 600
	Lime Production	1 450	-	-	-	-	-	-	-	-	1 450
	Mineral Product Use	440	-	-	-	-	-	-	-	-	440
	Chemical Industry	5 250	2.9	72	3.7	1 100	-	-	-	-	6 440
	Ammonia Production	3 000	-	-	-	-	-	-	-	-	3 000
	Nitric Acid Production	-	-	-	3.7	1 100	-	-	-	-	1 100
	Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
	Petrochemical and Carbon Black Production	2 300	2.9	72	0.04	11	-	-	-	-	2 300
c.	Metal Production	14 900	0.09	2	-	-	-	1 760	253	-	16 900
	Iron and Steel Production	10 200	0.09	2	-	-	-	-	-	-	10 200
	Aluminum Production	4 710	-	-	-	-	-	1 760	4.78	-	6 470
	SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	248	-	248
	Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	8 300	4.4	1.3	0.2	8 300
	Non-Energy Products from Fuels and Solvent Use	15 000	-	-	-	-	-	-	-	-	15 000
f.	Other Product Manufacture and Use	40	-	-	0.84	250	-	36	190	-	510
AGRICULTURE		2 000	1 200	29 000	90	27 000	-	-	-	-	58 000
a.	Enteric Fermentation	-	1 000	25 000	-	-	-	-	-	-	25 000
b.	Manure Management	-	150	3 600	20	5 000	-	-	-	-	8 400
c.	Agriculture Soils	-	-	-	74	22 000	-	-	-	-	22 000
	Direct Sources	-	-	-	60	18 000	-	-	-	-	18 000
	Indirect Sources	-	-	-	10	4 000	-	-	-	-	4 000
	Field Burning of Agricultural Residues	-	1	30	0.03	9	-	-	-	-	40
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	2 000	-	-	-	-	-	-	-	-	2 000
WASTE		400	1 100	27 000	4.3	1 300	-	-	-	-	28 000
a.	Solid Waste Disposal	-	1 000	26 000	-	-	-	-	-	-	26 000
b.	Biological Treatment of Solid Waste	-	20	600	2	500	-	-	-	-	1 000
c.	Wastewater Treatment and Discharge	-	15	390	2	700	-	-	-	-	1 000
d.	Incineration and Open Burning of Waste	400	0.1	3	0.5	100	-	-	-	-	540
LAND USE, LAND-USE CHANGE AND FORESTRY		22 000	500	12 000	20	6 000	-	-	-	-	41 000
a.	Forest Land	-120 000	440	11 000	19	5 500	-	-	-	-	-100 000
b.	Cropland	-9 300	4	90	0.2	50	-	-	-	-	-9 200
c.	Grassland	-	50	1 000	1	400	-	-	-	-	2 000
d.	Wetlands	4 000	-	-	-	-	-	-	-	-	4 000
e.	Settlements	4 000	5	100	0.2	60	-	-	-	-	4 000
f.	Harvested Wood Products	140 000	-	-	-	-	-	-	-	-	140 000

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–6 2011 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									
	CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	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.
TOTAL¹	558 000	4 200	100 000	130	38 000	8 000	1 700	400	0.2	710 000
ENERGY	516 000	1 900	48 000	30	10 000	-	-	-	-	574 000
a. Stationary Combustion Sources	312 000	200	5 000	9	3 000	-	-	-	-	320 000
Public Electricity and Heat Production	94 000	6.6	170	2	590	-	-	-	-	94 500
Petroleum Refining Industries	18 000	0.4	10	0.1	40	-	-	-	-	18 000
Mining and Upstream Oil and Gas Production	79 700	75	1 900	2	500	-	-	-	-	82 100
Manufacturing Industries	44 200	2.4	59	1.8	540	-	-	-	-	44 800
Iron and Steel	5 240	0.13	3.2	0.1	30	-	-	-	-	5 270
Non Ferrous Metals	3 290	0.06	1.5	0.04	10	-	-	-	-	3 310
Chemical	11 000	0.21	5.3	0.2	60	-	-	-	-	11 100
Pulp and Paper	6 000	1	30	0.9	300	-	-	-	-	6 300
Cement	4 280	0.2	4.9	0.05	20	-	-	-	-	4 300
Other Manufacturing	14 400	0.6	15	0.5	200	-	-	-	-	14 600
Construction	1 340	0.02	0.58	0.03	10	-	-	-	-	1 350
Commercial and Institutional	29 900	0.57	14	0.7	200	-	-	-	-	30 100
Residential	41 900	100	3 000	2	700	-	-	-	-	45 600
Agriculture and Forestry	3 430	0.06	1.5	0.09	30	-	-	-	-	3 460
b. Transport ²	191 000	24	610	24	7 200	-	-	-	-	199 000
Domestic Aviation	6 150	0.3	8	0.2	50	-	-	-	-	6 200
Road Transportation	136 000	10	300	11	3 200	-	-	-	-	140 000
Light-Duty Gasoline Vehicles	37 100	3.4	84	3.3	990	-	-	-	-	38 200
Light-Duty Gasoline Trucks	43 800	4	99	4.2	1 200	-	-	-	-	45 100
Heavy-Duty Gasoline Vehicles	7 330	0.32	7.9	0.61	180	-	-	-	-	7 510
Motorcycles	158	0.07	1.7	0.0	0.9	-	-	-	-	161
Light-Duty Diesel Vehicles	669	0.01	0.3	0.06	20	-	-	-	-	686
Light-Duty Diesel Trucks	467	0.01	0.3	0.04	10	-	-	-	-	479
Heavy-Duty Diesel Vehicles	46 000	2	50	3	800	-	-	-	-	46 800
Propane and Natural Gas Vehicles	801	0.7	20	0.02	5	-	-	-	-	820
Railways	6 730	0.4	10	3	800	-	-	-	-	7 500
Domestic Navigation	5 540	0.5	10	0.1	40	-	-	-	-	5 600
Other Transportation	36 000	10	300	10	3 000	-	-	-	-	39 000
Off-Road Gasoline	4 650	6	100	0.1	30	-	-	-	-	4 800
Off-Road Diesel	25 900	1	40	10	3 000	-	-	-	-	29 000
Pipeline Transport	5 470	5.5	140	0.1	40	-	-	-	-	5 650
c. Fugitive Sources	13 000	1 700	42 000	0.1	40	-	-	-	-	55 000
Coal Mining	-	50	1 000	-	-	-	-	-	-	1 000
Oil and Natural Gas	13 000	1 600	41 000	0.1	40	-	-	-	-	54 000
Oil	210	240	5 900	0.1	30	-	-	-	-	6 200
Natural Gas	70	480	12 000	-	-	-	-	-	-	12 000
Venting	8 400	900	22 000	-	-	-	-	-	-	31 000
Flaring	4 500	18	450	0.03	7	-	-	-	-	4 900
d. CO ₂ Transport and Storage	0.09	-	-	-	-	-	-	-	-	0.09
INDUSTRIAL PROCESSES AND PRODUCT USE	39 900	2.9	72	4.58	1 370	8 000	1 700	400	-	51 400
a. Mineral Products	7 900	-	-	-	-	-	-	-	-	7 900
Cement Production	6 100	-	-	-	-	-	-	-	-	6 100
Lime Production	1 430	-	-	-	-	-	-	-	-	1 430
Mineral Product Use	450	-	-	-	-	-	-	-	-	450
b. Chemical Industry	4 890	2.8	70	3.8	1 100	-	-	-	-	6 090
Ammonia Production	2 880	-	-	-	-	-	-	-	-	2 880
Nitric Acid Production	-	-	-	3.8	1 100	-	-	-	-	1 100
Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
Petrochemical and Carbon Black Production	2 000	2.8	70	0.03	10	-	-	-	-	2 100
c. Metal Production	15 100	0.09	2	-	-	-	1 670	256	-	17 100
Iron and Steel Production	10 100	0.09	2	-	-	-	-	-	-	10 100
Aluminum Production	5 070	-	-	-	-	-	1 670	73.2	-	6 810
SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	183	-	183
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	8 000	5.4	1.7	0.2	8 000
e. Non-Energy Products from Fuels and Solvent Use	12 000	-	-	-	-	-	-	-	-	12 000
f. Other Product Manufacture and Use	20	-	-	0.8	240	-	15	140	-	410
AGRICULTURE	2 000	1 200	29 000	84	25 000	-	-	-	-	56 000
a. Enteric Fermentation	-	1 000	25 000	-	-	-	-	-	-	25 000
b. Manure Management	-	150	3 700	20	5 000	-	-	-	-	8 400
c. Agriculture Soils	-	-	-	69	20 000	-	-	-	-	20 000
Direct Sources	-	-	-	55	16 000	-	-	-	-	16 000
Indirect Sources	-	-	-	10	4 000	-	-	-	-	4 000
d. Field Burning of Agricultural Residues	-	0.9	20	0.02	7	-	-	-	-	30
e. Liming, Urea Application and Other Carbon-containing Fertilizers	2 000	-	-	-	-	-	-	-	-	2 000
WASTE	470	1 100	27 000	4.4	1 300	-	-	-	-	29 000
a. Solid Waste Disposal	-	1 000	26 000	-	-	-	-	-	-	26 000
b. Biological Treatment of Solid Waste	-	20	500	2	500	-	-	-	-	1 000
c. Wastewater Treatment and Discharge	-	15	380	2	700	-	-	-	-	1 000
d. Incineration and Open Burning of Waste	470	0.1	3	0.6	200	-	-	-	-	650
LAND USE, LAND-USE CHANGE AND FORESTRY	49 000	550	14 000	23	6 800	-	-	-	-	69 000
a. Forest Land	-90 000	520	13 000	22	6 500	-	-	-	-	-71 000
b. Cropland	-9 500	3	90	0.2	50	-	-	-	-	-9 400
c. Grassland	-	20	500	0.5	100	-	-	-	-	600
d. Wetlands	4 000	-	-	-	-	-	-	-	-	4 000
e. Settlements	4 000	5	100	0.2	60	-	-	-	-	4 000
f. Harvested Wood Products	140 000	-	-	-	-	-	-	-	-	140 000

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–7 2010 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									
	CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
	Global Warming Potential Unit	25	25	298	298	25	25	22 800	17 200	
	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.
TOTAL¹	555 000	4 100	100 000	130	38 000	7 500	1 900	440	0.2	706 000
ENERGY	513 000	1 900	47 000	30	10 000	-	-	-	-	570 000
a. Stationary Combustion Sources	309 000	200	5 000	8	3 000	-	-	-	-	317 000
Public Electricity and Heat Production	100 000	5.9	150	2.1	620	-	-	-	-	102 000
Petroleum Refining Industries	18 000	0.4	10	0.1	40	-	-	-	-	18 000
Mining and Upstream Oil and Gas Production	78 100	74	1 900	2	500	-	-	-	-	80 400
Manufacturing Industries	40 700	2.4	59	1.8	530	-	-	-	-	41 300
Iron and Steel	4 400	0.11	2.9	0.1	30	-	-	-	-	4 440
Non Ferrous Metals	2 970	0.06	1.6	0.05	10	-	-	-	-	2 990
Chemical	9 850	0.19	4.8	0.2	50	-	-	-	-	9 910
Pulp and Paper	6 000	1	30	0.9	300	-	-	-	-	6 000
Cement	4 050	0.2	5	0.05	10	-	-	-	-	4 070
Other Manufacturing	13 700	0.61	15	0.5	200	-	-	-	-	13 900
Construction	1 500	0.03	0.65	0.04	10	-	-	-	-	1 510
Commercial and Institutional	28 000	0.53	13	0.6	200	-	-	-	-	28 200
Residential	38 800	100	3 000	2	600	-	-	-	-	42 500
Agriculture and Forestry	2 870	0.05	1.3	0.08	20	-	-	-	-	2 900
b. Transport ²	191 000	25	630	24	7 200	-	-	-	-	199 000
Domestic Aviation	6 420	0.3	8	0.2	60	-	-	-	-	6 500
Road Transportation	138 000	10	300	12	3 600	-	-	-	-	142 000
Light-Duty Gasoline Vehicles	39 300	3.6	90	3.9	1 200	-	-	-	-	40 500
Light-Duty Gasoline Trucks	43 900	4.1	100	4.9	1 500	-	-	-	-	45 500
Heavy-Duty Gasoline Vehicles	7 710	0.34	8.6	0.61	180	-	-	-	-	7 900
Motorcycles	160	0.07	1.7	0.0	0.89	-	-	-	-	163
Light-Duty Diesel Vehicles	609	0.01	0.3	0.05	10	-	-	-	-	624
Light-Duty Diesel Trucks	468	0.01	0.3	0.04	10	-	-	-	-	479
Heavy-Duty Diesel Vehicles	45 500	2	50	2	700	-	-	-	-	46 300
Propane and Natural Gas Vehicles	763	0.7	20	0.02	5	-	-	-	-	780
Railways	5 880	0.3	8	2	700	-	-	-	-	6 600
Domestic Navigation	6 700	0.6	20	0.2	50	-	-	-	-	6 800
Other Transportation	33 700	10	300	9	3 000	-	-	-	-	37 000
Off-Road Gasoline	4 990	6	200	0.1	30	-	-	-	-	5 200
Off-Road Diesel	23 200	1	30	9	3 000	-	-	-	-	26 000
Pipeline Transport	5 530	5.6	140	0.2	40	-	-	-	-	5 720
c. Fugitive Sources	13 000	1 700	41 000	0.1	40	-	-	-	-	54 000
Coal Mining	-	60	1 000	-	-	-	-	-	-	1 000
Oil and Natural Gas	13 000	1 600	40 000	0.1	40	-	-	-	-	53 000
Oil	220	230	5 800	0.1	30	-	-	-	-	6 000
Natural Gas	68	490	12 000	-	-	-	-	-	-	12 000
Venting	8 600	850	21 000	-	-	-	-	-	-	30 000
Flaring	4 200	17	440	0.03	9	-	-	-	-	4 700
d. CO ₂ Transport and Storage	0.09	-	-	-	-	-	-	-	-	0.09
INDUSTRIAL PROCESSES AND PRODUCT USE	39 300	2.9	71	4.37	1 300	7 500	1 900	440	-	50 500
a. Mineral Products	7 800	-	-	-	-	-	-	-	-	7 800
Cement Production	6 000	-	-	-	-	-	-	-	-	6 000
Lime Production	1 370	-	-	-	-	-	-	-	-	1 370
Mineral Product Use	410	-	-	-	-	-	-	-	-	410
b. Chemical Industry	4 330	2.8	69	3.6	1 100	-	-	-	-	5 470
Ammonia Production	2 490	-	-	-	-	-	-	-	-	2 490
Nitric Acid Production	-	-	-	3.6	1 100	-	-	-	-	1 100
Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
Petrochemical and Carbon Black Production	1 800	2.8	69	0.03	9.8	-	-	-	-	1 900
c. Metal Production	14 100	0.08	2	-	-	-	1 850	256	-	16 200
Iron and Steel Production	9 160	0.08	2	-	-	-	-	-	-	9 170
Aluminum Production	4 950	-	-	-	-	-	1 850	72.7	-	6 870
SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	183	-	183
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	7 500	5.1	1.6	0.2	7 500
e. Non-Energy Products from Fuels and Solvent Use	13 000	-	-	-	-	-	-	-	-	13 000
f. Other Product Manufacture and Use	10	-	-	0.78	230	-	7.3	180	-	430
AGRICULTURE	2 000	1 200	29 000	86	26 000	-	-	-	-	57 000
a. Enteric Fermentation	-	1 000	26 000	-	-	-	-	-	-	26 000
b. Manure Management	-	150	3 700	20	5 000	-	-	-	-	8 500
c. Agriculture Soils	-	-	-	70	21 000	-	-	-	-	21 000
Direct Sources	-	-	-	56	17 000	-	-	-	-	17 000
Indirect Sources	-	-	-	10	4 000	-	-	-	-	4 000
d. Field Burning of Agricultural Residues	-	1	30	0.03	8	-	-	-	-	30
e. Liming, Urea Application and Other Carbon-containing Fertilizers	2 000	-	-	-	-	-	-	-	-	2 000
WASTE	480	1 100	27 000	4.5	1 300	-	-	-	-	29 000
a. Solid Waste Disposal	-	1 000	26 000	-	-	-	-	-	-	26 000
b. Biological Treatment of Solid Waste	-	20	600	2	500	-	-	-	-	1 000
c. Wastewater Treatment and Discharge	-	15	380	2	600	-	-	-	-	1 000
d. Incineration and Open Burning of Waste	480	0.1	3	0.6	200	-	-	-	-	660
LAND USE, LAND-USE CHANGE AND FORESTRY	36 000	490	12 000	20	6 100	-	-	-	-	55 000
a. Forest Land	-100 000	470	12 000	20	5 900	-	-	-	-	-83 000
b. Cropland	-9 600	4	100	0.2	60	-	-	-	-	-9 400
c. Grassland	-	10	200	0.3	80	-	-	-	-	300
d. Wetlands	4 000	0.5	10	0.02	6	-	-	-	-	4 000
e. Settlements	4 000	5	100	0.2	50	-	-	-	-	4 000
f. Harvested Wood Products	140 000	-	-	-	-	-	-	-	-	140 000

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

Table A9–8 2009 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									
	CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
	Global Warming Potential Unit	kt	kt	25 kt CO ₂ eq.	298 kt CO ₂ eq.	kt CO ₂ eq.	kt CO ₂ eq.	22 800 kt CO ₂ eq.	17 200 kt CO ₂ eq.	kt CO ₂ eq.
TOTAL¹		543 000	4 200	110 000	130	38 000	6 700	2 500	370	696 000
ENERGY		504 000	1 900	47 000	30	9 000	-	-	-	560 000
a. Stationary Combustion Sources		308 000	200	5 000	8	2 000	-	-	-	316 000
Public Electricity and Heat Production		99 000	5.2	130	2.1	620	-	-	-	100 000
Petroleum Refining Industries		19 000	0.4	10	0.1	40	-	-	-	19 000
Mining and Upstream Oil and Gas Production		75 400	76	1 900	2	500	-	-	-	77 800
Manufacturing Industries		39 900	2.3	57	1.7	510	-	-	-	40 400
Iron and Steel		4 250	0.12	3	0.1	30	-	-	-	4 290
Non Ferrous Metals		2 830	0.06	1.6	0.04	10	-	-	-	2 850
Chemical		8 820	0.18	4.4	0.2	50	-	-	-	8 870
Pulp and Paper		6 000	1	30	0.9	300	-	-	-	6 400
Cement		4 460	0.21	5.2	0.05	20	-	-	-	4 480
Other Manufacturing		13 400	0.56	14	0.5	100	-	-	-	13 500
Construction		1 210	0.02	0.53	0.03	9	-	-	-	1 220
Commercial and Institutional		29 400	0.56	14	0.6	200	-	-	-	29 600
Residential		41 500	100	3 000	2	600	-	-	-	44 900
Agriculture and Forestry		2 530	0.05	1.1	0.07	20	-	-	-	2 550
b. Transport ²		182 000	25	610	22	6 600	-	-	-	189 000
Domestic Aviation		6 400	0.4	9	0.2	60	-	-	-	6 500
Road Transportation		136 000	10	300	13	3 800	-	-	-	140 000
Light-Duty Gasoline Vehicles		39 800	3.7	93	4.4	1 300	-	-	-	41 200
Light-Duty Gasoline Trucks		42 300	4	99	5.3	1 600	-	-	-	43 900
Heavy-Duty Gasoline Vehicles		7 610	0.36	9	0.58	170	-	-	-	7 800
Motorcycles		154	0.07	1.7	0.0	0.86	-	-	-	157
Light-Duty Diesel Vehicles		531	0.01	0.3	0.04	10	-	-	-	544
Light-Duty Diesel Trucks		421	0.01	0.3	0.03	10	-	-	-	431
Heavy-Duty Diesel Vehicles		44 700	2	50	2	700	-	-	-	45 400
Propane and Natural Gas Vehicles		767	0.7	20	0.02	5	-	-	-	790
Railways		4 550	0.3	6	2	500	-	-	-	5 100
Domestic Navigation		6 430	0.6	10	0.2	50	-	-	-	6 500
Other Transportation		28 400	10	300	7	2 000	-	-	-	31 000
Off-Road Gasoline		4 420	5	100	0.1	30	-	-	-	4 600
Off-Road Diesel		17 800	1	30	7	2 000	-	-	-	20 000
Pipeline Transport		6 160	6.2	150	0.2	50	-	-	-	6 360
c. Fugitive Sources		14 000	1 700	42 000	0.1	40	-	-	-	55 000
Coal Mining		-	50	1 000	-	-	-	-	-	1 000
Oil and Natural Gas		14 000	1 600	41 000	0.1	40	-	-	-	54 000
Oil		210	230	5 700	0.1	30	-	-	-	5 900
Natural Gas		67	510	13 000	-	-	-	-	-	13 000
Venting		9 000	870	22 000	-	-	-	-	-	31 000
Flaring		4 400	18	460	0.04	10	-	-	-	4 900
d. CO ₂ Transport and Storage		0.09	-	-	-	-	-	-	-	0.09
INDUSTRIAL PROCESSES AND PRODUCT USE		36 700	2.8	70	6.71	2 000	6 700	2 500	370	48 300
a. Mineral Products		7 200	-	-	-	-	-	-	-	7 200
Cement Production		5 400	-	-	-	-	-	-	-	5 400
Lime Production		1 190	-	-	-	-	-	-	-	1 190
Mineral Product Use		610	-	-	-	-	-	-	-	610
b. Chemical Industry		4 050	2.7	68	5.9	1 800	-	-	-	5 870
Ammonia Production		2 400	-	-	-	-	-	-	-	2 400
Nitric Acid Production		-	-	-	3.7	1 100	-	-	-	1 100
Adipic Acid Production		-	-	-	2.1	640	-	-	-	640
Petrochemical and Carbon Black Production ³		1 700	2.7	68	0.03	8.7	-	-	-	1 700
c. Metal Production		13 200	0.07	2	-	-	-	2 500	198	15 900
Iron and Steel Production		8 140	0.07	2	-	-	-	-	-	8 140
Aluminum Production		5 030	-	-	-	-	-	2 500	13.1	7 540
SF ₆ Used in Magnesium Smelters and Casters		-	-	-	-	-	-	-	184	184
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³		-	-	-	-	6 700	5.7	0.73	0.2	6 700
e. Non-Energy Products from Fuels and Solvent Use		12 000	-	-	-	-	-	-	-	12 000
f. Other Product Manufacture and Use		2	-	-	0.84	250	-	4.8	180	430
AGRICULTURE		2 000	1 200	31 000	85	25 000	-	-	-	58 000
a. Enteric Fermentation		-	1 100	27 000	-	-	-	-	-	27 000
b. Manure Management		-	150	3 700	20	5 000	-	-	-	8 600
c. Agriculture Soils		-	-	-	68	20 000	-	-	-	20 000
Direct Sources		-	-	-	55	16 000	-	-	-	16 000
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		2 000	-	-	-	-	-	-	-	2 000
WASTE		470	1 100	28 000	4.4	1 300	-	-	-	30 000
a. Solid Waste Disposal		-	1 100	27 000	-	-	-	-	-	27 000
b. Biological Treatment of Solid Waste		-	20	600	2	500	-	-	-	1 000
c. Wastewater Treatment and Discharge		-	15	370	2	600	-	-	-	1 000
d. Incineration and Open Burning of Waste		470	0.1	3	0.6	200	-	-	-	650
LAND USE, LAND-USE CHANGE AND FORESTRY		-49 000	250	6 200	10	3 000	-	-	-	-40 000
a. Forest Land		-170 000	230	5 600	9.5	2 800	-	-	-	-170 000
b. Cropland		-9 800	4	90	0.2	60	-	-	-	-9 600
c. Grassland		-	10	300	0.3	100	-	-	-	400
d. Wetlands		4 000	0.5	10	0.02	7	-	-	-	4 000
e. Settlements		4 000	5	100	0.2	60	-	-	-	4 000
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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–9 2008 GHG Emission Summary for Canada

Greenhouse Gas Categories		Greenhouse Gases									
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
Unit		kt	kt	25 kt CO ₂ eq.	kt	298 kt CO ₂ eq.	kt CO ₂ eq.	kt CO ₂ eq.	22 800 kt CO ₂ eq.	17 200 kt CO ₂ eq.	kt CO ₂ eq.
TOTAL ¹		577 000	4 400	110 000	140	42 000	6 100	2 600	640	0.2	739 000
ENERGY		533 000	2 000	50 000	30	10 000	-	-	-	-	593 000
a.	Stationary Combustion Sources	330 000	200	5 000	9	3 000	-	-	-	-	337 000
	Public Electricity and Heat Production	110 000	5.5	140	2.3	700	-	-	-	-	116 000
	Petroleum Refining Industries	19 000	0.5	10	0.1	40	-	-	-	-	20 000
	Mining and Upstream Oil and Gas Production	73 800	81	2 000	2	500	-	-	-	-	76 300
	Manufacturing Industries	44 600	2.5	63	1.9	560	-	-	-	-	45 200
	Iron and Steel	5 720	0.16	4.1	0.1	40	-	-	-	-	5 770
	Non Ferrous Metals	3 770	0.09	2.3	0.06	20	-	-	-	-	3 790
	Chemical	8 740	0.17	4.3	0.2	40	-	-	-	-	8 790
	Pulp and Paper	6 000	1	30	0.9	300	-	-	-	-	6 300
	Cement	4 870	0.23	5.8	0.06	20	-	-	-	-	4 900
	Other Manufacturing	15 500	0.63	16	0.5	200	-	-	-	-	15 700
	Construction	1 370	0.02	0.59	0.03	10	-	-	-	-	1 380
	Commercial and Institutional	29 600	0.56	14	0.6	200	-	-	-	-	29 800
	Residential	43 400	100	3 000	2	600	-	-	-	-	47 000
	Agriculture and Forestry	2 610	0.05	1.1	0.07	20	-	-	-	-	2 630
b.	Transport ²	188 000	26	640	25	7 500	-	-	-	-	196 000
	Domestic Aviation	7 270	0.4	9	0.2	60	-	-	-	-	7 300
	Road Transportation	136 000	10	300	14	4 100	-	-	-	-	140 000
	Light-Duty Gasoline Vehicles	40 400	3.9	97	4.9	1 500	-	-	-	-	41 900
	Light-Duty Gasoline Trucks	41 300	4	99	5.8	1 700	-	-	-	-	43 100
	Heavy-Duty Gasoline Vehicles	7 580	0.39	9.8	0.57	170	-	-	-	-	7 760
	Motorcycles	150	0.07	1.6	0.0	0.83	-	-	-	-	152
	Light-Duty Diesel Vehicles	511	0.01	0.3	0.04	10	-	-	-	-	523
	Light-Duty Diesel Trucks	397	0.01	0.3	0.03	9	-	-	-	-	407
	Heavy-Duty Diesel Vehicles	44 700	2	50	2	700	-	-	-	-	45 500
	Propane and Natural Gas Vehicles	860	0.8	20	0.02	5	-	-	-	-	880
	Railways	7 040	0.4	10	3	800	-	-	-	-	7 900
	Domestic Navigation	6 220	0.6	10	0.2	50	-	-	-	-	6 300
	Other Transportation	31 900	10	300	8	2 000	-	-	-	-	35 000
	Off-Road Gasoline	3 990	5	100	0.09	30	-	-	-	-	4 100
	Off-Road Diesel	20 600	1	30	8	2 000	-	-	-	-	23 000
	Pipeline Transport	7 280	7.3	180	0.2	60	-	-	-	-	7 520
c.	Fugitive Sources	15 000	1 800	44 000	0.1	40	-	-	-	-	59 000
	Coal Mining	-	50	1 000	-	-	-	-	-	-	1 000
	Oil and Natural Gas	15 000	1 700	43 000	0.1	40	-	-	-	-	57 000
	Oil	210	230	5 800	0.1	30	-	-	-	-	6 000
	Natural Gas	66	520	13 000	-	-	-	-	-	-	13 000
	Venting	9 800	930	23 000	-	-	-	-	-	-	33 000
	Flaring	4 700	22	540	0.02	6	-	-	-	-	5 200
d.	CO ₂ Transport and Storage	0.09	-	-	-	-	-	-	-	-	0.09
INDUSTRIAL PROCESSES AND PRODUCT USE		42 500	3.3	82	13	3 890	6 100	2 600	640	-	55 900
a.	Mineral Products	9 300	-	-	-	-	-	-	-	-	9 300
	Cement Production	7 000	-	-	-	-	-	-	-	-	7 000
	Lime Production	1 540	-	-	-	-	-	-	-	-	1 540
	Mineral Product Use	750	-	-	-	-	-	-	-	-	750
b.	Chemical Industry	4 790	3.2	80	12	3 600	-	-	-	-	8 420
	Ammonia Production	2 810	-	-	-	-	-	-	-	-	2 810
	Nitric Acid Production	-	-	-	4.1	1 200	-	-	-	-	1 200
	Adipic Acid Production	-	-	-	7.8	2 300	-	-	-	-	2 300
	Petrochemical and Carbon Black Production ³	2 000	3.2	80	0.03	10	-	-	-	-	2 100
c.	Metal Production	16 000	0.1	2	-	-	-	2 590	438	-	19 000
	Iron and Steel Production	10 800	0.1	2	-	-	-	-	-	-	10 800
	Aluminum Production	5 170	-	-	-	-	-	2 590	3.57	-	7 760
	SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	435	-	435
d.	Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	6 100	8.9	1.8	0.2	6 100
e.	Non-Energy Products from Fuels and Solvent Use	13 000	-	-	-	-	-	-	-	-	13 000
f.	Other Product Manufacture and Use	0.0	-	-	1.1	330	-	4.3	200	-	540
AGRICULTURE		2 000	1 300	32 000	88	26 000	-	-	-	-	60 000
a.	Enteric Fermentation	-	1 100	29 000	-	-	-	-	-	-	29 000
b.	Manure Management	-	150	3 800	20	5 000	-	-	-	-	9 000
c.	Agriculture Soils	-	-	-	71	21 000	-	-	-	-	21 000
	Direct Sources	-	-	-	57	17 000	-	-	-	-	17 000
	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	2 000	-	-	-	-	-	-	-	-	2 000
WASTE		490	1 100	28 000	4.5	1 300	-	-	-	-	30 000
a.	Solid Waste Disposal	-	1 100	27 000	-	-	-	-	-	-	27 000
b.	Biological Treatment of Solid Waste	-	20	600	2	500	-	-	-	-	1 000
c.	Wastewater Treatment and Discharge	-	15	370	2	600	-	-	-	-	1 000
d.	Incineration and Open Burning of Waste	490	0.1	3	0.6	200	-	-	-	-	680
LAND USE, LAND-USE CHANGE AND FORESTRY		-47 000	200	4 900	8.1	2 400	-	-	-	-	-40 000
a.	Forest Land	-180 000	170	4 300	7.2	2 100	-	-	-	-	-170 000
b.	Cropland	-9 800	4	100	0.2	60	-	-	-	-	-9 700
c.	Grassland	-	10	400	0.4	100	-	-	-	-	500
d.	Wetlands	4 000	0.5	10	0.02	6	-	-	-	-	4 000
e.	Settlements	4 000	6	200	0.2	70	-	-	-	-	4 000
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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–10 2007 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									
	CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
Global Warming Potential			25		298					
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.
TOTAL¹	596 000	4 500	110 000	130	40 000	6 200	2 500	730	0.2	758 000
ENERGY	549 000	2 000	51 000	40	10 000	-	-	-	-	611 000
a. Stationary Combustion Sources	346 000	200	5 000	9	3 000	-	-	-	-	354 000
Public Electricity and Heat Production	120 000	5.4	140	2.4	730	-	-	-	-	123 000
Petroleum Refining Industries	21 000	0.5	10	0.1	40	-	-	-	-	21 000
Mining and Upstream Oil and Gas Production	77 200	88	2 200	2	500	-	-	-	-	79 900
Manufacturing Industries	47 100	2.7	69	2	610	-	-	-	-	47 700
Iron and Steel	5 950	0.17	4.2	0.1	40	-	-	-	-	5 990
Non Ferrous Metals	3 790	0.09	2.2	0.06	20	-	-	-	-	3 810
Chemical	8 660	0.17	4.3	0.1	40	-	-	-	-	8 710
Pulp and Paper	7 000	1	30	1	300	-	-	-	-	7 800
Cement	5 010	0.24	5.9	0.06	20	-	-	-	-	5 040
Other Manufacturing	16 300	0.7	17	0.6	200	-	-	-	-	16 400
Construction	1 390	0.02	0.6	0.03	10	-	-	-	-	1 400
Commercial and Institutional	30 200	0.59	15	0.7	200	-	-	-	-	30 400
Residential	44 100	100	3 000	2	600	-	-	-	-	47 600
Agriculture and Forestry	2 600	0.05	1.1	0.07	20	-	-	-	-	2 630
b. Transport ²	189 000	27	680	26	7 800	-	-	-	-	197 000
Domestic Aviation	7 680	0.3	9	0.2	70	-	-	-	-	7 800
Road Transportation	136 000	10	300	15	4 500	-	-	-	-	141 000
Light-Duty Gasoline Vehicles	41 300	4.1	100	5.7	1 700	-	-	-	-	43 100
Light-Duty Gasoline Trucks	41 100	4.1	100	6.6	2 000	-	-	-	-	43 200
Heavy-Duty Gasoline Vehicles	7 510	0.41	10	0.55	160	-	-	-	-	7 690
Motorcycles	145	0.07	1.6	0.0	0.81	-	-	-	-	147
Light-Duty Diesel Vehicles	566	0.01	0.3	0.05	10	-	-	-	-	580
Light-Duty Diesel Trucks	400	0.01	0.3	0.03	9	-	-	-	-	410
Heavy-Duty Diesel Vehicles	44 300	2	50	2	700	-	-	-	-	45 100
Propane and Natural Gas Vehicles	815	0.7	20	0.02	5	-	-	-	-	840
Railways	6 640	0.4	9	3	800	-	-	-	-	7 400
Domestic Navigation	6 440	0.6	10	0.2	50	-	-	-	-	6 500
Other Transportation	31 800	10	400	8	2 000	-	-	-	-	35 000
Off-Road Gasoline	4 370	5	100	0.1	30	-	-	-	-	4 500
Off-Road Diesel	19 300	1	30	8	2 000	-	-	-	-	22 000
Pipeline Transport	8 180	8.2	200	0.2	70	-	-	-	-	8 450
c. Fugitive Sources	15 000	1 800	45 000	0.1	40	-	-	-	-	60 000
Coal Mining	-	50	1 000	-	-	-	-	-	-	1 000
Oil and Natural Gas	15 000	1 700	44 000	0.1	40	-	-	-	-	58 000
Oil	220	250	6 100	0.1	30	-	-	-	-	6 400
Natural Gas	63	530	13 000	-	-	-	-	-	-	13 000
Venting	9 500	950	24 000	-	-	-	-	-	-	33 000
Flaring	4 900	20	510	0.02	5	-	-	-	-	5 400
d. CO ₂ Transport and Storage	0.09	-	-	-	-	-	-	-	-	0.09
INDUSTRIAL PROCESSES AND PRODUCT USE	44 600	3.6	91	9.56	2 850	6 200	2 500	730	-	57 000
a. Mineral Products	10 000	-	-	-	-	-	-	-	-	10 000
Cement Production	7 800	-	-	-	-	-	-	-	-	7 800
Lime Production	1 590	-	-	-	-	-	-	-	-	1 590
Mineral Product Use	810	-	-	-	-	-	-	-	-	810
b. Chemical Industry	4 900	3.5	88	8.5	2 500	-	-	-	-	7 520
Ammonia Production	2 570	-	-	-	-	-	-	-	-	2 570
Nitric Acid Production	-	-	-	3.7	1 100	-	-	-	-	1 100
Adipic Acid Production	-	-	-	4.8	1 400	-	-	-	-	1 400
Petrochemical and Carbon Black Production	2 300	3.5	88	0.04	12	-	-	-	-	2 400
c. Metal Production	16 200	0.1	3	-	-	-	2 520	501	-	19 300
Iron and Steel Production	11 100	0.1	3	-	-	-	-	-	-	11 100
Aluminum Production	5 100	-	-	-	-	-	2 520	11.9	-	7 630
SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	489	-	489
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	6 200	7.5	0.58	0.2	6 200
e. Non-Energy Products from Fuels and Solvent Use	13 000	-	-	-	-	-	-	-	-	13 000
f. Other Product Manufacture and Use	-	-	-	1.1	310	-	3.8	220	-	540
AGRICULTURE	2 000	1 300	33 000	84	25 000	-	-	-	-	60 000
a. Enteric Fermentation	-	1 200	29 000	-	-	-	-	-	-	29 000
b. Manure Management	-	160	4 000	20	5 000	-	-	-	-	9 300
c. Agriculture Soils	-	-	-	66	20 000	-	-	-	-	20 000
Direct Sources	-	-	-	53	16 000	-	-	-	-	16 000
Indirect Sources	-	-	-	10	4 000	-	-	-	-	4 000
d. Field Burning of Agricultural Residues	-	1	30	0.03	9	-	-	-	-	40
e. Liming, Urea Application and Other Carbon-containing Fertilizers	2 000	-	-	-	-	-	-	-	-	2 000
WASTE	470	1 100	29 000	4.4	1 300	-	-	-	-	30 000
a. Solid Waste Disposal	-	1 100	28 000	-	-	-	-	-	-	28 000
b. Biological Treatment of Solid Waste	-	20	500	2	500	-	-	-	-	1 000
c. Wastewater Treatment and Discharge	-	14	360	2	600	-	-	-	-	1 000
d. Incineration and Open Burning of Waste	470	0.1	2	0.6	200	-	-	-	-	640
LAND USE, LAND-USE CHANGE AND FORESTRY	-3 900	320	8 000	13	4 000	-	-	-	-	8 100
a. Forest Land	-140 000	300	7 400	12	3 700	-	-	-	-	-120 000
b. Cropland	-9 900	4	100	0.2	70	-	-	-	-	-9 700
c. Grassland	-	10	300	0.3	100	-	-	-	-	400
d. Wetlands	4 000	-	-	-	-	-	-	-	-	4 000
e. Settlements	4 000	6	200	0.2	70	-	-	-	-	4 000
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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–11 2006 GHG Emission Summary for Canada

Greenhouse Gas Categories		Greenhouse Gases									
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
Unit		kt	kt	25 kt CO ₂ eq.	kt	298 kt CO ₂ eq.	kt CO ₂ eq.	kt CO ₂ eq.	22 800 kt CO ₂ eq.	17 200 kt CO ₂ eq.	kt CO ₂ eq.
TOTAL ¹		573 000	4 600	120 000	130	39 000	5 800	3 000	1 500	0.2	738 000
ENERGY		526 000	2 100	52 000	40	10 000	-	-	-	-	588 000
a.	Stationary Combustion Sources	325 000	200	5 000	9	3 000	-	-	-	-	333 000
	Public Electricity and Heat Production	120 000	5.7	140	2.4	710	-	-	-	-	118 000
	Petroleum Refining Industries	20 000	0.5	10	0.1	40	-	-	-	-	20 000
	Mining and Upstream Oil and Gas Production	68 800	84	2 100	2	500	-	-	-	-	71 400
	Manufacturing Industries	45 900	2.8	70	2.1	620	-	-	-	-	46 600
	Iron and Steel	5 500	0.16	4	0.1	40	-	-	-	-	5 540
	Non Ferrous Metals	3 430	0.07	1.8	0.05	10	-	-	-	-	3 450
	Chemical	8 820	0.18	4.4	0.2	50	-	-	-	-	8 870
	Pulp and Paper	7 000	1	40	1	300	-	-	-	-	7 500
	Cement	5 720	0.22	5.5	0.06	20	-	-	-	-	5 740
	Other Manufacturing	15 400	0.67	17	0.5	200	-	-	-	-	15 500
	Construction	1 390	0.02	0.6	0.03	10	-	-	-	-	1 400
	Commercial and Institutional	29 100	0.54	14	0.6	200	-	-	-	-	29 300
	Residential	39 900	100	3 000	2	600	-	-	-	-	43 300
	Agriculture and Forestry	2 050	0.04	0.87	0.06	20	-	-	-	-	2 070
b.	Transport ²	185 000	29	720	26	7 800	-	-	-	-	194 000
	Domestic Aviation	7 750	0.3	8	0.2	70	-	-	-	-	7 800
	Road Transportation	133 000	10	300	16	4 800	-	-	-	-	138 000
	Light-Duty Gasoline Vehicles	41 500	4.2	100	6.3	1 900	-	-	-	-	43 500
	Light-Duty Gasoline Trucks	40 100	4	100	7.1	2 100	-	-	-	-	42 300
	Heavy-Duty Gasoline Vehicles	7 240	0.42	11	0.5	150	-	-	-	-	7 400
	Motorcycles	137	0.06	1.6	0.0	0.75	-	-	-	-	139
	Light-Duty Diesel Vehicles	552	0.01	0.3	0.04	10	-	-	-	-	566
	Light-Duty Diesel Trucks	383	0.01	0.2	0.03	9	-	-	-	-	393
	Heavy-Duty Diesel Vehicles	42 600	2	50	2	700	-	-	-	-	43 300
	Propane and Natural Gas Vehicles	773	0.7	20	0.02	5	-	-	-	-	800
	Railways	6 200	0.3	9	2	700	-	-	-	-	6 900
	Domestic Navigation	5 830	0.5	10	0.2	50	-	-	-	-	5 900
	Other Transportation	32 200	20	400	7	2 000	-	-	-	-	35 000
	Off-Road Gasoline	5 080	6	100	0.1	30	-	-	-	-	5 300
	Off-Road Diesel	17 700	1	20	7	2 000	-	-	-	-	20 000
	Pipeline Transport	9 390	9.4	230	0.3	70	-	-	-	-	9 700
c.	Fugitive Sources	16 000	1 800	46 000	0.1	40	-	-	-	-	61 000
	Coal Mining	-	50	1 000	-	-	-	-	-	-	1 000
	Oil and Natural Gas	16 000	1 800	44 000	0.1	40	-	-	-	-	60 000
	Oil	190	250	6 200	0.1	30	-	-	-	-	6 400
	Natural Gas	61	540	13 000	-	-	-	-	-	-	14 000
	Venting	9 900	970	24 000	-	-	-	-	-	-	34 000
	Flaring	5 500	23	580	0.02	5	-	-	-	-	6 100
d.	CO ₂ Transport and Storage	0.09	-	-	-	-	-	-	-	-	0.09
INDUSTRIAL PROCESSES AND PRODUCT USE		45 600	3.6	91	8.99	2 680	5 800	3 000	1 500	-	58 700
a.	Mineral Products	10 000	-	-	-	-	-	-	-	-	10 000
	Cement Production	7 700	-	-	-	-	-	-	-	-	7 700
	Lime Production	1 630	-	-	-	-	-	-	-	-	1 630
	Mineral Product Use	880	-	-	-	-	-	-	-	-	880
b.	Chemical Industry	5 620	3.5	88	7.9	2 400	-	-	-	-	8 070
	Ammonia Production	2 780	-	-	-	-	-	-	-	-	2 780
	Nitric Acid Production	-	-	-	4	1 200	-	-	-	-	1 200
	Adipic Acid Production	-	-	-	3.9	1 200	-	-	-	-	1 200
	Petrochemical and Carbon Black Production	2 800	3.5	88	0.05	13	-	-	-	-	2 900
c.	Metal Production	16 400	0.1	3	-	-	-	2 980	1 350	-	20 700
	Iron and Steel Production	11 300	0.1	3	-	-	-	-	-	-	11 300
	Aluminum Production	5 090	-	-	-	-	-	2 980	12.5	-	8 080
	SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	1 340	-	1 340
d.	Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	5 800	6.6	2.6	0.2	5 800
e.	Non-Energy Products from Fuels and Solvent Use	13 000	-	-	-	-	-	-	-	-	13 000
f.	Other Product Manufacture and Use	-	-	-	1.1	320	-	3.5	170	-	490
AGRICULTURE		1 000	1 400	35 000	81	24 000	-	-	-	-	60 000
a.	Enteric Fermentation	-	1 200	30 000	-	-	-	-	-	-	30 000
b.	Manure Management	-	170	4 200	20	5 000	-	-	-	-	9 700
c.	Agriculture Soils	-	-	-	63	19 000	-	-	-	-	19 000
	Direct Sources	-	-	-	51	15 000	-	-	-	-	15 000
	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	1 000	-	-	-	-	-	-	-	-	1 000
WASTE		490	1 200	29 000	4.4	1 300	-	-	-	-	31 000
a.	Solid Waste Disposal	-	1 100	28 000	-	-	-	-	-	-	28 000
b.	Biological Treatment of Solid Waste	-	20	600	2	500	-	-	-	-	1 000
c.	Wastewater Treatment and Discharge	-	14	360	2	600	-	-	-	-	990
d.	Incineration and Open Burning of Waste	490	0.09	2	0.6	200	-	-	-	-	680
LAND USE, LAND-USE CHANGE AND FORESTRY		6 600	370	9 200	15	4 500	-	-	-	-	20 000
a.	Forest Land	-130 000	320	8 000	14	4 000	-	-	-	-	-120 000
b.	Cropland	-10 000	5	100	0.2	70	-	-	-	-	-9 900
c.	Grassland	-	40	900	0.9	300	-	-	-	-	1 000
d.	Wetlands	4 000	0.1	4	0.01	2	-	-	-	-	4 000
e.	Settlements	4 000	6	200	0.2	70	-	-	-	-	4 000
f.	Harvested Wood Products	140 000	-	-	-	-	-	-	-	-	140 000

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–12 2005 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									
	CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	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.
TOTAL¹	579 000	4 700	120 000	140	41 000	5 700	3 800	1 400	0.2	747 000
ENERGY	534 000	2 100	52 000	40	10 000	-	-	-	-	597 000
a. Stationary Combustion Sources	334 000	200	5 000	9	3 000	-	-	-	-	342 000
Public Electricity and Heat Production	120 000	5.6	140	2.5	750	-	-	-	-	124 000
Petroleum Refining Industries	20 000	0.5	10	0.2	50	-	-	-	-	20 000
Mining and Upstream Oil and Gas Production	65 200	84	2 100	2	500	-	-	-	-	67 800
Manufacturing Industries	48 000	2.8	70	2.1	630	-	-	-	-	48 700
Iron and Steel	5 500	0.16	3.9	0.1	40	-	-	-	-	5 550
Non Ferrous Metals	3 600	0.08	2	0.05	20	-	-	-	-	3 620
Chemical	8 280	0.17	4.2	0.1	40	-	-	-	-	8 320
Pulp and Paper	8 000	2	40	1	400	-	-	-	-	8 700
Cement	5 400	0.21	5.3	0.06	20	-	-	-	-	5 430
Other Manufacturing	16 900	0.63	16	0.5	200	-	-	-	-	17 100
Construction	1 440	0.03	0.62	0.03	10	-	-	-	-	1 450
Commercial and Institutional	31 900	0.59	15	0.7	200	-	-	-	-	32 100
Residential	41 900	100	3 000	2	600	-	-	-	-	45 400
Agriculture and Forestry	2 090	0.04	0.89	0.06	20	-	-	-	-	2 110
b. Transport ²	185 000	30	760	28	8 400	-	-	-	-	195 000
Domestic Aviation	7 570	0.3	8	0.2	70	-	-	-	-	7 600
Road Transportation	131 000	10	300	18	5 200	-	-	-	-	136 000
Light-Duty Gasoline Vehicles	41 900	4.5	110	7.2	2 100	-	-	-	-	44 100
Light-Duty Gasoline Trucks	39 000	4	100	7.8	2 300	-	-	-	-	41 500
Heavy-Duty Gasoline Vehicles	7 010	0.45	11	0.46	140	-	-	-	-	7 160
Motorcycles	127	0.06	1.5	0.0	0.7	-	-	-	-	130
Light-Duty Diesel Vehicles	510	0.01	0.3	0.04	10	-	-	-	-	522
Light-Duty Diesel Trucks	395	0.01	0.3	0.03	9	-	-	-	-	405
Heavy-Duty Diesel Vehicles	41 200	2	40	2	600	-	-	-	-	41 800
Propane and Natural Gas Vehicles	708	0.7	20	0.01	4	-	-	-	-	730
Railways	5 920	0.3	8	2	700	-	-	-	-	6 600
Domestic Navigation	6 320	0.6	10	0.2	50	-	-	-	-	6 400
Other Transportation	34 800	20	400	8	2 000	-	-	-	-	38 000
Off-Road Gasoline	5 860	7	200	0.1	40	-	-	-	-	6 100
Off-Road Diesel	19 100	1	30	7	2 000	-	-	-	-	21 000
Pipeline Transport	9 830	9.8	250	0.3	80	-	-	-	-	10 200
c. Fugitive Sources	15 000	1 800	46 000	0.1	40	-	-	-	-	61 000
Coal Mining	-	60	1 000	-	-	-	-	-	-	1 000
Oil and Natural Gas	15 000	1 800	45 000	0.1	40	-	-	-	-	59 000
Oil	170	250	6 200	0.1	30	-	-	-	-	6 400
Natural Gas	57	550	14 000	-	-	-	-	-	-	14 000
Venting	9 900	970	24 000	-	-	-	-	-	-	34 000
Flaring	4 800	21	530	0.01	4	-	-	-	-	5 300
d. CO ₂ Transport and Storage	0.09	-	-	-	-	-	-	-	-	0.09
INDUSTRIAL PROCESSES AND PRODUCT USE	43 100	3.6	90	13.8	4 130	5 700	3 800	1 400	-	58 300
a. Mineral Products	10 000	-	-	-	-	-	-	-	-	10 000
Cement Production	7 600	-	-	-	-	-	-	-	-	7 600
Lime Production	1 710	-	-	-	-	-	-	-	-	1 710
Mineral Product Use	910	-	-	-	-	-	-	-	-	910
b. Chemical Industry	5 620	3.5	88	13	3 800	-	-	-	-	9 470
Ammonia Production	2 710	-	-	-	-	-	-	-	-	2 710
Nitric Acid Production	-	-	-	4	1 200	-	-	-	-	1 200
Adipic Acid Production	-	-	-	8.5	2 500	-	-	-	-	2 500
Petrochemical and Carbon Black Production	2 900	3.5	88	0.04	13	-	-	-	-	3 000
c. Metal Production	15 100	0.09	2	-	-	-	3 830	1 250	-	20 200
Iron and Steel Production	10 300	0.09	2	-	-	-	-	-	-	10 300
Aluminum Production	4 840	-	-	-	-	-	3 830	16.7	-	8 680
SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	1 230	-	1 230
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	5 700	7.4	4.1	0.2	5 700
e. Non-Energy Products from Fuels and Solvent Use	12 000	-	-	-	-	-	-	-	-	12 000
f. Other Product Manufacture and Use	-	-	-	1.2	360	-	3	160	-	530
AGRICULTURE	1 000	1 400	36 000	82	24 000	-	-	-	-	61 000
a. Enteric Fermentation	-	1 300	31 000	-	-	-	-	-	-	31 000
b. Manure Management	-	170	4 300	20	6 000	-	-	-	-	9 800
c. Agriculture Soils	-	-	-	63	19 000	-	-	-	-	19 000
Direct Sources	-	-	-	51	15 000	-	-	-	-	15 000
Indirect Sources	-	-	-	10	4 000	-	-	-	-	4 000
d. Field Burning of Agricultural Residues	-	1	40	0.04	10	-	-	-	-	50
e. Liming, Urea Application and Other Carbon-containing Fertilizers	1 000	-	-	-	-	-	-	-	-	1 000
WASTE	500	1 100	29 000	4.4	1 300	-	-	-	-	31 000
a. Solid Waste Disposal	-	1 100	28 000	-	-	-	-	-	-	28 000
b. Biological Treatment of Solid Waste	-	20	600	2	500	-	-	-	-	1 000
c. Wastewater Treatment and Discharge	-	14	350	2	600	-	-	-	-	980
d. Incineration and Open Burning of Waste	500	0.09	2	0.7	200	-	-	-	-	700
LAND USE, LAND-USE CHANGE AND FORESTRY	-10 000	290	7 200	12	3 500	-	-	-	-	510
a. Forest Land	-160 000	250	6 200	10	3 100	-	-	-	-	-150 000
b. Cropland	-8 800	5	100	0.2	70	-	-	-	-	-8 600
c. Grassland	-	30	700	0.7	200	-	-	-	-	900
d. Wetlands	4 000	2	40	0.07	20	-	-	-	-	4 000
e. Settlements	4 000	6	100	0.2	60	-	-	-	-	4 000
f. Harvested Wood Products	150 000	-	-	-	-	-	-	-	-	150 000

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–13 2004 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									TOTAL
	CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	
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.
TOTAL¹	585 000	4 700	120 000	140	42 000	5 200	3 500	2 300	0.2	756 000
ENERGY	540 000	2 200	54 000	40	10 000	-	-	-	-	606 000
a. Stationary Combustion Sources	344 000	200	6 000	9	3 000	-	-	-	-	352 000
Public Electricity and Heat Production	120 000	5.6	140	2.5	750	-	-	-	-	125 000
Petroleum Refining Industries	22 000	0.6	10	0.2	50	-	-	-	-	22 000
Mining and Upstream Oil and Gas Production	67 100	98	2 400	2	500	-	-	-	-	70 000
Manufacturing Industries	50 500	2.9	73	2.1	640	-	-	-	-	51 200
Iron and Steel	5 780	0.16	4.1	0.1	40	-	-	-	-	5 830
Non Ferrous Metals	3 540	0.08	2	0.05	20	-	-	-	-	3 560
Chemical	9 130	0.19	4.7	0.2	50	-	-	-	-	9 180
Pulp and Paper	10 000	2	40	1	400	-	-	-	-	10 000
Cement	5 430	0.25	6.3	0.07	20	-	-	-	-	5 460
Other Manufacturing	16 800	0.64	16	0.5	200	-	-	-	-	16 900
Construction	1 410	0.03	0.61	0.03	9	-	-	-	-	1 420
Commercial and Institutional	33 600	0.61	15	0.7	200	-	-	-	-	33 800
Residential	42 700	100	3 000	2	600	-	-	-	-	46 400
Agriculture and Forestry	2 200	0.04	0.92	0.06	20	-	-	-	-	2 210
b. Transport ²	181 000	29	730	30	8 900	-	-	-	-	191 000
Domestic Aviation	7 460	0.3	7	0.2	70	-	-	-	-	7 500
Road Transportation	126 000	10	300	19	5 500	-	-	-	-	132 000
Light-Duty Gasoline Vehicles	42 200	4.7	120	7.9	2 400	-	-	-	-	44 700
Light-Duty Gasoline Trucks	37 800	4.1	100	8.2	2 400	-	-	-	-	40 300
Heavy-Duty Gasoline Vehicles	8 400	0.53	13	0.57	170	-	-	-	-	8 580
Motorcycles	119	0.06	1.6	0.0	0.66	-	-	-	-	122
Light-Duty Diesel Vehicles	585	0.01	0.3	0.05	10	-	-	-	-	599
Light-Duty Diesel Trucks	431	0.01	0.3	0.03	10	-	-	-	-	441
Heavy-Duty Diesel Vehicles	35 600	2	40	2	500	-	-	-	-	36 100
Propane and Natural Gas Vehicles	841	0.7	20	0.02	5	-	-	-	-	860
Railways	5 560	0.3	8	2	600	-	-	-	-	6 200
Domestic Navigation	6 610	0.6	20	0.2	50	-	-	-	-	6 700
Other Transportation	35 700	20	400	9	3 000	-	-	-	-	39 000
Off-Road Gasoline	5 690	7	200	0.1	40	-	-	-	-	5 900
Off-Road Diesel	21 800	1	30	8	3 000	-	-	-	-	24 000
Pipeline Transport	8 270	8.3	210	0.2	70	-	-	-	-	8 550
c. Fugitive Sources	16 000	1 900	48 000	0.1	40	-	-	-	-	63 000
Coal Mining	-	60	1 000	-	-	-	-	-	-	1 000
Oil and Natural Gas	16 000	1 800	46 000	0.1	40	-	-	-	-	62 000
Oil	180	260	6 600	0.1	30	-	-	-	-	6 800
Natural Gas	51	540	14 000	-	-	-	-	-	-	14 000
Venting	10 000	1 000	26 000	-	-	-	-	-	-	36 000
Flaring	5 100	18	450	0.02	5	-	-	-	-	5 500
d. CO ₂ Transport and Storage	0.09	-	-	-	-	-	-	-	-	0.09
INDUSTRIAL PROCESSES AND PRODUCT USE	43 100	4.5	110	15.3	4 560	5 200	3 500	2 300	-	58 800
a. Mineral Products	10 000	-	-	-	-	-	-	-	-	10 000
Cement Production	7 500	-	-	-	-	-	-	-	-	7 500
Lime Production	1 780	-	-	-	-	-	-	-	-	1 780
Mineral Product Use	880	-	-	-	-	-	-	-	-	880
b. Chemical Industry	6 160	4.4	110	14	4 200	-	-	-	-	10 400
Ammonia Production	2 930	-	-	-	-	-	-	-	-	2 930
Nitric Acid Production	-	-	-	4	1 200	-	-	-	-	1 200
Adipic Acid Production	-	-	-	10	3 000	-	-	-	-	3 000
Petrochemical and Carbon Black Production	3 200	4.4	110	0.05	15	-	-	-	-	3 400
c. Metal Production	14 900	0.1	2	-	-	-	3 510	2 120	-	20 500
Iron and Steel Production	10 600	0.1	2	-	-	-	-	-	-	10 600
Aluminum Production	4 220	-	-	-	-	-	3 510	30.4	-	7 770
SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	2 090	-	2 090
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	5 200	7.8	2.6	0.2	5 200
e. Non-Energy Products from Fuels and Solvent Use	12 000	-	-	-	-	-	-	-	-	12 000
f. Other Product Manufacture and Use	-	-	-	1.3	390	-	2.4	220	-	610
AGRICULTURE	1 000	1 400	35 000	83	25 000	-	-	-	-	61 000
a. Enteric Fermentation	-	1 200	31 000	-	-	-	-	-	-	31 000
b. Manure Management	-	170	4 200	20	5 000	-	-	-	-	9 700
c. Agriculture Soils	-	-	-	65	19 000	-	-	-	-	19 000
Direct Sources	-	-	-	52	16 000	-	-	-	-	16 000
Indirect Sources	-	-	-	10	4 000	-	-	-	-	4 000
d. Field Burning of Agricultural Residues	-	1	30	0.03	8	-	-	-	-	40
e. Liming, Urea Application and Other Carbon-containing Fertilizers	1 000	-	-	-	-	-	-	-	-	1 000
WASTE	500	1 100	28 000	4.4	1 300	-	-	-	-	30 000
a. Solid Waste Disposal	-	1 100	27 000	-	-	-	-	-	-	27 000
b. Biological Treatment of Solid Waste	-	20	500	2	500	-	-	-	-	1 000
c. Wastewater Treatment and Discharge	-	14	350	2	600	-	-	-	-	980
d. Incineration and Open Burning of Waste	500	0.09	2	0.7	200	-	-	-	-	710
LAND USE, LAND-USE CHANGE AND FORESTRY	63 000	570	14 000	24	7 000	-	-	-	-	84 000
a. Forest Land	-94 000	530	13 000	22	6 700	-	-	-	-	-74 000
b. Cropland	-7 500	5	100	0.3	80	-	-	-	-	-7 300
c. Grassland	-	30	700	0.7	200	-	-	-	-	900
d. Wetlands	4 000	0.8	20	0.03	10	-	-	-	-	4 000
e. Settlements	4 000	7	200	0.2	70	-	-	-	-	4 000
f. Harvested Wood Products	160 000	-	-	-	-	-	-	-	-	160 000

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–14 2003 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									
	CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	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.
TOTAL¹	587 000	4 700	120 000	130	40 000	4 600	3 500	2 700	0.2	755 000
ENERGY	544 000	2 200	55 000	40	10 000	-	-	-	-	611 000
a. Stationary Combustion Sources	352 000	200	6 000	9	3 000	-	-	-	-	361 000
Public Electricity and Heat Production	130 000	5.4	140	2.6	770	-	-	-	-	132 000
Petroleum Refining Industries	20 000	0.5	10	0.2	50	-	-	-	-	20 000
Mining and Upstream Oil and Gas Production	68 900	110	2 700	2	500	-	-	-	-	72 100
Manufacturing Industries	48 900	2.6	65	1.9	580	-	-	-	-	49 600
Iron and Steel	5 490	0.15	3.9	0.1	40	-	-	-	-	5 530
Non Ferrous Metals	3 530	0.08	1.9	0.05	20	-	-	-	-	3 550
Chemical	8 330	0.17	4.3	0.1	40	-	-	-	-	8 380
Pulp and Paper	10 000	1	40	1	300	-	-	-	-	10 000
Cement	4 970	0.22	5.6	0.06	20	-	-	-	-	4 990
Other Manufacturing	16 500	0.59	15	0.5	100	-	-	-	-	16 700
Construction	1 340	0.02	0.58	0.03	9	-	-	-	-	1 350
Commercial and Institutional	34 900	0.64	16	0.7	200	-	-	-	-	35 100
Residential	44 200	100	3 000	2	600	-	-	-	-	48 100
Agriculture and Forestry	2 280	0.04	0.97	0.06	20	-	-	-	-	2 300
b. Transport ²	176 000	29	740	31	9 300	-	-	-	-	186 000
Domestic Aviation	6 960	0.3	8	0.2	60	-	-	-	-	7 000
Road Transportation	122 000	10	300	20	5 900	-	-	-	-	128 000
Light-Duty Gasoline Vehicles	42 300	5	130	8.9	2 600	-	-	-	-	45 100
Light-Duty Gasoline Trucks	36 300	4.1	100	8.8	2 600	-	-	-	-	39 000
Heavy-Duty Gasoline Vehicles	8 000	0.55	14	0.51	150	-	-	-	-	8 170
Motorcycles	111	0.06	1.5	0.0	0.62	-	-	-	-	113
Light-Duty Diesel Vehicles	539	0.01	0.3	0.04	10	-	-	-	-	552
Light-Duty Diesel Trucks	405	0.01	0.3	0.03	10	-	-	-	-	415
Heavy-Duty Diesel Vehicles	33 300	1	40	2	500	-	-	-	-	33 900
Propane and Natural Gas Vehicles	798	0.7	20	0.02	5	-	-	-	-	820
Railways	5 410	0.3	8	2	600	-	-	-	-	6 000
Domestic Navigation	6 210	0.6	10	0.2	50	-	-	-	-	6 300
Other Transportation	35 900	20	400	9	3 000	-	-	-	-	39 000
Off-Road Gasoline	5 410	6	200	0.1	30	-	-	-	-	5 600
Off-Road Diesel	21 700	1	30	8	3 000	-	-	-	-	24 000
Pipeline Transport	8 830	8.8	220	0.2	70	-	-	-	-	9 120
c. Fugitive Sources	16 000	1 900	48 000	0.1	40	-	-	-	-	64 000
Coal Mining	-	60	1 000	-	-	-	-	-	-	1 000
Oil and Natural Gas	16 000	1 900	47 000	0.1	40	-	-	-	-	63 000
Oil	170	260	6 500	0.1	30	-	-	-	-	6 700
Natural Gas	51	550	14 000	-	-	-	-	-	-	14 000
Venting	10 000	1 000	26 000	-	-	-	-	-	-	37 000
Flaring	5 300	15	370	0.01	4	-	-	-	-	5 600
d. CO ₂ Transport and Storage	0.09	-	-	-	-	-	-	-	-	0.09
INDUSTRIAL PROCESSES AND PRODUCT USE	41 100	4	99	9.07	2 700	4 600	3 500	2 700	-	54 700
a. Mineral Products	9 700	-	-	-	-	-	-	-	-	9 700
Cement Production	7 200	-	-	-	-	-	-	-	-	7 200
Lime Production	1 650	-	-	-	-	-	-	-	-	1 650
Mineral Product Use	790	-	-	-	-	-	-	-	-	790
b. Chemical Industry	5 750	3.9	96	7.6	2 300	-	-	-	-	8 120
Ammonia Production	2 630	-	-	-	-	-	-	-	-	2 630
Nitric Acid Production	-	-	-	4.1	1 200	-	-	-	-	1 200
Adipic Acid Production	-	-	-	3.5	1 000	-	-	-	-	1 000
Petrochemical and Carbon Black Production	3 100	3.9	96	0.05	15	-	-	-	-	3 200
c. Metal Production	15 100	0.09	2	-	-	-	3 480	2 440	-	21 000
Iron and Steel Production	10 500	0.09	2	-	-	-	-	-	-	10 500
Aluminum Production	4 580	-	-	-	-	-	3 480	67.2	-	8 130
SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	2 370	-	2 370
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	4 600	6.3	3.3	0.2	4 600
e. Non-Energy Products from Fuels and Solvent Use	11 000	-	-	-	-	-	-	-	-	11 000
f. Other Product Manufacture and Use	-	-	-	1.4	430	-	1.9	210	-	640
AGRICULTURE	2 000	1 400	34 000	81	24 000	-	-	-	-	59 000
a. Enteric Fermentation	-	1 200	30 000	-	-	-	-	-	-	30 000
b. Manure Management	-	170	4 200	20	5 000	-	-	-	-	9 500
c. Agriculture Soils	-	-	-	63	19 000	-	-	-	-	19 000
Direct Sources	-	-	-	50	15 000	-	-	-	-	15 000
Indirect Sources	-	-	-	10	4 000	-	-	-	-	4 000
d. Field Burning of Agricultural Residues	-	4	100	0.1	30	-	-	-	-	100
e. Liming, Urea Application and Other Carbon-containing Fertilizers	2 000	-	-	-	-	-	-	-	-	2 000
WASTE	470	1 100	28 000	4.4	1 300	-	-	-	-	30 000
a. Solid Waste Disposal	-	1 100	27 000	-	-	-	-	-	-	27 000
b. Biological Treatment of Solid Waste	-	20	600	2	500	-	-	-	-	1 000
c. Wastewater Treatment and Discharge	-	14	350	2	600	-	-	-	-	970
d. Incineration and Open Burning of Waste	470	0.08	2	0.6	200	-	-	-	-	650
LAND USE, LAND-USE CHANGE AND FORESTRY	5 900	490	12 000	20	5 900	-	-	-	-	24 000
a. Forest Land	-130 000	440	11 000	18	5 500	-	-	-	-	-110 000
b. Cropland	-6 200	5	100	0.3	80	-	-	-	-	-6 000
c. Grassland	-	40	900	0.9	300	-	-	-	-	1 000
d. Wetlands	4 000	0.7	20	0.03	9	-	-	-	-	4 000
e. Settlements	4 000	6	200	0.2	70	-	-	-	-	4 000
f. Harvested Wood Products	140 000	-	-	-	-	-	-	-	-	140 000

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–15 2002 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									
	CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
	Global Warming Potential Unit	kt	kt	25 kt CO ₂ eq.	298 kt CO ₂ eq.	kt CO ₂ eq.	kt CO ₂ eq.	22 800 kt CO ₂ eq.	17 200 kt CO ₂ eq.	kt CO ₂ eq.
TOTAL¹		570 000	4 700	120 000	130	38 000	4 300	3 500	3 000	736 000
ENERGY		529 000	2 300	56 000	40	10 000	-	-	-	597 000
a. Stationary Combustion Sources		342 000	300	7 000	9	3 000	-	-	-	351 000
Public Electricity and Heat Production		130 000	4.7	120	2.4	700	-	-	-	127 000
Petroleum Refining Industries		19 000	0.5	10	0.2	50	-	-	-	19 000
Mining and Upstream Oil and Gas Production		65 700	110	2 800	2	500	-	-	-	68 900
Manufacturing Industries		51 000	2.7	68	2	610	-	-	-	51 700
Iron and Steel		5 820	0.16	4	0.1	40	-	-	-	5 860
Non Ferrous Metals		3 520	0.07	1.8	0.05	20	-	-	-	3 530
Chemical		9 270	0.18	4.6	0.2	50	-	-	-	9 320
Pulp and Paper		10 000	1	30	1	300	-	-	-	11 000
Cement		4 940	0.22	5.6	0.06	20	-	-	-	4 970
Other Manufacturing		16 800	0.8	20	0.6	200	-	-	-	17 000
Construction		1 260	0.02	0.55	0.03	9	-	-	-	1 270
Commercial and Institutional		33 700	0.61	15	0.7	200	-	-	-	33 900
Residential		42 000	200	4 000	2	700	-	-	-	46 500
Agriculture and Forestry		2 140	0.04	1	0.06	20	-	-	-	2 160
b. Transport ²		171 000	31	760	30	8 900	-	-	-	181 000
Domestic Aviation		6 860	0.3	8	0.2	60	-	-	-	6 900
Road Transportation		120 000	10	300	20	5 800	-	-	-	126 000
Light-Duty Gasoline Vehicles		42 800	5.2	130	9.1	2 700	-	-	-	45 600
Light-Duty Gasoline Trucks		35 200	4	99	8.5	2 500	-	-	-	37 900
Heavy-Duty Gasoline Vehicles		7 930	0.6	15	0.48	140	-	-	-	8 080
Motorcycles		103	0.06	1.5	0.0	0.58	-	-	-	105
Light-Duty Diesel Vehicles		529	0.01	0.3	0.04	10	-	-	-	541
Light-Duty Diesel Trucks		396	0.01	0.3	0.03	9	-	-	-	405
Heavy-Duty Diesel Vehicles		31 700	1	40	1	400	-	-	-	32 200
Propane and Natural Gas Vehicles		827	0.7	20	0.02	5	-	-	-	850
Railways		5 350	0.3	8	2	600	-	-	-	6 000
Domestic Navigation		5 360	0.5	10	0.1	40	-	-	-	5 400
Other Transportation		34 300	20	400	8	2 000	-	-	-	37 000
Off-Road Gasoline		4 980	6	100	0.1	30	-	-	-	5 200
Off-Road Diesel		18 800	1	30	7	2 000	-	-	-	21 000
Pipeline Transport		10 600	11	260	0.3	80	-	-	-	10 900
c. Fugitive Sources		16 000	2 000	49 000	0.1	40	-	-	-	65 000
Coal Mining		-	60	2 000	-	-	-	-	-	2 000
Oil and Natural Gas		16 000	1 900	47 000	0.1	40	-	-	-	63 000
Oil		180	250	6 300	0.1	30	-	-	-	6 500
Natural Gas		49	550	14 000	-	-	-	-	-	14 000
Venting		10 000	1 100	27 000	-	-	-	-	-	37 000
Flaring		5 000	11	290	0.01	4	-	-	-	5 300
d. CO ₂ Transport and Storage		0.09	-	-	-	-	-	-	-	0.09
INDUSTRIAL PROCESSES AND PRODUCT USE		39 200	4.2	110	9.38	2 800	4 300	3 500	3 000	52 900
a. Mineral Products		9 600	-	-	-	-	-	-	-	9 600
Cement Production		7 200	-	-	-	-	-	-	-	7 200
Lime Production		1 670	-	-	-	-	-	-	-	1 670
Mineral Product Use		820	-	-	-	-	-	-	-	820
b. Chemical Industry		5 720	4.1	100	8.1	2 400	-	-	-	8 250
Ammonia Production		2 630	-	-	-	-	-	-	-	2 630
Nitric Acid Production		-	-	-	4.1	1 200	-	-	-	1 200
Adipic Acid Production		-	-	-	4	1 200	-	-	-	1 200
Petrochemical and Carbon Black Production		3 100	4.1	100	0.05	15	-	-	-	3 200
c. Metal Production		15 000	0.09	2	-	-	-	3 440	2 880	21 300
Iron and Steel Production		10 600	0.09	2	-	-	-	-	-	10 600
Aluminum Production		4 420	-	-	-	-	-	3 440	76.5	7 930
SF ₆ Used in Magnesium Smelters and Casters		-	-	-	-	-	-	2 800	-	2 800
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³		-	-	-	-	-	4 300	23	3.3	4 300
e. Non-Energy Products from Fuels and Solvent Use		8 900	-	-	-	-	-	-	-	8 900
f. Other Product Manufacture and Use		-	-	-	1.2	370	-	1.7	140	510
AGRICULTURE		2 000	1 300	34 000	75	22 000	-	-	-	57 000
a. Enteric Fermentation		-	1 200	29 000	-	-	-	-	-	29 000
b. Manure Management		-	170	4 200	20	5 000	-	-	-	9 500
c. Agriculture Soils		-	-	-	57	17 000	-	-	-	17 000
Direct Sources		-	-	-	46	14 000	-	-	-	14 000
Indirect Sources		-	-	-	10	3 000	-	-	-	3 000
d. Field Burning of Agricultural Residues		-	3	90	0.09	30	-	-	-	100
e. Liming, Urea Application and Other Carbon-containing Fertilizers		2 000	-	-	-	-	-	-	-	2 000
WASTE		530	1 100	27 000	4.5	1 300	-	-	-	29 000
a. Solid Waste Disposal		-	1 100	27 000	-	-	-	-	-	27 000
b. Biological Treatment of Solid Waste		-	20	600	2	500	-	-	-	1 000
c. Wastewater Treatment and Discharge		-	14	340	2	600	-	-	-	970
d. Incineration and Open Burning of Waste		530	0.08	2	0.7	200	-	-	-	750
LAND USE, LAND-USE CHANGE AND FORESTRY		68 000	670	17 000	28	8 300	-	-	-	93 000
a. Forest Land		-85 000	630	16 000	27	7 900	-	-	-	-62 000
b. Cropland		-4 800	5	100	0.3	80	-	-	-	-4 500
c. Grassland		-	30	800	0.9	300	-	-	-	1 000
d. Wetlands		4 000	0.0	0.03	0.0	0.01	-	-	-	4 000
e. Settlements		4 000	6	100	0.2	60	-	-	-	4 000
f. Harvested Wood Products		150 000	-	-	-	-	-	-	-	150 000

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–16 2001 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									
	CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	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.
TOTAL¹	565 000	4 800	120 000	130	39 000	3 800	4 000	2 600	0.2	733 000
ENERGY	525 000	2 400	59 000	40	10 000	-	-	-	-	596 000
a. Stationary Combustion Sources	339 000	300	7 000	9	3 000	-	-	-	-	348 000
Public Electricity and Heat Production	130 000	5	130	2.4	720	-	-	-	-	132 000
Petroleum Refining Industries	18 000	0.5	10	0.2	60	-	-	-	-	18 000
Mining and Upstream Oil and Gas Production	62 600	110	2 800	1	400	-	-	-	-	65 900
Manufacturing Industries	51 400	2.5	64	1.9	580	-	-	-	-	52 100
Iron and Steel	4 970	0.14	3.6	0.1	40	-	-	-	-	5 010
Non Ferrous Metals	3 780	0.08	2	0.06	20	-	-	-	-	3 800
Chemical	9 770	0.2	5	0.2	50	-	-	-	-	9 830
Pulp and Paper	10 000	1	30	1	300	-	-	-	-	12 000
Cement	4 570	0.17	4.2	0.05	20	-	-	-	-	4 590
Other Manufacturing	17 000	0.74	18	0.6	200	-	-	-	-	17 200
Construction	1 020	0.02	0.44	0.03	8	-	-	-	-	1 030
Commercial and Institutional	32 200	0.63	16	0.7	200	-	-	-	-	32 500
Residential	39 900	100	4 000	2	700	-	-	-	-	44 100
Agriculture and Forestry	2 220	0.04	1	0.06	20	-	-	-	-	2 240
b. Transport ²	170 000	30	760	30	8 900	-	-	-	-	180 000
Domestic Aviation	7 050	0.4	9	0.2	60	-	-	-	-	7 100
Road Transportation	117 000	10	300	19	5 700	-	-	-	-	123 000
Light-Duty Gasoline Vehicles	42 400	5.2	130	9.1	2 700	-	-	-	-	45 200
Light-Duty Gasoline Trucks	33 800	3.8	96	8.2	2 400	-	-	-	-	36 300
Heavy-Duty Gasoline Vehicles	7 820	0.62	16	0.45	130	-	-	-	-	7 970
Motorcycles	92.1	0.06	1.5	0.0	0.53	-	-	-	-	94.1
Light-Duty Diesel Vehicles	502	0.01	0.3	0.04	10	-	-	-	-	514
Light-Duty Diesel Trucks	386	0.01	0.2	0.03	9	-	-	-	-	396
Heavy-Duty Diesel Vehicles	31 300	1	40	1	400	-	-	-	-	31 700
Propane and Natural Gas Vehicles	1 120	0.9	20	0.02	7	-	-	-	-	1 100
Railways	5 820	0.3	8	2	700	-	-	-	-	6 500
Domestic Navigation	5 340	0.5	10	0.1	40	-	-	-	-	5 400
Other Transportation	34 500	20	400	8	2 000	-	-	-	-	37 000
Off-Road Gasoline	5 130	6	100	0.1	30	-	-	-	-	5 300
Off-Road Diesel	19 400	1	30	8	2 000	-	-	-	-	22 000
Pipeline Transport	10 000	10	250	0.3	80	-	-	-	-	10 300
c. Fugitive Sources	16 000	2 100	52 000	0.1	40	-	-	-	-	68 000
Coal Mining	-	70	2 000	-	-	-	-	-	-	2 000
Oil and Natural Gas	16 000	2 000	50 000	0.1	40	-	-	-	-	66 000
Oil	170	260	6 600	0.1	30	-	-	-	-	6 800
Natural Gas	51	620	16 000	-	-	-	-	-	-	16 000
Venting	10 000	1 100	28 000	-	-	-	-	-	-	38 000
Flaring	5 000	9	220	0.01	4	-	-	-	-	5 200
d. CO ₂ Transport and Storage	0.09	-	-	-	-	-	-	-	-	0.09
INDUSTRIAL PROCESSES AND PRODUCT USE	37 800	4.3	110	8.14	2 420	3 800	4 000	2 600	-	50 800
a. Mineral Products	9 400	-	-	-	-	-	-	-	-	9 400
Cement Production	7 000	-	-	-	-	-	-	-	-	7 000
Lime Production	1 640	-	-	-	-	-	-	-	-	1 640
Mineral Product Use	770	-	-	-	-	-	-	-	-	770
b. Chemical Industry	5 640	4.3	110	6.8	2 000	-	-	-	-	7 760
Ammonia Production	2 600	-	-	-	-	-	-	-	-	2 600
Nitric Acid Production	-	-	-	4.1	1 200	-	-	-	-	1 200
Adipic Acid Production	-	-	-	2.6	770	-	-	-	-	770
Petrochemical and Carbon Black Production	3 000	4.3	110	0.05	14	-	-	-	-	3 200
c. Metal Production	15 000	0.1	2	-	-	-	4 010	2 290	-	21 400
Iron and Steel Production	10 800	0.1	2	-	-	-	-	-	-	10 800
Aluminum Production	4 200	-	-	-	-	-	4 010	41.9	-	8 260
SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	2 250	-	2 250
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	3 800	35	3.3	0.2	3 800
e. Non-Energy Products from Fuels and Solvent Use	7 800	-	-	-	-	-	-	-	-	7 800
f. Other Product Manufacture and Use	-	-	-	1.4	400	-	1.6	260	-	660
AGRICULTURE	1 000	1 300	33 000	78	23 000	-	-	-	-	58 000
a. Enteric Fermentation	-	1 200	29 000	-	-	-	-	-	-	29 000
b. Manure Management	-	160	4 100	20	5 000	-	-	-	-	9 300
c. Agriculture Soils	-	-	-	60	18 000	-	-	-	-	18 000
Direct Sources	-	-	-	48	14 000	-	-	-	-	14 000
Indirect Sources	-	-	-	10	4 000	-	-	-	-	4 000
d. Field Burning of Agricultural Residues	-	3	90	0.09	30	-	-	-	-	100
e. Liming, Urea Application and Other Carbon-containing Fertilizers	1 000	-	-	-	-	-	-	-	-	1 000
WASTE	560	1 100	27 000	4.5	1 300	-	-	-	-	29 000
a. Solid Waste Disposal	-	1 000	26 000	-	-	-	-	-	-	26 000
b. Biological Treatment of Solid Waste	-	20	600	2	500	-	-	-	-	1 000
c. Wastewater Treatment and Discharge	-	14	340	2	600	-	-	-	-	960
d. Incineration and Open Burning of Waste	560	0.08	2	0.7	200	-	-	-	-	770
LAND USE, LAND-USE CHANGE AND FORESTRY	-83 000	180	4 600	7.2	2 100	-	-	-	-	-76 000
a. Forest Land	-230 000	140	3 500	6	1 800	-	-	-	-	-220 000
b. Cropland	-3 400	6	100	0.3	80	-	-	-	-	-3 200
c. Grassland	-	30	700	0.8	200	-	-	-	-	1 000
d. Wetlands	4 000	0.0	0.03	0.0	0.01	-	-	-	-	4 000
e. Settlements	3 000	5	100	0.2	60	-	-	-	-	4 000
f. Harvested Wood Products	140 000	-	-	-	-	-	-	-	-	140 000

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–17 2000 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									
	CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	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.
TOTAL¹	572 000	4 800	120 000	130	40 000	3 400	5 000	2 900	0.2	744 000
ENERGY	530 000	2 400	61 000	40	10 000	-	-	-	-	603 000
a. Stationary Combustion Sources	343 000	300	7 000	9	3 000	-	-	-	-	352 000
Public Electricity and Heat Production	130 000	5	120	2.4	730	-	-	-	-	131 000
Petroleum Refining Industries	17 000	0.4	10	0.2	60	-	-	-	-	17 000
Mining and Upstream Oil and Gas Production	60 100	110	2 800	1	400	-	-	-	-	63 400
Manufacturing Industries	55 500	2.6	66	2	600	-	-	-	-	56 100
Iron and Steel	6 160	0.17	4.1	0.1	40	-	-	-	-	6 210
Non Ferrous Metals	3 580	0.07	1.8	0.05	20	-	-	-	-	3 590
Chemical	10 800	0.22	5.4	0.2	60	-	-	-	-	10 800
Pulp and Paper	10 000	2	40	1	400	-	-	-	-	13 000
Cement	4 610	0.17	4.3	0.05	20	-	-	-	-	4 630
Other Manufacturing	18 100	0.49	12	0.4	100	-	-	-	-	18 200
Construction	1 080	0.02	0.46	0.03	8	-	-	-	-	1 080
Commercial and Institutional	32 800	0.61	15	0.7	200	-	-	-	-	33 100
Residential	42 700	200	4 000	2	700	-	-	-	-	47 200
Agriculture and Forestry	2 550	0.04	1.1	0.06	20	-	-	-	-	2 570
b. Transport ²	172 000	32	800	30	9 000	-	-	-	-	181 000
Domestic Aviation	7 640	0.4	9	0.2	70	-	-	-	-	7 700
Road Transportation	115 000	10	300	19	5 500	-	-	-	-	121 000
Light-Duty Gasoline Vehicles	42 400	5.5	140	9	2 700	-	-	-	-	45 200
Light-Duty Gasoline Trucks	33 100	3.9	97	7.8	2 300	-	-	-	-	35 500
Heavy-Duty Gasoline Vehicles	7 200	0.67	17	0.36	110	-	-	-	-	7 330
Motorcycles	81.7	0.06	1.4	0.0	0.47	-	-	-	-	83.6
Light-Duty Diesel Vehicles	483	0.01	0.3	0.04	10	-	-	-	-	494
Light-Duty Diesel Trucks	375	0.01	0.2	0.03	9	-	-	-	-	384
Heavy-Duty Diesel Vehicles	30 400	1	40	1	400	-	-	-	-	30 900
Propane and Natural Gas Vehicles	1 070	1	20	0.02	6	-	-	-	-	1 100
Railways	5 880	0.3	8	2	700	-	-	-	-	6 600
Domestic Navigation	4 890	0.5	10	0.1	40	-	-	-	-	4 900
Other Transportation	38 200	20	500	9	3 000	-	-	-	-	41 000
Off-Road Gasoline	5 310	6	200	0.1	30	-	-	-	-	5 500
Off-Road Diesel	21 900	1	30	8	3 000	-	-	-	-	24 000
Pipeline Transport	11 000	11	270	0.3	90	-	-	-	-	11 300
c. Fugitive Sources	16 000	2 100	54 000	0.1	40	-	-	-	-	70 000
Coal Mining	-	70	2 000	-	-	-	-	-	-	2 000
Oil and Natural Gas	16 000	2 100	52 000	0.1	40	-	-	-	-	68 000
Oil	130	250	6 300	0.1	30	-	-	-	-	6 500
Natural Gas	54	700	17 000	-	-	-	-	-	-	18 000
Venting	10 000	1 100	28 000	-	-	-	-	-	-	38 000
Flaring	5 600	7	170	0.01	3	-	-	-	-	5 700
d. CO ₂ Transport and Storage	0.09	-	-	-	-	-	-	-	-	0.09
INDUSTRIAL PROCESSES AND PRODUCT USE	39 600	4.4	110	8.37	2 490	3 400	5 000	2 900	-	53 500
a. Mineral Products	10 000	-	-	-	-	-	-	-	-	10 000
Cement Production	7 200	-	-	-	-	-	-	-	-	7 200
Lime Production	1 870	-	-	-	-	-	-	-	-	1 870
Mineral Product Use	910	-	-	-	-	-	-	-	-	910
b. Chemical Industry	6 440	4.3	110	6.9	2 100	-	-	-	-	8 610
Ammonia Production	2 960	-	-	-	-	-	-	-	-	2 960
Nitric Acid Production	-	-	-	4	1 200	-	-	-	-	1 200
Adipic Acid Production	-	-	-	2.9	870	-	-	-	-	870
Petrochemical and Carbon Black Production	3 500	4.3	110	0.05	14	-	-	-	-	3 600
c. Metal Production	15 700	0.1	3	-	-	-	4 950	2 700	-	23 400
Iron and Steel Production	11 800	0.1	3	-	-	-	-	-	-	11 800
Aluminum Production	3 900	-	-	-	-	-	4 950	45.1	-	8 890
SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	2 660	-	2 660
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	3 400	36	2.9	0.2	3 400
e. Non-Energy Products from Fuels and Solvent Use	7 500	-	-	-	-	-	-	-	-	7 500
f. Other Product Manufacture and Use	-	-	-	1.5	430	-	1.6	200	-	630
AGRICULTURE	2 000	1 300	32 000	82	24 000	-	-	-	-	59 000
a. Enteric Fermentation	-	1 100	28 000	-	-	-	-	-	-	28 000
b. Manure Management	-	160	4 000	20	5 000	-	-	-	-	9 100
c. Agriculture Soils	-	-	-	65	19 000	-	-	-	-	19 000
Direct Sources	-	-	-	52	16 000	-	-	-	-	16 000
Indirect Sources	-	-	-	10	4 000	-	-	-	-	4 000
d. Field Burning of Agricultural Residues	-	4	100	0.1	30	-	-	-	-	100
e. Liming, Urea Application and Other Carbon-containing Fertilizers	2 000	-	-	-	-	-	-	-	-	2 000
WASTE	540	1 100	27 000	4.4	1 300	-	-	-	-	29 000
a. Solid Waste Disposal	-	1 000	26 000	-	-	-	-	-	-	26 000
b. Biological Treatment of Solid Waste	-	20	600	2	500	-	-	-	-	1 000
c. Wastewater Treatment and Discharge	-	14	350	2	600	-	-	-	-	950
d. Incineration and Open Burning of Waste	540	0.07	2	0.7	200	-	-	-	-	740
LAND USE, LAND-USE CHANGE AND FORESTRY	-85 000	100	2 600	3.8	1 100	-	-	-	-	-82 000
a. Forest Land	-250 000	61	1 500	2.6	770	-	-	-	-	-250 000
b. Cropland	-2 300	6	100	0.3	80	-	-	-	-	-2 000
c. Grassland	-	30	800	0.8	200	-	-	-	-	1 000
d. Wetlands	4 000	-	-	-	-	-	-	-	-	4 000
e. Settlements	3 000	5	100	0.2	50	-	-	-	-	4 000
f. Harvested Wood Products	160 000	-	-	-	-	-	-	-	-	160 000

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–18 1999 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									
	CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	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.
TOTAL¹	550 000	4 800	120 000	140	40 000	2 800	5 400	2 400	0.2	722 000
ENERGY	508 000	2 500	62 000	40	10 000	-	-	-	-	581 000
a. Stationary Combustion Sources	321 000	300	7 000	9	3 000	-	-	-	-	331 000
Public Electricity and Heat Production	120 000	4	100	2.3	670	-	-	-	-	120 000
Petroleum Refining Industries	17 000	0.4	10	0.2	50	-	-	-	-	17 000
Mining and Upstream Oil and Gas Production	56 300	110	2 800	1	400	-	-	-	-	59 400
Manufacturing Industries	55 200	2.6	65	2	600	-	-	-	-	55 900
Iron and Steel	6 280	0.17	4.2	0.1	40	-	-	-	-	6 330
Non Ferrous Metals	3 680	0.07	1.7	0.05	20	-	-	-	-	3 700
Chemical	11 100	0.23	5.7	0.2	60	-	-	-	-	11 200
Pulp and Paper	10 000	2	40	1	400	-	-	-	-	13 000
Cement	4 430	0.16	3.9	0.05	20	-	-	-	-	4 450
Other Manufacturing	17 500	0.48	12	0.4	100	-	-	-	-	17 600
Construction	1 160	0.02	0.5	0.03	10	-	-	-	-	1 170
Commercial and Institutional	28 900	0.53	13	0.6	200	-	-	-	-	29 100
Residential	40 400	200	4 000	2	700	-	-	-	-	45 100
Agriculture and Forestry	2 660	0.04	1.1	0.06	20	-	-	-	-	2 680
b. Transport ²	171 000	34	850	29	8 700	-	-	-	-	180 000
Domestic Aviation	7 730	0.4	9	0.2	70	-	-	-	-	7 800
Road Transportation	114 000	10	300	18	5 500	-	-	-	-	120 000
Light-Duty Gasoline Vehicles	42 700	5.6	140	9.1	2 700	-	-	-	-	45 600
Light-Duty Gasoline Trucks	32 300	3.8	94	7.6	2 300	-	-	-	-	34 700
Heavy-Duty Gasoline Vehicles	7 120	0.69	17	0.33	99	-	-	-	-	7 240
Motorcycles	74.2	0.05	1.4	0.0	0.43	-	-	-	-	76
Light-Duty Diesel Vehicles	457	0.01	0.3	0.04	10	-	-	-	-	468
Light-Duty Diesel Trucks	371	0.01	0.2	0.03	9	-	-	-	-	380
Heavy-Duty Diesel Vehicles	29 400	1	30	1	400	-	-	-	-	29 800
Propane and Natural Gas Vehicles	1 470	1	30	0.03	9	-	-	-	-	1 500
Railways	5 690	0.3	8	2	700	-	-	-	-	6 400
Domestic Navigation	4 720	0.4	10	0.1	40	-	-	-	-	4 800
Other Transportation	38 500	20	500	8	2 000	-	-	-	-	41 000
Off-Road Gasoline	5 870	7	200	0.1	40	-	-	-	-	6 100
Off-Road Diesel	20 400	1	30	8	2 000	-	-	-	-	23 000
Pipeline Transport	12 200	12	310	0.3	100	-	-	-	-	12 600
c. Fugitive Sources	16 000	2 200	54 000	0.1	40	-	-	-	-	70 000
Coal Mining	-	70	2 000	-	-	-	-	-	-	2 000
Oil and Natural Gas	16 000	2 100	52 000	0.1	40	-	-	-	-	69 000
Oil	130	250	6 200	0.1	30	-	-	-	-	6 400
Natural Gas	53	780	19 000	-	-	-	-	-	-	19 000
Venting	11 000	1 100	27 000	-	-	-	-	-	-	37 000
Flaring	5 400	8.2	200	0.01	3	-	-	-	-	5 600
d. CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE	40 100	4.3	110	10.8	3 210	2 800	5 400	2 400	-	54 000
a. Mineral Products	9 800	-	-	-	-	-	-	-	-	9 800
Cement Production	7 100	-	-	-	-	-	-	-	-	7 100
Lime Production	1 920	-	-	-	-	-	-	-	-	1 920
Mineral Product Use	790	-	-	-	-	-	-	-	-	790
b. Chemical Industry	6 870	4.2	110	9.5	2 800	-	-	-	-	9 800
Ammonia Production	3 000	-	-	-	-	-	-	-	-	3 000
Nitric Acid Production	-	-	-	3.8	1 100	-	-	-	-	1 100
Adipic Acid Production	-	-	-	5.6	1 700	-	-	-	-	1 700
Petrochemical and Carbon Black Production ³	3 900	4.2	110	0.05	16	-	-	-	-	4 000
c. Metal Production	15 600	0.1	3	-	-	-	5 340	2 220	-	23 200
Iron and Steel Production	11 600	0.1	3	-	-	-	-	-	-	11 600
Aluminum Production	3 950	-	-	-	-	-	5 340	51.1	-	9 340
SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	2 160	-	2 160
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	2 800	27	2.7	0.2	2 800
e. Non-Energy Products from Fuels and Solvent Use	7 800	-	-	-	-	-	-	-	-	7 800
f. Other Product Manufacture and Use	-	-	-	1.3	390	-	1.5	190	-	590
AGRICULTURE	2 000	1 300	32 000	82	24 000	-	-	-	-	58 000
a. Enteric Fermentation	-	1 100	28 000	-	-	-	-	-	-	28 000
b. Manure Management	-	150	3 900	20	5 000	-	-	-	-	8 900
c. Agriculture Soils	-	-	-	65	19 000	-	-	-	-	19 000
Direct Sources	-	-	-	53	16 000	-	-	-	-	16 000
Indirect Sources	-	-	-	10	4 000	-	-	-	-	4 000
d. Field Burning of Agricultural Residues	-	5	100	0.1	30	-	-	-	-	100
e. Liming, Urea Application and Other Carbon-containing Fertilizers	2 000	-	-	-	-	-	-	-	-	2 000
WASTE	490	1 100	27 000	4.2	1 300	-	-	-	-	29 000
a. Solid Waste Disposal	-	1 000	26 000	-	-	-	-	-	-	26 000
b. Biological Treatment of Solid Waste	-	20	600	2	500	-	-	-	-	1 000
c. Wastewater Treatment and Discharge	-	15	360	2	600	-	-	-	-	960
d. Incineration and Open Burning of Waste	490	0.06	1	0.6	200	-	-	-	-	670
LAND USE, LAND-USE CHANGE AND FORESTRY	-28 000	340	8 400	14	4 100	-	-	-	-	-15 000
a. Forest Land	-190 000	300	7 500	13	3 800	-	-	-	-	-180 000
b. Cropland	-970	6	100	0.3	90	-	-	-	-	-740
c. Grassland	-	20	600	0.6	200	-	-	-	-	800
d. Wetlands	5 000	2	40	0.07	20	-	-	-	-	5 000
e. Settlements	3 000	5	100	0.2	60	-	-	-	-	4 000
f. Harvested Wood Products	150 000	-	-	-	-	-	-	-	-	150 000

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 C₂F₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–19 1998 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									
	CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
	Global Warming Potential 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.
TOTAL¹		534 000	4 800	120 000	140	43 000	2 200	6 500	2 400	708 000
ENERGY		493 000	2 500	63 000	40	10 000	-	-	-	567 000
a. Stationary Combustion Sources		309 000	300	7 000	9	3 000	-	-	-	318 000
Public Electricity and Heat Production		120 000	4	99	2.3	680	-	-	-	123 000
Petroleum Refining Industries		18 000	0.4	10	0.2	50	-	-	-	18 000
Mining and Upstream Oil and Gas Production		45 200	86	2 200	1	300	-	-	-	47 700
Manufacturing Industries		54 200	2.5	63	1.9	580	-	-	-	54 800
Iron and Steel		6 180	0.16	4.1	0.1	40	-	-	-	6 230
Non Ferrous Metals		3 870	0.08	2	0.06	20	-	-	-	3 890
Chemical		10 800	0.22	5.5	0.2	60	-	-	-	10 800
Pulp and Paper		10 000	1	40	1	300	-	-	-	12 000
Cement		4 160	0.15	3.9	0.05	20	-	-	-	4 180
Other Manufacturing		17 400	0.48	12	0.4	100	-	-	-	17 500
Construction		1 110	0.02	0.47	0.03	10	-	-	-	1 120
Commercial and Institutional		27 300	0.5	13	0.6	200	-	-	-	27 500
Residential		38 600	200	4 000	2	700	-	-	-	43 500
Agriculture and Forestry		2 580	0.04	1.1	0.06	20	-	-	-	2 600
b. Transport ²		167 000	35	880	28	8 300	-	-	-	176 000
Domestic Aviation		7 360	0.4	9	0.2	70	-	-	-	7 400
Road Transportation		111 000	10	300	18	5 300	-	-	-	116 000
Light-Duty Gasoline Vehicles		41 800	5.7	140	9	2 700	-	-	-	44 600
Light-Duty Gasoline Trucks		30 600	3.6	89	7.2	2 200	-	-	-	32 800
Heavy-Duty Gasoline Vehicles		7 030	0.77	19	0.29	86	-	-	-	7 140
Motorcycles		76.9	0.06	1.5	0.0	0.45	-	-	-	78.9
Light-Duty Diesel Vehicles		433	0.01	0.3	0.03	10	-	-	-	444
Light-Duty Diesel Trucks		384	0.01	0.2	0.03	9	-	-	-	393
Heavy-Duty Diesel Vehicles		28 800	1	30	1	300	-	-	-	29 200
Propane and Natural Gas Vehicles		1 740	1	30	0.03	10	-	-	-	1 800
Railways		5 380	0.3	8	2	600	-	-	-	6 000
Domestic Navigation		4 890	0.5	10	0.1	40	-	-	-	4 900
Other Transportation		38 100	20	500	8	2 000	-	-	-	41 000
Off-Road Gasoline		6 790	8	200	0.1	40	-	-	-	7 000
Off-Road Diesel		19 200	1	30	7	2 000	-	-	-	21 000
Pipeline Transport		12 100	12	300	0.3	100	-	-	-	12 500
c. Fugitive Sources		18 000	2 200	55 000	0.1	40	-	-	-	73 000
Coal Mining		-	80	2 000	-	-	-	-	-	2 000
Oil and Natural Gas		18 000	2 100	53 000	0.1	40	-	-	-	71 000
Oil		120	250	6 300	0.1	30	-	-	-	6 400
Natural Gas		59	800	20 000	-	-	-	-	-	20 000
Venting		10 000	1 100	27 000	-	-	-	-	-	37 000
Flaring		7 100	9	230	0.02	5	-	-	-	7 400
d. CO ₂ Transport and Storage		-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		38 300	3.9	97	21	6 270	2 200	6 500	2 400	55 700
a. Mineral Products		9 500	-	-	-	-	-	-	-	9 500
Cement Production		6 800	-	-	-	-	-	-	-	6 800
Lime Production		1 850	-	-	-	-	-	-	-	1 850
Mineral Product Use		940	-	-	-	-	-	-	-	940
b. Chemical Industry		6 470	3.8	94	20	5 900	-	-	-	12 400
Ammonia Production		3 100	-	-	-	-	-	-	-	3 100
Nitric Acid Production		-	-	-	3.3	1 000	-	-	-	1 000
Adipic Acid Production		-	-	-	16	4 900	-	-	-	4 900
Petrochemical and Carbon Black Production		3 400	3.8	94	0.05	16	-	-	-	3 500
c. Metal Production		15 300	0.1	3	-	-	-	6 450	2 160	24 000
Iron and Steel Production		11 400	0.1	3	-	-	-	-	-	11 400
Aluminum Production		3 980	-	-	-	-	-	6 450	56.4	10 500
SF ₆ Used in Magnesium Smelters and Casters		-	-	-	-	-	-	2 100	-	2 100
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³		-	-	-	-	-	2 200	21	4.1	2 200
e. Non-Energy Products from Fuels and Solvent Use		6 900	-	-	-	-	-	-	-	6 900
f. Other Product Manufacture and Use		-	-	-	1.3	390	-	1.3	190	580
AGRICULTURE		2 000	1 300	32 000	81	24 000	-	-	-	57 000
a. Enteric Fermentation		-	1 100	28 000	-	-	-	-	-	28 000
b. Manure Management		-	150	3 900	20	5 000	-	-	-	8 700
c. Agriculture Soils		-	-	-	64	19 000	-	-	-	19 000
Direct Sources		-	-	-	52	16 000	-	-	-	16 000
Indirect Sources		-	-	-	10	4 000	-	-	-	4 000
d. Field Burning of Agricultural Residues		-	6	200	0.2	50	-	-	-	200
e. Liming, Urea Application and Other Carbon-containing Fertilizers		2 000	-	-	-	-	-	-	-	2 000
WASTE		540	1 100	26 000	4.2	1 300	-	-	-	28 000
a. Solid Waste Disposal		-	1 000	25 000	-	-	-	-	-	25 000
b. Biological Treatment of Solid Waste		-	20	500	2	500	-	-	-	1 000
c. Wastewater Treatment and Discharge		-	15	380	2	600	-	-	-	960
d. Incineration and Open Burning of Waste		540	0.06	2	0.7	200	-	-	-	740
LAND USE, LAND-USE CHANGE AND FORESTRY		100 000	840	21 000	35	10 000	-	-	-	130 000
a. Forest Land		-55 000	800	20 000	34	10 000	-	-	-	-25 000
b. Cropland		430	7	200	0.3	100	-	-	-	690
c. Grassland		-	20	500	0.5	200	-	-	-	700
d. Wetlands		4 000	1	30	0.04	10	-	-	-	4 000
e. Settlements		3 000	5	100	0.2	50	-	-	-	4 000
f. Harvested Wood Products		150 000	-	-	-	-	-	-	-	150 000

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–20 1997 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									
	CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
Global Warming Potential			25		298					
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.
TOTAL¹	525 000	4 800	120 000	160	47 000	1 600	6 400	1 800	0.3	700 000
ENERGY	485 000	2 500	61 000	40	10 000	-	-	-	-	557 000
a. Stationary Combustion Sources	305 000	200	6 000	8	2 000	-	-	-	-	314 000
Public Electricity and Heat Production	110 000	3.2	81	2	610	-	-	-	-	110 000
Petroleum Refining Industries	19 000	0.5	10	0.2	60	-	-	-	-	19 000
Mining and Upstream Oil and Gas Production	42 200	73	1 800	1	300	-	-	-	-	44 300
Manufacturing Industries	57 200	2.4	61	1.9	570	-	-	-	-	57 800
Iron and Steel	6 120	0.17	4.1	0.1	40	-	-	-	-	6 160
Non Ferrous Metals	3 880	0.08	2	0.06	20	-	-	-	-	3 900
Chemical	10 200	0.21	5.3	0.2	50	-	-	-	-	10 200
Pulp and Paper	10 000	1	40	1	300	-	-	-	-	13 000
Cement	4 010	0.12	3	0.05	10	-	-	-	-	4 030
Other Manufacturing	20 100	0.43	11	0.4	100	-	-	-	-	20 200
Construction	1 240	0.02	0.51	0.03	10	-	-	-	-	1 250
Commercial and Institutional	29 900	0.54	14	0.6	200	-	-	-	-	30 100
Residential	43 700	200	4 000	2	700	-	-	-	-	48 400
Agriculture and Forestry	2 900	0.04	1.1	0.07	20	-	-	-	-	2 920
b. Transport ²	163 000	34	850	28	8 300	-	-	-	-	172 000
Domestic Aviation	7 070	0.3	8	0.2	60	-	-	-	-	7 100
Road Transportation	108 000	10	300	17	5 100	-	-	-	-	113 000
Light-Duty Gasoline Vehicles	42 900	6	150	9.2	2 700	-	-	-	-	45 800
Light-Duty Gasoline Trucks	28 400	3.4	84	6.6	2 000	-	-	-	-	30 500
Heavy-Duty Gasoline Vehicles	6 780	0.83	21	0.23	67	-	-	-	-	6 870
Motorcycles	66.3	0.06	1.4	0.0	0.4	-	-	-	-	68.2
Light-Duty Diesel Vehicles	417	0.01	0.3	0.03	10	-	-	-	-	427
Light-Duty Diesel Trucks	332	0.01	0.2	0.03	8	-	-	-	-	339
Heavy-Duty Diesel Vehicles	27 300	1	30	1	300	-	-	-	-	27 600
Propane and Natural Gas Vehicles	1 800	1	30	0.04	10	-	-	-	-	1 800
Railways	5 580	0.3	8	2	600	-	-	-	-	6 200
Domestic Navigation	4 250	0.4	10	0.1	30	-	-	-	-	4 300
Other Transportation	38 300	20	500	8	2 000	-	-	-	-	41 000
Off-Road Gasoline	5 870	7	200	0.1	40	-	-	-	-	6 100
Off-Road Diesel	20 200	1	30	8	2 000	-	-	-	-	23 000
Pipeline Transport	12 200	12	310	0.3	100	-	-	-	-	12 600
c. Fugitive Sources	16 000	2 200	55 000	0.1	40	-	-	-	-	71 000
Coal Mining	-	90	2 000	-	-	-	-	-	-	2 000
Oil and Natural Gas	16 000	2 100	52 000	0.1	40	-	-	-	-	69 000
Oil	120	260	6 500	0.1	30	-	-	-	-	6 600
Natural Gas	47	740	18 000	-	-	-	-	-	-	18 000
Venting	10 000	1 100	27 000	-	-	-	-	-	-	38 000
Flaring	5 600	7.8	200	0.01	3	-	-	-	-	5 800
d. CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE	38 500	4	100	36.1	10 800	1 600	6 400	1 800	-	59 100
a. Mineral Products	9 400	-	-	-	-	-	-	-	-	9 400
Cement Production	6 600	-	-	-	-	-	-	-	-	6 600
Lime Production	1 860	-	-	-	-	-	-	-	-	1 860
Mineral Product Use	990	-	-	-	-	-	-	-	-	990
b. Chemical Industry	6 430	4	99	35	11 000	-	-	-	-	17 100
Ammonia Production	2 800	-	-	-	-	-	-	-	-	2 800
Nitric Acid Production	-	-	-	3.4	1 000	-	-	-	-	1 000
Adipic Acid Production	-	-	-	32	9 500	-	-	-	-	9 500
Petrochemical and Carbon Black Production ³	3 600	4	99	0.06	17	-	-	-	-	3 700
c. Metal Production	15 000	0.1	2	-	-	-	6 350	1 650	-	23 000
Iron and Steel Production	11 100	0.1	2	-	-	-	-	-	-	11 100
Aluminum Production	3 930	-	-	-	-	-	6 350	56.4	-	10 300
SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	1 600	-	1 600
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	1 600	22	3	0.3	1 600
e. Non-Energy Products from Fuels and Solvent Use	7 600	-	-	-	-	-	-	-	-	7 600
f. Other Product Manufacture and Use	-	-	-	0.74	220	-	0.71	170	-	390
AGRICULTURE	2 000	1 300	32 000	80	24 000	-	-	-	-	57 000
a. Enteric Fermentation	-	1 100	28 000	-	-	-	-	-	-	28 000
b. Manure Management	-	150	3 800	20	5 000	-	-	-	-	8 600
c. Agriculture Soils	-	-	-	63	19 000	-	-	-	-	19 000
Direct Sources	-	-	-	51	15 000	-	-	-	-	15 000
Indirect Sources	-	-	-	10	4 000	-	-	-	-	4 000
d. Field Burning of Agricultural Residues	-	6	100	0.1	40	-	-	-	-	200
e. Liming, Urea Application and Other Carbon-containing Fertilizers	2 000	-	-	-	-	-	-	-	-	2 000
WASTE	510	1 000	26 000	4	1 200	-	-	-	-	28 000
a. Solid Waste Disposal	-	1 000	25 000	-	-	-	-	-	-	25 000
b. Biological Treatment of Solid Waste	-	20	500	2	500	-	-	-	-	1 000
c. Wastewater Treatment and Discharge	-	16	390	2	600	-	-	-	-	960
d. Incineration and Open Burning of Waste	510	0.06	1	0.6	200	-	-	-	-	690
LAND USE, LAND-USE CHANGE AND FORESTRY	-94 000	110	2 700	4.3	1 300	-	-	-	-	-90 000
a. Forest Land	-260 000	80	2 000	3.4	1 000	-	-	-	-	-260 000
b. Cropland	1 600	6	200	0.3	90	-	-	-	-	1 900
c. Grassland	-	20	400	0.4	100	-	-	-	-	600
d. Wetlands	4 000	0.2	4	0.01	2	-	-	-	-	4 000
e. Settlements	3 000	5	100	0.2	50	-	-	-	-	4 000
f. Harvested Wood Products	160 000	-	-	-	-	-	-	-	-	160 000

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–21 1996 GHG Emission Summary for Canada

Greenhouse Gas Categories		Greenhouse Gases								
		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃
Global Warming Potential		25	25	25	298	298	298	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.
TOTAL¹		511 000	4 700	120 000	160	48 000	1 200	6 500	1 800	0.3
ENERGY		471 000	2 400	60 000	30	10 000	-	-	-	-
a. Stationary Combustion Sources		298 000	300	6 000	8	2 000	-	-	-	-
Public Electricity and Heat Production		98 000	2.6	66	1.8	550	-	-	-	-
Petroleum Refining Industries		19 000	0.5	10	0.2	60	-	-	-	-
Mining and Upstream Oil and Gas Production		43 600	77	1 900	1	300	-	-	-	-
Manufacturing Industries		57 000	2.4	60	1.9	550	-	-	-	-
Iron and Steel		6 100	0.17	4.2	0.1	40	-	-	-	-
Non Ferrous Metals		4 000	0.08	2	0.06	20	-	-	-	-
Chemical		9 860	0.21	5.1	0.2	50	-	-	-	-
Pulp and Paper		10 000	1	30	1	300	-	-	-	-
Cement		4 100	0.18	4.6	0.05	20	-	-	-	-
Other Manufacturing		19 800	0.42	11	0.4	100	-	-	-	-
Construction		1 260	0.02	0.52	0.03	10	-	-	-	-
Commercial and Institutional		29 400	0.53	13	0.6	200	-	-	-	-
Residential		47 000	200	4 000	3	700	-	-	-	-
Agriculture and Forestry		2 910	0.04	1.1	0.07	20	-	-	-	-
b. Transport ²		158 000	35	870	26	7 800	-	-	-	-
Domestic Aviation		7 020	0.3	8	0.2	60	-	-	-	-
Road Transportation		103 000	10	300	16	4 800	-	-	-	-
Light-Duty Gasoline Vehicles		43 000	6.2	160	9.1	2 700	-	-	-	-
Light-Duty Gasoline Trucks		26 000	3.2	79	5.9	1 800	-	-	-	-
Heavy-Duty Gasoline Vehicles		6 510	0.86	22	0.18	54	-	-	-	-
Motorcycles		63.4	0.06	1.5	0.0	0.39	-	-	-	-
Light-Duty Diesel Vehicles		418	0.01	0.3	0.03	9	-	-	-	-
Light-Duty Diesel Trucks		302	0.01	0.2	0.02	7	-	-	-	-
Heavy-Duty Diesel Vehicles		25 200	1	30	0.8	200	-	-	-	-
Propane and Natural Gas Vehicles		1 940	1	30	0.04	10	-	-	-	-
Railways		5 500	0.3	8	2	600	-	-	-	-
Domestic Navigation		4 170	0.4	10	0.1	30	-	-	-	-
Other Transportation		37 500	20	500	8	2 000	-	-	-	-
Off-Road Gasoline		6 800	8	200	0.1	40	-	-	-	-
Off-Road Diesel		18 500	1	30	7	2 000	-	-	-	-
Pipeline Transport		12 100	12	300	0.3	100	-	-	-	-
c. Fugitive Sources		16 000	2 100	53 000	0.1	40	-	-	-	-
Coal Mining		-	90	2 000	-	-	-	-	-	-
Oil and Natural Gas		16 000	2 000	50 000	0.1	40	-	-	-	-
Oil		120	250	6 200	0.1	30	-	-	-	-
Natural Gas		52	750	19 000	-	-	-	-	-	-
Venting		10 000	1 000	25 000	-	-	-	-	-	-
Flaring		5 400	7.7	190	0.01	3	-	-	-	-
d. CO ₂ Transport and Storage		-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		37 300	4.2	110	41.3	12 300	1 200	6 500	1 800	-
a. Mineral Products		8 800	-	-	-	-	-	-	-	-
Cement Production		6 100	-	-	-	-	-	-	-	-
Lime Production		1 800	-	-	-	-	-	-	-	-
Mineral Product Use		890	-	-	-	-	-	-	-	-
b. Chemical Industry		6 310	4.1	100	41	12 000	-	-	-	-
Ammonia Production		2 800	-	-	-	-	-	-	-	-
Nitric Acid Production		-	-	-	3.6	1 100	-	-	-	-
Adipic Acid Production		-	-	-	37	11 000	-	-	-	-
Petrochemical and Carbon Black Production ³		3 500	4.1	100	0.05	16	-	-	-	-
c. Metal Production		15 100	0.1	3	-	-	-	6 480	1 620	-
Iron and Steel Production		11 300	0.1	3	-	-	-	-	-	-
Aluminum Production		3 860	-	-	-	-	-	6 480	56.4	-
SF ₆ Used in Magnesium Smelters and Casters		-	-	-	-	-	-	-	1 560	-
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³		-	-	-	-	-	1 200	26	3	0.3
e. Non-Energy Products from Fuels and Solvent Use		7 000	-	-	-	-	-	-	-	-
f. Other Product Manufacture and Use		-	-	-	0.7	210	-	0.18	150	-
AGRICULTURE		1 000	1 300	32 000	80	24 000	-	-	-	-
a. Enteric Fermentation		-	1 100	28 000	-	-	-	-	-	-
b. Manure Management		-	150	3 800	20	5 000	-	-	-	-
c. Agriculture Soils		-	-	-	64	19 000	-	-	-	-
Direct Sources		-	-	-	52	16 000	-	-	-	-
Indirect Sources		-	-	-	10	4 000	-	-	-	-
d. Field Burning of Agricultural Residues		-	5	100	0.1	40	-	-	-	-
e. Liming, Urea Application and Other Carbon-containing Fertilizers		1 000	-	-	-	-	-	-	-	-
WASTE		540	1 000	25 000	4.1	1 200	-	-	-	-
a. Solid Waste Disposal		-	980	24 000	-	-	-	-	-	-
b. Biological Treatment of Solid Waste		-	20	500	1	400	-	-	-	-
c. Wastewater Treatment and Discharge		-	16	400	2	600	-	-	-	-
d. Incineration and Open Burning of Waste		540	0.4	9	0.8	200	-	-	-	-
LAND USE, LAND-USE CHANGE AND FORESTRY		-48 000	260	6 600	11	3 200	-	-	-	-
a. Forest Land		-210 000	240	5 900	9.9	3 000	-	-	-	-
b. Cropland		2 800	6	200	0.3	90	-	-	-	-
c. Grassland		-	20	400	0.4	100	-	-	-	-
d. Wetlands		4 000	-	-	-	-	-	-	-	-
e. Settlements		3 000	5	100	0.2	50	-	-	-	-
f. Harvested Wood Products		150 000	-	-	-	-	-	-	-	-

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–22 1995 GHG Emission Summary for Canada

Greenhouse Gas Categories		Greenhouse Gases									
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
Unit		kt	kt	25 kt CO ₂ eq.	kt	298 kt CO ₂ eq.	kt CO ₂ eq.	kt CO ₂ eq.	22 800 kt CO ₂ eq.	17 200 kt CO ₂ eq.	kt CO ₂ eq.
TOTAL ¹		497 000	4 500	110 000	150	46 000	690	6 300	2 300	0.3	665 000
ENERGY		457 000	2 300	56 000	30	10 000	-	-	-	-	524 000
a.	Stationary Combustion Sources	289 000	300	6 000	8	2 000	-	-	-	-	298 000
	Public Electricity and Heat Production	98 000	3	74	1.9	560	-	-	-	-	98 900
	Petroleum Refining Industries	16 000	0.4	10	0.2	50	-	-	-	-	16 000
	Mining and Upstream Oil and Gas Production	44 000	78	1 900	1	300	-	-	-	-	46 200
	Manufacturing Industries	55 400	2.4	61	1.9	560	-	-	-	-	56 100
	Iron and Steel	5 730	0.16	4	0.1	40	-	-	-	-	5 780
	Non Ferrous Metals	3 220	0.06	1.6	0.04	10	-	-	-	-	3 230
	Chemical	10 200	0.21	5.2	0.2	50	-	-	-	-	10 300
	Pulp and Paper	10 000	1	40	1	300	-	-	-	-	13 000
	Cement	4 120	0.18	4.5	0.05	20	-	-	-	-	4 140
	Other Manufacturing	19 600	0.41	10	0.4	100	-	-	-	-	19 700
	Construction	1 170	0.02	0.48	0.03	9	-	-	-	-	1 180
	Commercial and Institutional	28 800	0.52	13	0.6	200	-	-	-	-	29 000
	Residential	42 300	200	4 000	2	700	-	-	-	-	47 300
	Agriculture and Forestry	2 740	0.04	1.1	0.07	20	-	-	-	-	2 770
b.	Transport ²	154 000	33	820	25	7 500	-	-	-	-	162 000
	Domestic Aviation	6 570	0.4	9	0.2	60	-	-	-	-	6 600
	Road Transportation	104 000	10	300	16	4 700	-	-	-	-	109 000
	Light-Duty Gasoline Vehicles	44 400	6.7	170	9.2	2 800	-	-	-	-	47 300
	Light-Duty Gasoline Trucks	25 000	3.1	78	5.5	1 700	-	-	-	-	26 700
	Heavy-Duty Gasoline Vehicles	6 630	0.93	23	0.15	46	-	-	-	-	6 700
	Motorcycles	66.1	0.07	1.7	0.0	0.41	-	-	-	-	68.2
	Light-Duty Diesel Vehicles	437	0.01	0.3	0.03	10	-	-	-	-	447
	Light-Duty Diesel Trucks	299	0.01	0.2	0.02	7	-	-	-	-	306
	Heavy-Duty Diesel Vehicles	25 400	1	30	0.8	200	-	-	-	-	25 700
	Propane and Natural Gas Vehicles	2 060	1	30	0.04	10	-	-	-	-	2 100
	Railways	5 630	0.3	8	2	600	-	-	-	-	6 300
	Domestic Navigation	4 060	0.4	9	0.1	30	-	-	-	-	4 100
	Other Transportation	33 100	20	500	7	2 000	-	-	-	-	36 000
	Off-Road Gasoline	5 060	6	100	0.1	30	-	-	-	-	5 200
	Off-Road Diesel	16 400	0.9	20	6	2 000	-	-	-	-	18 000
	Pipeline Transport	11 700	12	290	0.3	100	-	-	-	-	12 000
c.	Fugitive Sources	15 000	2 000	49 000	0.1	40	-	-	-	-	64 000
	Coal Mining	-	90	2 000	-	-	-	-	-	-	2 000
	Oil and Natural Gas	15 000	1 900	47 000	0.1	40	-	-	-	-	62 000
	Oil	120	240	6 000	0.1	30	-	-	-	-	6 100
	Natural Gas	39	680	17 000	-	-	-	-	-	-	17 000
	Venting	9 600	950	24 000	-	-	-	-	-	-	33 000
	Flaring	5 100	7.5	190	0.01	3	-	-	-	-	5 300
d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		38 000	4.1	100	38.6	11 500	690	6 300	2 300	-	58 900
a.	Mineral Products	9 100	-	-	-	-	-	-	-	-	9 100
	Cement Production	6 500	-	-	-	-	-	-	-	-	6 500
	Lime Production	1 860	-	-	-	-	-	-	-	-	1 860
	Mineral Product Use	750	-	-	-	-	-	-	-	-	750
b.	Chemical Industry	8 300	4	100	38	11 000	-	-	-	-	19 700
	Ammonia Production	2 940	-	-	-	-	-	-	-	-	2 940
	Nitric Acid Production	-	-	-	3.2	960	-	-	-	-	960
	Adipic Acid Production	-	-	-	35	10 000	-	-	-	-	10 000
	Petrochemical and Carbon Black Production	5 400	4	100	0.06	16	-	-	-	-	5 500
c.	Metal Production	15 100	0.1	3	-	-	-	6 310	2 070	-	23 500
	Iron and Steel Production	11 500	0.1	3	-	-	-	-	-	-	11 500
	Aluminum Production	3 640	-	-	-	-	-	6 310	56.4	-	10 000
	SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	2 010	-	2 010
d.	Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	690	35	4.4	0.3	730
e.	Non-Energy Products from Fuels and Solvent Use	5 500	-	-	-	-	-	-	-	-	5 500
f.	Other Product Manufacture and Use	-	-	-	0.69	200	-	0.03	200	-	410
AGRICULTURE		2 000	1 200	31 000	77	23 000	-	-	-	-	56 000
a.	Enteric Fermentation	-	1 100	27 000	-	-	-	-	-	-	27 000
b.	Manure Management	-	150	3 800	20	5 000	-	-	-	-	8 500
c.	Agriculture Soils	-	-	-	61	18 000	-	-	-	-	18 000
	Direct Sources	-	-	-	50	15 000	-	-	-	-	15 000
	Indirect Sources	-	-	-	10	3 000	-	-	-	-	3 000
d.	Field Burning of Agricultural Residues	-	6	100	0.1	40	-	-	-	-	200
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	2 000	-	-	-	-	-	-	-	-	2 000
WASTE		580	1 000	25 000	4.1	1 200	-	-	-	-	27 000
a.	Solid Waste Disposal	-	980	25 000	-	-	-	-	-	-	25 000
b.	Biological Treatment of Solid Waste	-	20	500	1	400	-	-	-	-	900
c.	Wastewater Treatment and Discharge	-	16	390	2	500	-	-	-	-	940
d.	Incineration and Open Burning of Waste	580	0.4	9	0.9	300	-	-	-	-	840
LAND USE, LAND-USE CHANGE AND FORESTRY		150 000	940	24 000	40	12 000	-	-	-	-	180 000
a.	Forest Land	-26 000	920	23 000	39	12 000	-	-	-	-	9 000
b.	Cropland	3 800	6	200	0.3	100	-	-	-	-	4 100
c.	Grassland	-	9	200	0.2	70	-	-	-	-	300
d.	Wetlands	4 000	0.01	0.3	0.0	0.2	-	-	-	-	4 000
e.	Settlements	3 000	4	100	0.2	50	-	-	-	-	4 000
f.	Harvested Wood Products	160 000	-	-	-	-	-	-	-	-	160 000

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 C₂F₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–23 1994 GHG Emission Summary for Canada

Greenhouse Gas Categories		Greenhouse Gases									
		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	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		483 000	4 400	110 000	150	45 000	-	6 900	2 400	0.3	646 000
ENERGY		446 000	2 100	54 000	30	10 000	-	-	-	-	509 000
a.	Stationary Combustion Sources	282 000	300	7 000	8	2 000	-	-	-	-	290 000
	Public Electricity and Heat Production	95 000	2.5	64	1.8	530	-	-	-	-	95 500
	Petroleum Refining Industries	16 000	0.4	10	0.2	50	-	-	-	-	16 000
	Mining and Upstream Oil and Gas Production	42 500	76	1 900	1	300	-	-	-	-	44 700
	Manufacturing Industries	53 700	2.5	62	1.9	560	-	-	-	-	54 300
	Iron and Steel	5 970	0.17	4.2	0.1	40	-	-	-	-	6 020
	Non Ferrous Metals	3 420	0.07	1.8	0.05	10	-	-	-	-	3 440
	Chemical	9 950	0.2	5.1	0.2	50	-	-	-	-	10 000
	Pulp and Paper	10 000	1	40	1	300	-	-	-	-	13 000
	Cement	4 040	0.2	5.1	0.05	20	-	-	-	-	4 060
	Other Manufacturing	17 700	0.38	9.6	0.3	100	-	-	-	-	17 800
	Construction	1 390	0.02	0.58	0.03	10	-	-	-	-	1 400
	Commercial and Institutional	27 300	0.52	13	0.6	200	-	-	-	-	27 500
	Residential	43 500	200	4 000	3	800	-	-	-	-	48 800
	Agriculture and Forestry	2 530	0.04	1.1	0.06	20	-	-	-	-	2 540
	Transport ²	150 000	32	790	24	7 200	-	-	-	-	158 000
	Domestic Aviation	6 190	0.3	8	0.2	60	-	-	-	-	6 300
	Road Transportation	103 000	10	300	15	4 600	-	-	-	-	108 000
	Light-Duty Gasoline Vehicles	45 100	7	180	9.1	2 700	-	-	-	-	48 000
	Light-Duty Gasoline Trucks	24 200	3.2	79	5.2	1 500	-	-	-	-	25 800
	Heavy-Duty Gasoline Vehicles	6 790	0.97	24	0.16	48	-	-	-	-	6 860
	Motorcycles	67.6	0.07	1.7	0.0	0.42	-	-	-	-	69.8
	Light-Duty Diesel Vehicles	459	0.01	0.3	0.03	10	-	-	-	-	470
	Light-Duty Diesel Trucks	265	0.01	0.2	0.02	6	-	-	-	-	271
	Heavy-Duty Diesel Vehicles	24 000	1	30	0.7	200	-	-	-	-	24 300
Propane and Natural Gas Vehicles	1 890	1	30	0.04	10	-	-	-	-	1 900	
Railways	6 210	0.3	9	2	700	-	-	-	-	6 900	
Domestic Navigation	4 350	0.4	10	0.1	30	-	-	-	-	4 400	
Other Transportation	30 200	20	400	6	2 000	-	-	-	-	33 000	
Off-Road Gasoline	4 830	6	100	0.1	30	-	-	-	-	5 000	
Off-Road Diesel	14 900	0.8	20	6	2 000	-	-	-	-	17 000	
Pipeline Transport	10 500	10	260	0.3	90	-	-	-	-	10 800	
Fugitive Sources	14 000	1 900	46 000	0.1	40	-	-	-	-	61 000	
Coal Mining	-	100	3 000	-	-	-	-	-	-	3 000	
Oil and Natural Gas	14 000	1 800	44 000	0.1	40	-	-	-	-	58 000	
Oil	110	220	5 500	0.1	30	-	-	-	-	5 700	
Natural Gas	36	650	16 000	-	-	-	-	-	-	16 000	
Venting	9 300	880	22 000	-	-	-	-	-	-	31 000	
Flaring	4 900	7.3	180	0.01	3	-	-	-	-	5 100	
CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-	
INDUSTRIAL PROCESSES AND PRODUCT USE		35 100	4.2	110	39.1	11 600	-	6 900	2 400	-	56 200
a.	Mineral Products	8 400	-	-	-	-	-	-	-	-	8 400
	Cement Production	5 700	-	-	-	-	-	-	-	-	5 700
	Lime Production	1 850	-	-	-	-	-	-	-	-	1 850
b.	Mineral Product Use	850	-	-	-	-	-	-	-	-	850
	Chemical Industry	6 760	4.1	100	39	11 000	-	-	-	-	18 300
	Ammonia Production	3 030	-	-	-	-	-	-	-	-	3 030
	Nitric Acid Production	-	-	-	3.1	920	-	-	-	-	920
	Adipic Acid Production	-	-	-	35	11 000	-	-	-	-	11 000
	Petrochemical and Carbon Black Production	3 700	4.1	100	0.06	17	-	-	-	-	3 800
c.	Metal Production	14 700	0.1	2	-	-	-	6 890	2 240	-	23 900
	Iron and Steel Production	11 000	0.1	2	-	-	-	-	-	-	11 000
	Aluminum Production	3 770	-	-	-	-	-	6 890	56.3	-	10 700
	SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	2 180	-	2 180
	Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	-	0.05	4.4	0.3	4.7
	Non-Energy Products from Fuels and Solvent Use	5 200	-	-	-	-	-	-	-	-	5 200
f.	Other Product Manufacture and Use	-	-	-	0.57	170	-	-	200	-	370
AGRICULTURE		1 000	1 200	30 000	76	23 000	-	-	-	-	54 000
a.	Enteric Fermentation	-	1 000	26 000	-	-	-	-	-	-	26 000
b.	Manure Management	-	140	3 600	20	5 000	-	-	-	-	8 100
c.	Agriculture Soils	-	-	-	60	18 000	-	-	-	-	18 000
	Direct Sources	-	-	-	49	15 000	-	-	-	-	15 000
	Indirect Sources	-	-	-	10	3 000	-	-	-	-	3 000
d.	Field Burning of Agricultural Residues	-	6	100	0.1	40	-	-	-	-	200
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	1 000	-	-	-	-	-	-	-	-	1 000
WASTE		550	1 000	25 000	3.9	1 200	-	-	-	-	27 000
a.	Solid Waste Disposal	-	980	25 000	-	-	-	-	-	-	25 000
b.	Biological Treatment of Solid Waste	-	20	500	1	400	-	-	-	-	900
c.	Wastewater Treatment and Discharge	-	16	390	2	500	-	-	-	-	930
d.	Incineration and Open Burning of Waste	550	0.3	8	0.8	200	-	-	-	-	790
LAND USE, LAND-USE CHANGE AND FORESTRY		-54 000	310	7 800	13	3 800	-	-	-	-	-43 000
a.	Forest Land	-220 000	270	6 800	11	3 400	-	-	-	-	-210 000
b.	Cropland	5 000	7	200	0.4	100	-	-	-	-	5 300
c.	Grassland	-	30	700	0.8	200	-	-	-	-	1 000
d.	Wetlands	4 000	0.0	0.0	0.0	0.0	-	-	-	-	4 000
e.	Settlements	4 000	4	100	0.2	50	-	-	-	-	4 000
f.	Harvested Wood Products	160 000	-	-	-	-	-	-	-	-	160 000

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 CFC emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–24 1993 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									
	CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
	Global Warming Potential Unit	25	25	298	298	25	25	22 800	17 200	
	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.
TOTAL¹	468 000	4 200	110 000	140	42 000	-	7 500	2 400	0.3	625 000
ENERGY	431 000	2 100	51 000	30	9 000	-	-	-	-	492 000
a. Stationary Combustion Sources	276 000	300	6 000	8	2 000	-	-	-	-	284 000
Public Electricity and Heat Production	93 000	2.5	62	1.7	520	-	-	-	-	93 200
Petroleum Refining Industries	17 000	0.4	10	0.2	50	-	-	-	-	17 000
Mining and Upstream Oil and Gas Production	40 900	73	1 800	0.9	300	-	-	-	-	43 000
Manufacturing Industries	50 300	2.1	53	1.7	500	-	-	-	-	50 800
Iron and Steel	5 350	0.15	3.8	0.1	40	-	-	-	-	5 390
Non Ferrous Metals	2 830	0.06	1.5	0.04	10	-	-	-	-	2 840
Chemical	8 480	0.17	4.3	0.1	40	-	-	-	-	8 530
Pulp and Paper	10 000	1	30	1	300	-	-	-	-	13 000
Cement	3 440	0.13	3.2	0.04	10	-	-	-	-	3 460
Other Manufacturing	17 500	0.38	9.5	0.4	100	-	-	-	-	17 600
Construction	1 380	0.02	0.59	0.03	10	-	-	-	-	1 390
Commercial and Institutional	27 900	0.51	13	0.6	200	-	-	-	-	28 100
Residential	42 800	200	4 000	2	700	-	-	-	-	47 900
Agriculture and Forestry	3 020	0.05	1.3	0.07	20	-	-	-	-	3 050
b. Transport ²	143 000	31	780	23	6 800	-	-	-	-	150 000
Domestic Aviation	5 920	0.3	8	0.2	50	-	-	-	-	6 000
Road Transportation	97 600	10	300	14	4 300	-	-	-	-	102 000
Light-Duty Gasoline Vehicles	45 900	7.3	180	8.8	2 600	-	-	-	-	48 700
Light-Duty Gasoline Trucks	22 600	3.1	77	4.6	1 400	-	-	-	-	24 000
Heavy-Duty Gasoline Vehicles	5 680	0.89	22	0.15	44	-	-	-	-	5 750
Motorcycles	70.8	0.07	1.8	0.0	0.44	-	-	-	-	73
Light-Duty Diesel Vehicles	467	0.01	0.3	0.03	10	-	-	-	-	477
Light-Duty Diesel Trucks	224	0.01	0.1	0.02	5	-	-	-	-	229
Heavy-Duty Diesel Vehicles	20 800	1	30	0.6	200	-	-	-	-	21 000
Propane and Natural Gas Vehicles	1 990	1	30	0.04	10	-	-	-	-	2 000
Railways	6 010	0.3	8	2	700	-	-	-	-	6 700
Domestic Navigation	4 190	0.4	10	0.1	30	-	-	-	-	4 200
Other Transportation	29 100	20	400	6	2 000	-	-	-	-	31 000
Off-Road Gasoline	4 570	5	100	0.1	30	-	-	-	-	4 700
Off-Road Diesel	14 500	0.8	20	6	2 000	-	-	-	-	16 000
Pipeline Transport	10 000	10	250	0.3	80	-	-	-	-	10 400
c. Fugitive Sources	13 000	1 800	44 000	0.1	30	-	-	-	-	57 000
Coal Mining	-	100	3 000	-	-	-	-	-	-	3 000
Oil and Natural Gas	13 000	1 700	42 000	0.1	30	-	-	-	-	54 000
Oil	110	220	5 400	0.1	30	-	-	-	-	5 600
Natural Gas	34	610	15 000	-	-	-	-	-	-	15 000
Venting	8 000	830	21 000	-	-	-	-	-	-	29 000
Flaring	4 700	6.8	170	0.01	3	-	-	-	-	4 800
d. CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE	34 500	4.1	100	33.3	9 910	-	7 500	2 400	-	54 400
a. Mineral Products	7 300	-	-	-	-	-	-	-	-	7 300
Cement Production	4 800	-	-	-	-	-	-	-	-	4 800
Lime Production	1 800	-	-	-	-	-	-	-	-	1 800
Mineral Product Use	700	-	-	-	-	-	-	-	-	700
b. Chemical Industry	6 260	4	100	33	9 800	-	-	-	-	16 100
Ammonia Production	2 920	-	-	-	-	-	-	-	-	2 920
Nitric Acid Production	-	-	-	3.4	1 000	-	-	-	-	1 000
Adipic Acid Production	-	-	-	29	8 700	-	-	-	-	8 700
Petrochemical and Carbon Black Production	3 300	4	100	0.05	16	-	-	-	-	3 500
c. Metal Production	15 800	0.1	3	-	-	-	7 460	2 170	-	25 400
Iron and Steel Production	11 900	0.1	3	-	-	-	-	-	-	11 900
Aluminum Production	3 910	-	-	-	-	-	7 460	56.3	-	11 400
SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	2 110	-	2 110
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	-	0.05	4.4	0.3	4.7
e. Non-Energy Products from Fuels and Solvent Use	5 100	-	-	-	-	-	-	-	-	5 100
f. Other Product Manufacture and Use	-	-	-	0.51	150	-	-	200	-	360
AGRICULTURE	1 000	1 100	29 000	73	22 000	-	-	-	-	52 000
a. Enteric Fermentation	-	990	25 000	-	-	-	-	-	-	25 000
b. Manure Management	-	140	3 500	10	4 000	-	-	-	-	7 900
c. Agriculture Soils	-	-	-	58	17 000	-	-	-	-	17 000
Direct Sources	-	-	-	48	14 000	-	-	-	-	14 000
Indirect Sources	-	-	-	10	3 000	-	-	-	-	3 000
d. Field Burning of Agricultural Residues	-	5	100	0.1	40	-	-	-	-	200
e. Liming, Urea Application and Other Carbon-containing Fertilizers	1 000	-	-	-	-	-	-	-	-	1 000
WASTE	530	1 000	25 000	3.8	1 100	-	-	-	-	27 000
a. Solid Waste Disposal	-	980	24 000	-	-	-	-	-	-	24 000
b. Biological Treatment of Solid Waste	-	20	400	1	400	-	-	-	-	800
c. Wastewater Treatment and Discharge	-	15	390	2	500	-	-	-	-	910
d. Incineration and Open Burning of Waste	530	0.3	8	0.7	200	-	-	-	-	750
LAND USE, LAND-USE CHANGE AND FORESTRY	-58 000	290	7 100	12	3 500	-	-	-	-	-47 000
a. Forest Land	-230 000	260	6 500	11	3 200	-	-	-	-	-220 000
b. Cropland	6 500	9	200	0.5	100	-	-	-	-	6 900
c. Grassland	-	10	300	0.3	100	-	-	-	-	400
d. Wetlands	6 000	0.2	5	0.01	3	-	-	-	-	6 000
e. Settlements	4 000	5	100	0.2	50	-	-	-	-	4 000
f. Harvested Wood Products	150 000	-	-	-	-	-	-	-	-	150 000

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–25 1992 GHG Emission Summary for Canada

Greenhouse Gas Categories		Greenhouse Gases									
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
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.
TOTAL¹		469 000	4 100	100 000	140	41 000	830	7 600	2 600	0.3	623 000
ENERGY		434 000	1 900	49 000	30	8 000	-	-	-	-	491 000
a. Stationary Combustion Sources		282 000	200	6 000	8	2 000	-	-	-	-	290 000
Public Electricity and Heat Production		100 000	2.3	57	1.9	550	-	-	-	-	102 000
Petroleum Refining Industries		16 000	0.4	10	0.2	50	-	-	-	-	16 000
Mining and Upstream Oil and Gas Production		38 500	74	1 800	0.9	300	-	-	-	-	40 600
Manufacturing Industries		52 500	2.2	54	1.7	510	-	-	-	-	53 000
Iron and Steel		5 250	0.15	3.8	0.1	40	-	-	-	-	5 290
Non Ferrous Metals		2 940	0.06	1.5	0.04	10	-	-	-	-	2 950
Chemical		8 550	0.17	4.3	0.1	40	-	-	-	-	8 600
Pulp and Paper		10 000	1	30	1	300	-	-	-	-	13 000
Cement		3 380	0.1	2.4	0.04	10	-	-	-	-	3 390
Other Manufacturing		19 600	0.43	11	0.4	100	-	-	-	-	19 700
Construction		1 740	0.03	0.74	0.06	20	-	-	-	-	1 760
Commercial and Institutional		26 900	0.49	12	0.5	200	-	-	-	-	27 100
Residential		40 800	200	4 000	2	700	-	-	-	-	45 700
Agriculture and Forestry		3 220	0.05	1.2	0.08	20	-	-	-	-	3 250
b. Transport ²		140 000	31	770	21	6 100	-	-	-	-	147 000
Domestic Aviation		6 250	0.3	8	0.2	60	-	-	-	-	6 300
Road Transportation		95 200	10	400	12	3 700	-	-	-	-	99 300
Light-Duty Gasoline Vehicles		45 900	7.7	190	7.7	2 300	-	-	-	-	48 400
Light-Duty Gasoline Trucks		21 100	3.1	77	3.9	1 200	-	-	-	-	22 300
Heavy-Duty Gasoline Vehicles		5 580	0.89	22	0.15	45	-	-	-	-	5 650
Motorcycles		71.4	0.07	1.8	0.0	0.44	-	-	-	-	73.7
Light-Duty Diesel Vehicles		465	0.01	0.3	0.03	10	-	-	-	-	475
Light-Duty Diesel Trucks		194	0.01	0.1	0.01	4	-	-	-	-	198
Heavy-Duty Diesel Vehicles		19 300	1	30	0.6	200	-	-	-	-	19 500
Propane and Natural Gas Vehicles		2 640	2	40	0.05	10	-	-	-	-	2 700
Railways		6 030	0.3	8	2	700	-	-	-	-	6 700
Domestic Navigation		4 800	0.4	10	0.1	40	-	-	-	-	4 800
Other Transportation		27 500	20	400	6	2 000	-	-	-	-	30 000
Off-Road Gasoline		4 430	5	100	0.1	30	-	-	-	-	4 600
Off-Road Diesel		13 500	0.8	20	5	2 000	-	-	-	-	15 000
Pipeline Transport		9 580	9.6	240	0.3	80	-	-	-	-	9 890
c. Fugitive Sources		12 000	1 700	42 000	0.1	30	-	-	-	-	54 000
Coal Mining		-	90	2 000	-	-	-	-	-	-	2 000
Oil and Natural Gas		12 000	1 600	39 000	0.1	30	-	-	-	-	52 000
Oil		110	220	5 400	0.1	30	-	-	-	-	5 500
Natural Gas		30	580	15 000	-	-	-	-	-	-	15 000
Venting		7 700	780	19 000	-	-	-	-	-	-	27 000
Flaring		4 300	6.1	150	0.01	3	-	-	-	-	4 500
d. CO ₂ Transport and Storage		-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		33 200	4.2	110	36.1	10 800	830	7 600	2 600	-	55 000
a. Mineral Products		7 300	-	-	-	-	-	-	-	-	7 300
Cement Production		4 800	-	-	-	-	-	-	-	-	4 800
Lime Production		1 800	-	-	-	-	-	-	-	-	1 800
Mineral Product Use		700	-	-	-	-	-	-	-	-	700
b. Chemical Industry		5 690	4.1	100	36	11 000	-	-	-	-	16 400
Ammonia Production		2 500	-	-	-	-	-	-	-	-	2 500
Nitric Acid Production		-	-	-	3.5	1 000	-	-	-	-	1 000
Adipic Acid Production		-	-	-	32	9 600	-	-	-	-	9 600
Petrochemical and Carbon Black Production		3 200	4.1	100	0.05	15	-	-	-	-	3 300
c. Metal Production		15 700	0.1	3	-	-	-	7 580	2 350	-	25 600
Iron and Steel Production		12 400	0.1	3	-	-	-	-	-	-	12 400
Aluminum Production		3 270	-	-	-	-	-	7 580	56.3	-	10 900
SF ₆ Used in Magnesium Smelters and Casters		-	-	-	-	-	-	-	2 290	-	2 290
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³		-	-	-	-	-	830	0.05	4.4	0.3	830
e. Non-Energy Products from Fuels and Solvent Use		4 600	-	-	-	-	-	-	-	-	4 600
f. Other Product Manufacture and Use		-	-	-	0.46	140	-	-	200	-	340
AGRICULTURE		1 000	1 100	28 000	70	21 000	-	-	-	-	50 000
a. Enteric Fermentation		-	980	24 000	-	-	-	-	-	-	24 000
b. Manure Management		-	140	3 600	10	4 000	-	-	-	-	7 900
c. Agriculture Soils		-	-	-	56	17 000	-	-	-	-	17 000
Direct Sources		-	-	-	46	14 000	-	-	-	-	14 000
Indirect Sources		-	-	-	10	3 000	-	-	-	-	3 000
d. Field Burning of Agricultural Residues		-	5	100	0.1	40	-	-	-	-	200
e. Liming, Urea Application and Other Carbon-containing Fertilizers		1 000	-	-	-	-	-	-	-	-	1 000
WASTE		530	1 000	25 000	3.8	1 100	-	-	-	-	27 000
a. Solid Waste Disposal		-	970	24 000	-	-	-	-	-	-	24 000
b. Biological Treatment of Solid Waste		-	20	400	1	400	-	-	-	-	800
c. Wastewater Treatment and Discharge		-	15	380	2	500	-	-	-	-	900
d. Incineration and Open Burning of Waste		530	0.5	10	0.8	200	-	-	-	-	780
LAND USE, LAND-USE CHANGE AND FORESTRY		-110 000	140	3 400	5.1	1 500	-	-	-	-	-110 000
a. Forest Land		-280 000	81	2 000	3.4	1 000	-	-	-	-	-270 000
b. Cropland		7 900	10	300	0.5	200	-	-	-	-	8 300
c. Grassland		-	40	900	1	300	-	-	-	-	1 000
d. Wetlands		6 000	0.9	20	0.04	10	-	-	-	-	6 000
e. Settlements		4 000	5	100	0.2	50	-	-	-	-	4 000
f. Harvested Wood Products		150 000	-	-	-	-	-	-	-	-	150 000

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–26 1991 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									
	CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	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.
TOTAL¹	454 000	3 900	98 000	140	41 000	1 100	8 000	3 700	0.3	606 000
ENERGY	419 000	1 800	46 000	30	8 000	-	-	-	-	473 000
a. Stationary Combustion Sources	272 000	200	6 000	8	2 000	-	-	-	-	280 000
Public Electricity and Heat Production	95 000	1.7	42	1.7	510	-	-	-	-	95 900
Petroleum Refining Industries	16 000	0.4	10	0.2	50	-	-	-	-	16 000
Mining and Upstream Oil and Gas Production	36 500	70	1 700	0.9	300	-	-	-	-	38 500
Manufacturing Industries	53 400	2.1	53	1.7	500	-	-	-	-	54 000
Iron and Steel	4 920	0.15	3.7	0.1	40	-	-	-	-	4 960
Non Ferrous Metals	2 700	0.06	1.4	0.04	10	-	-	-	-	2 710
Chemical	8 600	0.17	4.3	0.1	40	-	-	-	-	8 650
Pulp and Paper	10 000	1	30	1	300	-	-	-	-	14 000
Cement	3 410	0.08	2	0.04	10	-	-	-	-	3 420
Other Manufacturing	20 000	0.42	11	0.4	100	-	-	-	-	20 100
Construction	1 620	0.03	0.68	0.05	20	-	-	-	-	1 630
Commercial and Institutional	26 300	0.5	12	0.5	200	-	-	-	-	26 500
Residential	39 600	200	4 000	2	700	-	-	-	-	44 700
Agriculture and Forestry	2 720	0.04	1.1	0.06	20	-	-	-	-	2 740
b. Transport ²	136 000	29	720	20	6 000	-	-	-	-	143 000
Domestic Aviation	6 240	0.4	9	0.2	60	-	-	-	-	6 300
Road Transportation	93 100	10	300	12	3 600	-	-	-	-	97 000
Light-Duty Gasoline Vehicles	45 800	7.7	190	7.5	2 200	-	-	-	-	48 300
Light-Duty Gasoline Trucks	19 900	2.9	73	3.6	1 100	-	-	-	-	21 000
Heavy-Duty Gasoline Vehicles	5 430	0.89	22	0.15	45	-	-	-	-	5 500
Motorcycles	71.2	0.07	1.8	0.0	0.44	-	-	-	-	73.4
Light-Duty Diesel Vehicles	452	0.01	0.3	0.03	10	-	-	-	-	462
Light-Duty Diesel Trucks	189	0.01	0.1	0.01	4	-	-	-	-	194
Heavy-Duty Diesel Vehicles	18 900	1	20	0.6	200	-	-	-	-	19 100
Propane and Natural Gas Vehicles	2 280	1	40	0.04	10	-	-	-	-	2 300
Railways	5 760	0.3	8	2	700	-	-	-	-	6 400
Domestic Navigation	4 950	0.5	10	0.1	40	-	-	-	-	5 000
Other Transportation	26 200	10	300	6	2 000	-	-	-	-	28 000
Off-Road Gasoline	4 810	6	100	0.1	30	-	-	-	-	5 000
Off-Road Diesel	13 900	0.8	20	5	2 000	-	-	-	-	16 000
Pipeline Transport	7 410	7.4	190	0.2	60	-	-	-	-	7 650
c. Fugitive Sources	11 000	1 500	39 000	0.1	30	-	-	-	-	50 000
Coal Mining	-	100	3 000	-	-	-	-	-	-	3 000
Oil and Natural Gas	11 000	1 400	36 000	0.1	30	-	-	-	-	47 000
Oil	100	200	5 000	0.1	30	-	-	-	-	5 100
Natural Gas	28	540	14 000	-	-	-	-	-	-	14 000
Venting	6 900	680	17 000	-	-	-	-	-	-	24 000
Flaring	4 300	5.6	140	0.01	2	-	-	-	-	4 400
d. CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE	33 600	4.6	120	36.3	10 800	1 100	8 000	3 700	-	57 300
a. Mineral Products	7 500	-	-	-	-	-	-	-	-	7 500
Cement Production	4 700	-	-	-	-	-	-	-	-	4 700
Lime Production	1 790	-	-	-	-	-	-	-	-	1 790
Mineral Product Use	1 000	-	-	-	-	-	-	-	-	1 000
b. Chemical Industry	5 880	4.5	110	36	11 000	-	-	-	-	16 600
Ammonia Production	2 750	-	-	-	-	-	-	-	-	2 750
Nitric Acid Production	-	-	-	3.4	1 000	-	-	-	-	1 000
Adipic Acid Production	-	-	-	32	9 600	-	-	-	-	9 600
Petrochemical and Carbon Black Production	3 100	4.5	110	0.05	15	-	-	-	-	3 300
c. Metal Production	15 300	0.1	3	-	-	-	8 030	3 480	-	26 800
Iron and Steel Production	12 100	0.1	3	-	-	-	-	-	-	12 100
Aluminum Production	3 150	-	-	-	-	-	8 030	56.3	-	11 200
SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	3 420	-	3 420
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	1 100	0.06	4.4	0.3	1 100
e. Non-Energy Products from Fuels and Solvent Use	4 900	-	-	-	-	-	-	-	-	4 900
f. Other Product Manufacture and Use	-	-	-	0.55	160	-	-	200	-	370
AGRICULTURE	1 000	1 100	27 000	70	21 000	-	-	-	-	49 000
a. Enteric Fermentation	-	930	23 000	-	-	-	-	-	-	23 000
b. Manure Management	-	140	3 500	10	4 000	-	-	-	-	7 600
c. Agriculture Soils	-	-	-	56	17 000	-	-	-	-	17 000
Direct Sources	-	-	-	46	14 000	-	-	-	-	14 000
Indirect Sources	-	-	-	10	3 000	-	-	-	-	3 000
d. Field Burning of Agricultural Residues	-	6	100	0.2	40	-	-	-	-	200
e. Liming, Urea Application and Other Carbon-containing Fertilizers	1 000	-	-	-	-	-	-	-	-	1 000
WASTE	510	1 000	25 000	3.8	1 100	-	-	-	-	27 000
a. Solid Waste Disposal	-	960	24 000	-	-	-	-	-	-	24 000
b. Biological Treatment of Solid Waste	-	20	400	1	400	-	-	-	-	800
c. Wastewater Treatment and Discharge	-	15	380	2	500	-	-	-	-	890
d. Incineration and Open Burning of Waste	510	0.5	10	0.7	200	-	-	-	-	740
LAND USE, LAND-USE CHANGE AND FORESTRY	-68 000	280	7 100	11	3 400	-	-	-	-	-58 000
a. Forest Land	-230 000	240	6 000	10	3 000	-	-	-	-	-220 000
b. Cropland	9 100	10	300	0.6	200	-	-	-	-	9 500
c. Grassland	-	20	600	0.6	200	-	-	-	-	800
d. Wetlands	6 000	0.5	10	0.02	6	-	-	-	-	6 000
e. Settlements	4 000	5	100	0.2	50	-	-	-	-	4 000
f. Harvested Wood Products	140 000	-	-	-	-	-	-	-	-	140 000

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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

National GHG emissions allocated to Canadian economic sectors are provided in Annex 10 of this report.

Table A9–27 1990 GHG Emission Summary for Canada

Greenhouse Gas Categories	Greenhouse Gases									
	CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	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.
TOTAL¹	463 000	3 800	95 000	140	42 000	970	7 600	3 200	0.3	613 000
ENERGY	429 000	1 800	44 000	30	8 000	-	-	-	-	482 000
a. Stationary Combustion Sources	277 000	300	6 000	8	2 000	-	-	-	-	285 000
Public Electricity and Heat Production	94 000	1.8	45	1.7	520	-	-	-	-	94 500
Petroleum Refining Industries	17 000	0.4	10	0.2	50	-	-	-	-	17 000
Mining and Upstream Oil and Gas Production	38 900	74	1 900	0.9	300	-	-	-	-	41 100
Manufacturing Industries	55 600	2.2	56	1.7	520	-	-	-	-	56 200
Iron and Steel	4 900	0.15	3.8	0.1	40	-	-	-	-	4 950
Non Ferrous Metals	3 310	0.07	1.7	0.05	10	-	-	-	-	3 320
Chemical	8 220	0.17	4.1	0.1	40	-	-	-	-	8 260
Pulp and Paper	10 000	1	30	1	300	-	-	-	-	15 000
Cement	3 940	0.12	2.9	0.05	10	-	-	-	-	3 960
Other Manufacturing	21 000	0.45	11	0.4	100	-	-	-	-	21 200
Construction	1 860	0.03	0.78	0.05	20	-	-	-	-	1 880
Commercial and Institutional	25 700	0.49	12	0.5	100	-	-	-	-	25 800
Residential	41 100	200	4 000	2	700	-	-	-	-	46 300
Agriculture and Forestry	2 390	0.04	0.97	0.06	20	-	-	-	-	2 410
b. Transport ²	141 000	29	740	20	6 100	-	-	-	-	148 000
Domestic Aviation	7 090	0.5	10	0.2	70	-	-	-	-	7 200
Road Transportation	95 800	10	400	11	3 400	-	-	-	-	99 500
Light-Duty Gasoline Vehicles	47 900	8.3	210	7.2	2 100	-	-	-	-	50 200
Light-Duty Gasoline Trucks	19 700	3.1	76	3.3	980	-	-	-	-	20 800
Heavy-Duty Gasoline Vehicles	5 820	0.98	25	0.17	50	-	-	-	-	5 890
Motorcycles	74.3	0.07	1.9	0.0	0.46	-	-	-	-	76.6
Light-Duty Diesel Vehicles	468	0.01	0.3	0.03	10	-	-	-	-	479
Light-Duty Diesel Trucks	195	0.01	0.1	0.01	4	-	-	-	-	200
Heavy-Duty Diesel Vehicles	19 500	1	30	0.6	200	-	-	-	-	19 700
Propane and Natural Gas Vehicles	2 180	1	30	0.04	10	-	-	-	-	2 200
Railways	6 220	0.3	9	2	700	-	-	-	-	6 900
Domestic Navigation	4 740	0.4	10	0.1	40	-	-	-	-	4 800
Other Transportation	27 100	10	300	6	2 000	-	-	-	-	29 000
Off-Road Gasoline	5 110	6	100	0.1	30	-	-	-	-	5 300
Off-Road Diesel	15 300	0.9	20	6	2 000	-	-	-	-	17 000
Pipeline Transport	6 680	6.7	170	0.2	50	-	-	-	-	6 910
c. Fugitive Sources	12 000	1 500	37 000	0.1	30	-	-	-	-	49 000
Coal Mining	-	100	3 000	-	-	-	-	-	-	3 000
Oil and Natural Gas	12 000	1 400	34 000	0.1	30	-	-	-	-	46 000
Oil	95	190	4 800	0.1	30	-	-	-	-	5 000
Natural Gas	26	520	13 000	-	-	-	-	-	-	13 000
Venting	7 000	650	16 000	-	-	-	-	-	-	23 000
Flaring	4 500	5.5	140	0.01	3	-	-	-	-	4 600
d. CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE	32 500	4.9	120	38.5	11 500	970	7 600	3 200	-	55 900
a. Mineral Products	8 400	-	-	-	-	-	-	-	-	8 400
Cement Production	5 800	-	-	-	-	-	-	-	-	5 800
Lime Production	1 760	-	-	-	-	-	-	-	-	1 760
Mineral Product Use	910	-	-	-	-	-	-	-	-	910
b. Chemical Industry	5 900	4.9	120	38	11 000	-	-	-	-	17 300
Ammonia Production	2 770	-	-	-	-	-	-	-	-	2 770
Nitric Acid Production	-	-	-	3.3	970	-	-	-	-	970
Adipic Acid Production	-	-	-	35	10 000	-	-	-	-	10 000
Petrochemical and Carbon Black Production	3 100	4.9	120	0.05	15	-	-	-	-	3 300
c. Metal Production	13 200	0.09	2	-	-	-	7 560	3 020	-	23 800
Iron and Steel Production	10 500	0.09	2	-	-	-	-	-	-	10 500
Aluminum Production	2 710	-	-	-	-	-	7 560	56.3	-	10 300
SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	2 960	-	2 960
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	970	0.06	4.4	0.3	980
e. Non-Energy Products from Fuels and Solvent Use	5 000	-	-	-	-	-	-	-	-	5 000
f. Other Product Manufacture and Use	-	-	-	0.58	170	-	-	200	-	370
AGRICULTURE	1 000	1 100	26 000	72	21 000	-	-	-	-	49 000
a. Enteric Fermentation	-	910	23 000	-	-	-	-	-	-	23 000
b. Manure Management	-	140	3 500	10	4 000	-	-	-	-	7 600
c. Agriculture Soils	-	-	-	58	17 000	-	-	-	-	17 000
Direct Sources	-	-	-	48	14 000	-	-	-	-	14 000
Indirect Sources	-	-	-	10	3 000	-	-	-	-	3 000
d. Field Burning of Agricultural Residues	-	7	200	0.2	50	-	-	-	-	200
e. Liming, Urea Application and Other Carbon-containing Fertilizers	1 000	-	-	-	-	-	-	-	-	1 000
WASTE	510	980	24 000	3.6	1 100	-	-	-	-	26 000
a. Solid Waste Disposal	-	950	24 000	-	-	-	-	-	-	24 000
b. Biological Treatment of Solid Waste	-	20	400	1	400	-	-	-	-	800
c. Wastewater Treatment and Discharge	-	15	380	2	500	-	-	-	-	870
d. Incineration and Open Burning of Waste	510	0.5	10	0.7	200	-	-	-	-	740
LAND USE, LAND-USE CHANGE AND FORESTRY	-94 000	180	4 600	7.5	2 200	-	-	-	-	-87 000
a. Forest Land	-250 000	150	3 700	6.2	1 800	-	-	-	-	-250 000
b. Cropland	10 000	10	300	0.6	200	-	-	-	-	10 000
c. Grassland	-	20	500	0.5	200	-	-	-	-	600
d. Wetlands	6 000	0.3	8	0.01	4	-	-	-	-	6 000
e. Settlements	4 000	5	100	0.2	50	-	-	-	-	4 000
f. Harvested Wood Products	140 000	-	-	-	-	-	-	-	-	140 000

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 C₂F₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

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, 1990–2014

This annex contains summary tables illustrating national GHG emissions for the period 1990–2014 by Canadian economic sector (Table A10–1) 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 A10–2).

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.

Canada's greenhouse gas emission tables are also available in various file formats online at <http://www.open.canada.ca>.

Table A10–1 Canada’s GHG Emissions by Canadian Economic Sector, 1990-2014

	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
NATIONAL GHG TOTAL	613	606	623	625	646	665	685	700	708	722	744	733	736	755	756	747	738	758	739	696	706	710	718	731	732
Oil and Gas	107	106	116	122	126	133	140	141	147	156	159	159	161	164	163	159	163	168	162	160	162	164	176	187	192
Upstream Oil and Gas	88	87	97	102	108	114	118	119	125	135	138	137	139	140	138	136	139	144	139	137	140	143	153	164	170
Natural Gas Production and Processing	36	35	37	39	41	43	45	43	47	56	60	60	62	64	60	58	57	60	57	52	51	50	53	57	57
Conventional Oil Production	24	24	26	27	28	31	32	34	36	36	38	37	36	34	33	31	31	32	30	29	29	30	32	35	36
Conventional Light Oil Production	12	11	11	12	12	12	12	12	12	12	13	12	12	12	12	12	12	13	12	12	12	14	15	16	17
Conventional Heavy Oil Production	12	12	14	15	16	18	19	22	21	22	25	24	22	20	19	17	17	17	16	15	15	15	15	16	17
Frontier Oil Production	0*	0*	0*	0*	0*	0*	0*	0*	3	2	1	1	3	2	2	2	2	2	2	2	2	2	2	2	2
Oil Sands (Mining, In-situ, Upgrading)	15	16	19	20	21	22	22	22	23	24	25	27	27	30	35	34	39	42	43	48	53	55	60	64	68
Mining and Extraction	4	5	5	5	5	5	5	6	6	7	7	8	8	9	10	10	11	12	12	13	15	15	16	16	18
In-situ	3	3	3	3	3	3	4	4	4	4	4	5	4	7	8	8	10	12	14	15	19	20	24	26	30
Upgrading	8	8	11	12	13	14	13	13	13	14	14	14	15	15	17	16	19	18	17	20	19	20	21	21	20
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	8	10
Downstream Oil and Gas	20	18	18	19	19	19	22	22	22	21	20	21	22	24	25	23	24	24	23	23	22	21	23	23	23
Petroleum Refining	18	17	17	17	17	17	20	20	20	19	19	20	21	22	24	22	22	23	21	22	21	20	22	22	21
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
Electricity	95	96	103	93	95	98	98	109	122	119	129	130	123	127	119	118	112	118	109	94	95	87	83	80	78
Transportation	129	125	127	129	136	137	139	145	149	154	156	157	159	163	167	171	171	173	171	168	173	170	171	174	171
Passenger Transport	83	80	82	83	84	85	85	88	89	93	93	94	95	96	98	97	97	98	97	96	97	95	95	98	95
Cars, Trucks and Motorcycles	74	72	74	76	77	77	77	79	81	84	84	85	87	87	88	88	89	90	88	88	89	87	87	89	86
Bus, Rail and Domestic Aviation	8	8	8	7	7	8	8	8	9	9	9	9	9	9	10	9	8	9	9	8	8	8	9	9	9
Freight Transport	36	35	36	37	42	42	41	44	47	48	49	51	51	53	57	62	64	67	67	65	67	67	69	69	68
Heavy Duty Trucks, Rail	30	29	30	31	36	36	36	38	40	41	43	44	44	46	49	55	57	59	60	57	60	61	62	63	62
Domestic Aviation and Marine	6	6	6	5	6	5	6	6	6	6	6	7	7	7	8	8	8	8	7	7	8	6	7	6	6
Other: Recreational, Commercial and Residential	10	9	9	10	10	11	12	13	13	13	14	13	13	14	13	11	9	8	7	7	8	9	8	7	9
Emissions Intensive & Trade Exposed Industries	95	95	92	91	96	98	99	99	94	92	92	86	87	86	90	88	88	88	86	72	74	79	79	77	76
Mining	6	5	5	5	5	6	6	6	6	5	6	6	6	6	6	6	6	7	8	7	7	8	8	8	8
Smelting and Refining (Non Ferrous Metals)	17	18	17	17	17	16	17	16	17	16	16	15	15	15	14	14	14	13	13	12	11	11	10	11	10
Pulp and Paper	15	15	14	14	13	13	14	14	13	13	13	12	11	11	11	9	8	8	7	7	7	7	7	7	7
Iron and Steel	16	18	18	18	17	18	18	18	18	19	19	16	17	17	17	19	21	21	20	15	16	17	17	15	16
Cement	10	8	8	8	10	11	10	11	11	12	12	12	12	12	13	13	14	13	12	10	10	10	11	10	10
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
Chemicals & Fertilizers	29	28	28	27	30	32	32	31	26	25	23	22	23	22	26	23	23	22	23	20	21	23	24	24	24
Buildings	73	73	74	78	78	79	85	82	75	79	85	82	87	91	90	85	80	86	85	83	81	86	84	85	87
Service Industry	27	28	28	30	29	32	33	34	31	33	38	38	40	43	43	40	37	38	38	38	37	40	41	40	41
Residential	46	45	46	48	49	47	52	49	44	45	47	44	47	48	47	46	44	48	47	45	43	46	43	44	46
Agriculture	57	56	58	60	62	65	67	67	67	68	68	67	65	68	70	70	69	70	71	67	68	69	70	73	73
On Farm Fuel Use	7	8	8	8	8	9	10	10	10	10	10	9	8	9	9	9	9	10	10	9	11	13	12	13	14
Crop Production	16	15	15	16	16	17	17	17	18	18	18	16	15	17	17	17	17	18	20	19	19	19	21	24	22
Animal Production	33	34	35	36	37	39	40	40	40	40	41	42	42	43	44	45	44	42	41	39	37	37	37	37	37
Waste & Others	56	55	54	52	53	55	56	57	54	54	55	54	54	55	57	56	55	56	55	52	54	55	55	55	54
Waste	26	27	27	27	27	27	27	28	28	29	29	29	29	30	30	31	31	30	30	30	29	29	28	28	29
Coal Production	4	4	3	4	4	4	4	4	4	3	3	4	3	3	3	3	3	3	3	3	4	4	4	4	4
Light Manufacturing, Construction & Forest Resources	26	24	24	21	22	24	25	25	22	23	23	21	22	22	23	23	21	22	22	19	21	22	22	22	22

Notes:
Totals may not add up due to rounding.
National GHG emissions allocated to IPCC sectors are provided in Annex 9 of this report.
Estimates presented here are under continual improvement. Historical emissions may be changed in future publications as new data becomes available and methods and models are refined and improved.
* Less than 0.5 Mt CO₂-eq

Table A10–2 Relationship between Canadian Economic Sectors and IPCC Sectors, 2014

ECONOMIC CATEGORY	National Inventory Category ^a																										
	Economic Category Total	Energy								Industrial Processes and Product Use							Agriculture				Waste				Total	LULUCF ^b	
		Energy: Fuel Combustion Stationary Combustion				Transport	Energy: Fugitive			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
		Stationary	Industrial Cogeneration		Fugitive (Unintentional)		Flaring	Venting																			
			Electricity ^c	Steam for Sale																							
Mt CO ₂ equivalent																											
National Inventory total ^{a,b}	732	311	19.2	1.3	203	21.7	5.5	32.4	594	7.8	6.0	14.7	9.0	13.1	0.4	51.0	8.5	25.1	25.5	59.1	25.9	1.0	1.1	0.6	28.5		
Oil and Gas	192	104.8	12.4	0.1	13.6	20.4	5.5	32.4	189.1					3.2		3.2											
Upstream Oil and Gas	170	88.5	12.0		13.4	19.3	5.3	30.9	169.4					0.2		0.2											
Natural Gas Production and Processing	57	30.8	1.6		1.0	10.8	1.3	11.1	56.5					0.0		0.0											
Conventional Oil Production	36	10.5	0.5		1.5	3.4	3.0	16.6	35.5					0.0		0.0											
Conventional Light Oil Production	17	3.7	0.1		1.1	2.2	2.2	7.4	16.6					0.0		0.0											
Conventional Heavy Oil Production	17	5.9			0.4	1.2	0.2	9.2	16.9																		
Frontier Oil Production	2	0.9	0.4		0.0	0.0	0.6	0.0	2.0																		
Oil Sands (Mining, In-situ, Upgrading) ^c	68	47.2	9.8		3.2	3.9	1.1	2.6	67.7					0.1		0.1											
Mining and Extraction	18	7.2	3.1		3.2	3.6	0.3		17.4					0.1		0.1											
In-situ	30	25.9	3.8			0.3	0.1	0.1	30.1																		
Upgrading	20	14.1	2.9			0.1	0.7	2.5	20.2					0.0		0.0											
Oil and Natural Gas Transmission	10				7.7	1.3	0.0	0.7	9.7																		
Downstream Oil and Gas	23	16.3	0.4	0.1	0.2	1.0	0.2	1.5	19.7					3.0		3.0											
Petroleum Refining	21	16.3	0.4	0.1		0.1	0.2	1.4	18.5					3.0		3.0											
Natural Gas Distribution	1				0.2	0.9	0.0	0.1	1.2																		
Electricity	78	77.4		0.7					78.1						0.1	0.1											
Transportation ^a	171				168.7				168.7				2.5	0.0	0.1	2.6											
Passenger Transport	95				93.2				93.2				1.5	0.0	0.0	1.5											
Cars, Light Trucks and Motorcycles	86				84.6				84.6				1.4	0.0	0.0	1.4											
Bus, Rail and Domestic Aviation	9				8.6				8.6				0.1	0.0	0.0	0.1											
Freight Transport	68				66.7				66.7				1.0	0.0	0.1	1.1											
Heavy-duty Trucks, Rail	62				61.2				61.2				0.9	0.0	0.1	1.0											
Domestic Aviation and Marine	6				5.5				5.5				0.1	0.0		0.1											
Other: Recreational, Commercial and Residential	9				8.8				8.8																		
Emissions Intensive & Trade Exposed Industries	76	33.2	5.7	0.5	2.9				42.3	7.6	6.0	14.7	0.5	5.4		34.2											
Mining	8	3.5	1.3		2.6				7.4				0.0	0.1		0.1											
Smelting & Refining (Non Ferrous Metals)	10	2.6	0.0	0.2	0.1				2.9	0.0		6.1		1.1		7.2											
Pulp & Paper	7	4.8	1.8	0.0	0.1				6.7	0.0				0.0		0.0											
Iron & Steel	16	6.1	0.0	0.0	0.1				6.2			8.6		1.1		9.7											
Cement	10	4.1			0.0				4.1	6.0				0.0		6.0											
Lime & Gypsum	3	1.1			0.0				1.1	1.4				0.0		1.5											
Chemicals & Fertilizers	24	11.0	2.6	0.2	0.0				13.9	0.2	6.0		0.5	3.0		9.7											
Buildings	87	76.5	0.5						77.0				5.7	4.3	0.2	10.2											
Service Industry	41	30.9	0.5						31.4				5.1	4.3	0.2	9.6											
Residential	46	45.6							45.6				0.6			0.6											
Agriculture	73	3.5	0.0		10.3				13.8					0.0		0.0	8.5	25.1	25.5	59.1							
On-farm Fuel Use ^h	14	3.5	0.0		10.3				13.8					0.0		0.0											
Crop Production	22																		22.5	22.5							
Animal Production	37																8.5	25.1	3.1	36.6							
Waste	29																				25.9	1.0	1.1	0.6	28.5		
Solid Waste	27																				25.9	1.0			26.9		
Waste Water	1																						1.1		1.1		
Waste Incineration	1																							0.6	0.6		
Coal Production	4	1.1			1.3	1.3			3.7																		
Light Manufacturing, Construction & Forest Resources	22	14.3	0.6	0.0	6.2				21.2	0.1			0.4	0.2	0.0	0.7											
Light Manufacturing	15	12.9	0.5	0.0	0.6				14.1	0.1			0.4	0.2	0.0	0.7											
Construction	6	1.3			4.4				5.7					0.0		0.0											
Forest Resources	1	0.1	0.0		1.3				1.4					0.0		0.0											
																										71.8	

ECONOMIC CATEGORY

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Notes:
Totals may not add up due to rounding.
Economic sector totals are rounded to nearest megatonne (Mt).
The estimates for the economic sectors may not add up to the National Inventory totals due to rounding and statistical differences in the RESD for the IPPU category of Non-Energy Products from Fuels and Solvent Use.
Estimates presented here are under continual improvement. Historical emissions may change in future publications as new data becomes available and methods and models are refined and improved.
a. Categorization of emissions is consistent with IPCC 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 SF₆ 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.
* Less than 0.5 Mt CO₂ eq

Annex 11

Provincial/Territorial Greenhouse Gas Emission Tables by IPCC Sector, 1990–2014

This annex contains summary tables (Table A11–1 to Table A11–28) illustrating GHG emissions (for GHG categories, see Table A11–1) by province/territory and year for each IPCC sector. To account for the creation of Nunavut in 1999, a time series from 1999–2014 is provided for both the Northwest Territories and Nunavut (Table A11–24 and Table A11–26), and 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 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.

The reader should also note that many 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 emissions 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. The Department is striving to ensure consistency between different estimates, as some provincial/territorial GHG estimates presented in this report may differ from those developed by provincial/territorial governments.

Provincial/territorial greenhouse gas emission tables are also available in various file formats online at <http://www.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
	Mining and Upstream Oil and Gas Production	Emissions from fuel consumed by: <ul style="list-style-type: none"> - Metal and non-metal mines, coal mines, stone quarries, and gravel pits - Oil and gas extraction industries - Mineral exploration and contract drilling operations
	Manufacturing Industries	Emissions from fuel consumed by the following industries: <ul style="list-style-type: none"> - 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: <ul style="list-style-type: none"> - 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: <ul style="list-style-type: none"> - Forestry and logging service industry - Agricultural, hunting and trapping industry (excluding food processing, farm machinery manufacturing, and repair)
	Residential	Emissions from fuel consumed for personal residences (homes, apartment hotels, condominiums and farm houses)
	Agriculture & Forestry	Emissions from fuel consumed by: <ul style="list-style-type: none"> - Forestry and logging service industry - Agricultural, hunting and trapping industry (excluding food processing, farm machinery manufacturing, and repair)
b.	Transportation	Emissions resulting from the: <ul style="list-style-type: none"> - Consumption of fossil fuels by aircrafts flying domestically with Canadian purchased fuel - Consumption of fossil fuels (including non-CO₂ emissions from ethanol and biodiesel) by vehicles licensed to operate on roads - Consumption of fossil fuels (including non-CO₂ emissions from biodiesel) by Canadian railways - Consumption of fossil fuels (including non-CO₂ emissions from ethanol and biodiesel) by Canadian registered marine vessels fuelled domestically - Consumption of fossil fuels (including non-CO₂ emissions from ethanol and biodiesel) by combustion devices not licensed to operate on roads
	Domestic Aviation	
	Road Transportation	
	Railways	
	Domestic Navigation	
	Others – Off-road	
	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: <ul style="list-style-type: none"> - Underground and surface mining, abandoned underground coal mines - Conventional and unconventional oil and gas exploration, production, transportation, and distribution
	Coal Mining	
	Oil and Natural Gas	
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		
a.	Mineral Products	Emissions resulting from the following process activities: <ul style="list-style-type: none"> - Production of cement and lime; use of soda ash, limestone & dolomite, and magnesite
b.	Chemical Industry	- Production of ammonia, nitric acid, adipic acid, carbide, carbon black, ethylene dichloride, ethylene, methanol and styrene
c.	Metal Production	- Aluminum production, iron and steel production, 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; 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 ₂ O as an anaesthetic and propellant; use of urea in selective catalytic reduction (SCR) equipped vehicles; use of SF ₆ and PFCs in electrical equipment
AGRICULTURE		
a.	Enteric Fermentation	Emissions resulting from the: Eructation of CH ₄ during the digestion of plant material by (mainly) ruminants
b.	Manure Management	- Release of CH ₄ and N ₂ O due to microbial activity during the storage of feces, urine and bedding materials from the cleaning of barns and pens <ul style="list-style-type: none"> - Indirect N₂O emissions from volatilization and leaching of nitrogen from animal manure during storage
c.	Agricultural Soils	Direct N ₂ O 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 ₂ O 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 ₂ O 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		
a.	Solid Waste Disposal	Emissions resulting from: <ul style="list-style-type: none"> - 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	- Domestic 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		
a.	Forest Land	Emissions and removals resulting from: <ul style="list-style-type: none"> - Managed forests and lands converted to forests; includes growth, natural and anthropogenic disturbances (fire, harvest, insects)
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 1990–2014 GHG Emission Summary for Newfoundland and Labrador

Greenhouse Gas Categories		1990	2000	2005	2010	2011	2012	2013	2014
<i>kt CO₂ equivalent</i>									
TOTAL		9,575	9 120	10 200	10 300	10 300	9 760	9 570	10 600
ENERGY		8 630	8 070	9 120	9 210	9 120	8 610	8 400	9 390
a.	Stationary Combustion Sources	5 540	4 480	4 760	4 750	4 610	4 380	4 570	4 950
	Public Electricity and Heat Production	1 650	823	865	747	865	851	867	1 210
	Petroleum Refining Industries	1 000	1 000	910	970	800	990	920	880
	Mining and Upstream Oil and Gas Production	1 160	1 460	1 890	2 180	2 010	1 780	1 760	1 770
	Manufacturing Industries	506	245	279	76.7	76.8	81.3	85.4	62.5
	Construction	33	10.5	23.6	11.2	15	9.27	6.39	7.34
	Commercial and Institutional	320	311	356	257	262	202	540	578
	Residential	821	556	437	497	569	465	384	444
	Agriculture and Forestry	24.5	47	8.11	11.5	17.6	11.2	8.32	11.4
b.	Transport ¹	3 050	3 280	3 450	3 880	4 020	3 700	3 260	3 780
	Domestic Aviation	190	190	210	190	180	230	230	220
	Road Transportation	1 700	1 820	1 950	2 290	2 420	2 540	2 530	2 750
	Light-Duty Gasoline Vehicles	825	667	640	653	660	673	618	661
	Light-Duty Gasoline Trucks	460	656	736	934	1 020	1 110	1 080	1 240
	Heavy-Duty Gasoline Vehicles	75.1	66.7	63.1	89.7	101	123	121	135
	Motorcycles	2.34	1.61	1.45	3.47	3.95	4.16	3.94	4.51
	Light-Duty Diesel Vehicles	2.33	1.34	1.73	2.83	3.6	4.18	4.29	5.04
	Light-Duty Diesel Trucks	1.44	2.51	3.54	3.2	3.31	3.42	3.26	3.78
	Heavy-Duty Diesel Vehicles	337	424	499	599	632	616	696	708
	Propane and Natural Gas Vehicles	1.4	0.92	0.31	0.46	0.46	0.46	0.62	0.46
	Railways	-	-	-	1.5	-	-	-	-
	Domestic Navigation	630	620	530	800	560	390	220	210
	Other Transportation	520	650	770	600	860	540	280	590
	Off-Road Gasoline	92	50	x	x	x	x	x	x
	Off-Road Diesel	430	600	730	560	790	410	260	510
	Pipeline Transport	-	-	x	x	x	x	x	x
c.	Fugitive Sources	41	310	910	580	490	520	570	660
	Coal Mining	-	-	-	-	-	-	-	-
	Oil and Natural Gas	41	310	910	580	490	520	570	660
d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		87.4	146	163	207	244	195	207	204
a.	Mineral Products	64	2.3	1.9	1.1	1.1	1.1	1.1	1.1
	Cement Production	60	-	-	-	-	-	-	-
	Lime Production	-	-	-	-	-	-	-	-
	Mineral Products Use	4.2	2.3	1.9	1.1	1.1	1.1	1.1	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	-	59	91	120	130	130	140	150
e.	Non-Energy Products from Fuels and Solvent Use	19	76	64	79	110	54	65	50
f.	Other Product Manufacture and Use	4.5	8.4	6.3	4.2	4.8	5.3	5.3	5.7
AGRICULTURE		56	67	66	93	110	140	140	140
a.	Enteric Fermentation	25	27	35	36	35	35	36	36
b.	Manure Management	19	19	21	25	25	25	26	26
c.	Agriculture Soils	10	9.6	10	14	13	13	13	13
	Direct Sources	8.1	7.8	8.3	11	11	10	10	10
	Indirect Sources	2	2	2	3	3	3	3	3
d.	Field Burning of Agricultural Residues	-	-	-	-	-	-	-	-
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	3	10	-	20	40	70	70	70
WASTE		810	840	860	800	800	820	820	820
a.	Solid Waste Disposal	750	790	810	750	750	760	770	770
b.	Biological Treatment of Solid Waste	20	20	20	20	20	20	20	20
c.	Wastewater Treatment and Discharge	37	34	33	34	34	34	34	34
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 the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

- Indicates no emissions

0.0 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2014) 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 2014 GHG Emission Summary for Newfoundland and Labrador

Greenhouse Gas Categories		Greenhouse Gases									
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
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		9 130	43	1 100	0.65	190	150	0.05	1.3	-	10 600
ENERGY		9 020	9.2	230	0.5	100	-	-	-	-	9 390
a.	Stationary Combustion Sources	4 770	5	100	0.2	50	-	-	-	-	4 950
	Public Electricity and Heat Production	1 200	0.02	0.42	0.02	7.2	-	-	-	-	1 210
	Petroleum Refining Industries	870	0.03	0.6	0.01	3	-	-	-	-	880
	Mining and Upstream Oil and Gas Production	1 710	1.8	45	0.06	20	-	-	-	-	1 770
	Manufacturing Industries	53.4	0.04	0.98	0.03	8.1	-	-	-	-	62.5
	Construction	7.31	0.0	0.0	0.0	0.03	-	-	-	-	7.34
	Commercial and Institutional	575	0.01	0.15	0.01	3	-	-	-	-	578
	Residential	348	3	80	0.04	10	-	-	-	-	444
	Agriculture and Forestry	11.3	0.0	0.0	0.0	0.04	-	-	-	-	11.4
	b.	Transport ¹	3 680	0.33	8.3	0.3	91	-	-	-	-
Domestic Aviation		222	0.01	0.2	0.01	2	-	-	-	-	220
Road Transportation		2 720	0.2	5	0.11	34	-	-	-	-	2 750
Light-Duty Gasoline Vehicles		653	0.05	1.3	0.02	6.5	-	-	-	-	661
Light-Duty Gasoline Trucks		1 220	0.1	2.5	0.04	12	-	-	-	-	1 240
Heavy-Duty Gasoline Vehicles		132	0.0	0.11	0.01	3.4	-	-	-	-	135
Motorcycles		4.44	0.0	0.04	0.0	0.03	-	-	-	-	4.51
Light-Duty Diesel Vehicles		4.92	0.0	0.0	0.0	0.1	-	-	-	-	5.04
Light-Duty Diesel Trucks		3.69	0.0	0.0	0.0	0.09	-	-	-	-	3.78
Heavy-Duty Diesel Vehicles		695	0.03	0.7	0.04	10	-	-	-	-	708
Propane and Natural Gas Vehicles		0.46	0.0	0.01	0.0	0.0	-	-	-	-	0.46
Railways		-	-	-	-	-	-	-	-	-	-
Domestic Navigation		209	0.02	0.5	0.01	2	-	-	-	-	210
Other Transportation		532	0.1	3	0.2	50	-	-	-	-	590
Off-Road Gasoline		x	x	x	x	x	-	-	-	-	x
Off-Road Diesel		456	0.03	0.6	0.2	50	-	-	-	-	510
Pipeline Transport		x	x	x	x	x	-	-	-	-	x
c.	Fugitive Sources	570	3.5	88	0.01	2	-	-	-	-	660
Coal Mining		-	-	-	-	-	-	-	-	-	-
Oil and Natural Gas		570	3.5	88	0.01	2	-	-	-	-	660
d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		52.4	-	-	0.01	3.59	150	0.05	1.3	-	204
a.	Mineral Products	1.1	-	-	-	-	-	-	-	-	1.1
	Cement Production	-	-	-	-	-	-	-	-	-	-
	Lime Production	-	-	-	-	-	-	-	-	-	-
	Mineral Products Use	1.1	-	-	-	-	-	-	-	-	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	-	-	-	-	-	150	0.03	-	-	150
e.	Non-Energy Products from Fuels and Solvent Use	50	-	-	-	-	-	-	-	-	50
f.	Other Product Manufacture and Use	0.9	-	-	0.01	3.6	-	0.02	1.3	-	5.7
AGRICULTURE		70	1.9	47	0.091	27	-	-	-	-	140
a.	Enteric Fermentation	-	1.4	36	-	-	-	-	-	-	36
b.	Manure Management	-	0.46	12	0.05	10	-	-	-	-	26
c.	Agriculture Soils	-	-	-	0.04	13	-	-	-	-	13
Direct Sources		-	-	-	0.04	10	-	-	-	-	10
Indirect Sources		-	-	-	0.01	3	-	-	-	-	3
d.	Field Burning of Agricultural Residues	-	-	-	-	-	-	-	-	-	-
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	70	-	-	-	-	-	-	-	-	70
WASTE		-	32	810	0.07	19	-	-	-	-	820
a.	Solid Waste Disposal	-	31	770	-	-	-	-	-	-	770
b.	Biological Treatment of Solid Waste	-	0.4	10	.03	9	-	-	-	-	20
c.	Wastewater Treatment and Discharge	-	0.96	24	0.03	10	-	-	-	-	34
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 the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2014) 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 1990–2014 GHG Emission Summary for Prince Edward Island

Greenhouse Gas Categories		1990	2000	2005	2010	2011	2012	2013	2014
<i>kt CO₂ equivalent</i>									
TOTAL		1 960	2 150	2 070	1 990	2 050	2 060	1 770	1 800
ENERGY		1 430	1 550	1 450	1 480	1 540	1 530	1 280	1 250
a.	Stationary Combustion Sources	736	726	614	650	725	671	535	470
	Public Electricity and Heat Production	104	53	4.76	1.59	1.23	10.8	3.92	4.96
	Petroleum Refining Industries	-	-	-	-	-	-	-	-
	Mining and Upstream Oil and Gas Production	0.89	7.53	x	x	0.16	x	x	x
	Manufacturing Industries	55.2	136	144	171	142	187	114	103
	Construction	11.1	6.68	x	x	x	x	x	x
	Commercial and Institutional	160	179	120	47.6	86.4	74.2	75	61.5
	Residential	387	312	311	380	454	379	327	287
	Agriculture and Forestry	18.5	31.9	24	29.5	30.5	17.5	12.5	11.5
b.	Transport ¹	695	828	840	833	819	859	746	779
	Domestic Aviation	17	11	14	18	16	19	20	19
	Road Transportation	522	602	625	660	554	659	632	623
	Light-Duty Gasoline Vehicles	262	238	229	226	170	216	205	194
	Light-Duty Gasoline Trucks	120	196	228	248	198	262	253	253
	Heavy-Duty Gasoline Vehicles	42.4	28.6	22	23.6	18.7	24.4	24.2	23.1
	Motorcycles	0.47	0.63	0.55	1.01	0.79	0.99	x	x
	Light-Duty Diesel Vehicles	2.42	1.89	x	x	3.19	x	3.29	3.3
	Light-Duty Diesel Trucks	0.85	1.41	1.75	1.17	1.08	1.03	1.03	0.93
	Heavy-Duty Diesel Vehicles	92.6	135	140	158	162	151	144	148
	Propane and Natural Gas Vehicles	1.1	0.77	x	x	-	x	x	x
	Railways	-	-	-	-	-	-	-	x
	Domestic Navigation	80	76	90	96	130	85	63	x
	Other Transportation	75	140	110	60	120	96	32	51
	Off-Road Gasoline	32	55	77	41	x	x	x	x
	Off-Road Diesel	43	84	x	x	74	51	24	45
	Pipeline Transport	-	-	x	x	x	x	x	x
c.	Fugitive Sources	-	-	0.0	-	0.0	-	-	-
	Coal Mining	-	-	-	-	-	-	-	-
	Oil and Natural Gas	-	-	0.0	-	0.0	-	-	-
d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		4.49	19.3	26.5	37.8	40.2	41.1	41.2	43.1
a.	Mineral Products	0.34	0.71	0.91	0.69	0.73	0.63	0.58	0.59
	Cement Production	-	-	-	-	-	-	-	-
	Lime Production	-	-	-	-	-	-	-	-
	Mineral Products Use	0.34	0.71	0.91	0.69	0.73	0.63	0.58	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	-	14	23	35	37	38	39	41
e.	Non-Energy Products from Fuels and Solvent Use	3.3	2.4	1.3	0.99	1.3	0.85	0.99	0.56
f.	Other Product Manufacture and Use	0.83	1.9	1.6	1	1.1	1.2	1.2	1.2
AGRICULTURE		410	440	460	340	340	370	320	380
a.	Enteric Fermentation	150	150	140	120	120	120	120	120
b.	Manure Management	60	61	60	44	44	44	44	44
c.	Agriculture Soils	190	230	250	170	180	200	150	210
	Direct Sources	160	180	200	140	150	160	130	170
	Indirect Sources	30	40	50	30	30	30	30	40
d.	Field Burning of Agricultural Residues	0.09	0.2	0.2	0.1	0.1	0.2	0.2	0.2
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	5	5	5	3	3	2	2	2
WASTE		120	140	140	130	130	130	130	130
a.	Solid Waste Disposal	96	110	110	110	110	100	100	100
b.	Biological Treatment of Solid Waste	3	4	3	3	3	3	3	3
c.	Wastewater Treatment and Discharge	6.2	8	8.1	8	8.1	8.2	8.4	8.4
d.	Incineration and Open Burning of Waste	11	12	12	12	12	12	12	12

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.

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 CF₄ emissions from the use of NF₃.

- Indicates no emissions

0.0 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2014) 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 2014 GHG Emission Summary for Prince Edward Island

Greenhouse Gas Categories		Greenhouse Gases									
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
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		1 210	11	290	0.88	260	41	0.01	0.03	-	1 800
ENERGY		1 190	1.4	35	0.07	20	-	-	-	-	1 250
a.	Stationary Combustion Sources	432	1	30	0.02	6	-	-	-	-	470
	Public Electricity and Heat Production	4.9	0.0	0.0	0.0	0.03	-	-	-	-	4.96
	Petroleum Refining Industries	-	-	-	-	-	-	-	-	-	-
	Mining and Upstream Oil and Gas Production	x	x	x	x	x	-	-	-	-	x
	Manufacturing Industries	102	0.0	0.07	0.0	0.55	-	-	-	-	103
	Construction	x	x	x	x	x	-	-	-	-	x
	Commercial and Institutional	61.1	0.0	0.02	0.0	0.3	-	-	-	-	61.5
	Residential	249	1	30	0.02	5	-	-	-	-	287
	Agriculture and Forestry	11.5	0.0	0.0	0.0	0.05	-	-	-	-	11.5
	b.	Transport ¹	763	0.07	1.6	0.05	14	-	-	-	-
Domestic Aviation		19.1	0.0	0.01	0.0	0.2	-	-	-	-	19
Road Transportation		613	0.05	1	0.03	8.4	-	-	-	-	623
Light-Duty Gasoline Vehicles		191	0.02	0.42	0.01	2.3	-	-	-	-	194
Light-Duty Gasoline Trucks		249	0.02	0.57	0.01	3.1	-	-	-	-	253
Heavy-Duty Gasoline Vehicles		22.5	0.0	0.02	0.0	0.56	-	-	-	-	23.1
Motorcycles		x	x	x	x	x	-	-	-	-	x
Light-Duty Diesel Vehicles		3.22	0.0	0.0	0.0	0.08	-	-	-	-	3.3
Light-Duty Diesel Trucks		0.91	0.0	0.0	0.0	0.02	-	-	-	-	0.93
Heavy-Duty Diesel Vehicles		146	0.01	0.2	0.01	2	-	-	-	-	148
Propane and Natural Gas Vehicles		x	x	x	x	x	-	-	-	-	x
Railways		x	x	x	x	x	-	-	-	-	x
Domestic Navigation		x	x	x	x	x	-	-	-	-	x
Other Transportation		45.9	0.01	0.2	0.02	5	-	-	-	-	51
Off-Road Gasoline		x	x	x	x	x	-	-	-	-	x
Off-Road Diesel		40.4	0.0	0.06	0.02	5	-	-	-	-	45
Pipeline Transport		x	x	x	x	x	-	-	-	-	x
c.	Fugitive Sources	-	-	-	-	-	-	-	-	-	-
	Coal Mining	-	-	-	-	-	-	-	-	-	-
	Oil and Natural Gas	-	-	-	-	-	-	-	-	-	-
d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		1.35	-	-	0.0	1.0	41	0.01	0.03	-	43.1
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	-	-	-	-	-	41	0.01	-	-	41
e.	Non-Energy Products from Fuels and Solvent Use	0.56	-	-	-	-	-	-	-	-	0.56
f.	Other Product Manufacture and Use	0.2	-	-	0.0	1	-	0.0	0.03	-	1.2
AGRICULTURE		2	5.6	140	0.79	240	-	-	-	-	380
a.	Enteric Fermentation	-	4.8	120	-	-	-	-	-	-	120
b.	Manure Management	-	0.75	19	0.08	30	-	-	-	-	44
c.	Agriculture Soils	-	-	-	0.7	210	-	-	-	-	210
	Direct Sources	-	-	-	0.58	170	-	-	-	-	170
	Indirect Sources	-	-	-	0.1	40	-	-	-	-	40
d.	Field Burning of Agricultural Residues	-	0.01	0.1	0.0	0.04	-	-	-	-	0.2
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	2	-	-	-	-	-	-	-	-	2
WASTE		10	4.5	110	0.02	5.7	-	-	-	-	130
a.	Solid Waste Disposal on Land	-	4.2	100	-	-	-	-	-	-	100
b.	Wastewater Handling	-	0.07	2	0.01	1	-	-	-	-	3
		-	0.23	5.7	0.01	3	-	-	-	-	8.4
c.	Waste Incineration	10	0.0	0.0	0.01	1	-	-	-	-	12

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2014) 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 1990–2014 GHG Emission Summary for Nova Scotia

Greenhouse Gas Categories		1990	2000	2005	2010	2011	2012	2013	2014
<i>kt CO₂ equivalent</i>									
TOTAL		20 000	22 400	23 500	20 400	21 100	19 200	18 400	16 600
ENERGY		18 100	20 600	21 800	18 800	19 500	17 600	16 700	15 000
a.	Stationary Combustion Sources	11 600	14 300	15 500	13 300	13 500	12 100	11 600	10 500
	Public Electricity and Heat Production	6 930	9 540	10 800	8 860	8 520	7 680	7 600	7 240
	Petroleum Refining Industries	610	550	1 100	770	710	870	770	27
	Mining and Upstream Oil and Gas Production	85.3	420	326	413	628	525	527	718
	Manufacturing Industries	777	731	554	586	540	523	396	378
	Construction	49.6	28.1	48.7	26	23.8	20.6	10.4	7.13
	Commercial and Institutional	797	924	1 260	783	922	661	631	605
	Residential	2 220	1 870	1 410	1 800	2 020	1 790	1 590	1 460
	Agriculture and Forestry	104	236	96.3	81.6	110	70.5	38.5	33.1
b.	Transport ¹	4 880	5 560	6 010	5 320	5 830	5 300	4 960	4 480
	Domestic Aviation	280	310	260	220	210	240	250	250
	Road Transportation	3 220	3 620	3 930	3 910	4 040	3 900	3 730	3 410
	Light-Duty Gasoline Vehicles	1 690	1 370	1 380	1 280	1 310	1 240	1 140	982
	Light-Duty Gasoline Trucks	709	1 190	1 270	1 320	1 430	1 380	1 310	1 160
	Heavy-Duty Gasoline Vehicles	130	151	140	159	171	167	161	141
	Motorcycles	4.48	3.35	3.22	5.04	5.39	5.51	4.86	4.37
	Light-Duty Diesel Vehicles	23.3	19.8	27.8	31	35	38.3	38.1	35.3
	Light-Duty Diesel Trucks	5.92	8.59	8.57	7.53	7.92	7.72	7.34	6.66
	Heavy-Duty Diesel Vehicles	651	871	1 090	1 100	1 080	1 060	1 070	1 060
	Propane and Natural Gas Vehicles	7.5	4.2	4.9	5.2	4.2	3.5	3.2	12
	Railways	66	73	120	140	170	130	100	x
	Domestic Navigation	570	630	820	460	490	380	310	x
	Other Transportation	730	930	890	590	910	640	560	440
	Off-Road Gasoline	240	280	190	11	110	140	12	26
	Off-Road Diesel	500	650	660	500	800	490	540	410
	Pipeline Transport	-	-	34.6	74.6	2.95	3.93	3.53	8.84
c.	Fugitive Sources	1 700	700	230	200	190	190	170	75
	Coal Mining	2 000	600	100	90	80	80	80	0.7
	Oil and Natural Gas	51	140	130	120	110	100	86	75
d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		314	432	496	472	547	543	601	461
a.	Mineral Products	190	230	250	200	200	210	190	190
	Cement Production	180	230	250	190	190	210	190	190
	Lime Production	-	-	-	-	-	-	-	-
	Mineral Products Use	3.7	3.4	3.4	1.6	1.7	1.7	1.5	1.5
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	-	96	150	190	210	210	210	220
e.	Non-Energy Products from Fuels and Solvent Use	100	66	52	49	100	89	150	9.6
f.	Other Product Manufacture and Use	29	36	40	34	40	30	47	41
AGRICULTURE		530	530	490	440	440	450	450	460
a.	Enteric Fermentation	250	240	230	190	190	190	190	190
b.	Manure Management	140	140	140	130	130	130	130	140
c.	Agriculture Soils	110	110	120	110	110	110	100	120
	Direct Sources	88	92	94	90	87	94	85	95
	Indirect Sources	20	20	20	20	20	20	20	20
d.	Field Burning of Agricultural Residues	0.03	0.1	0.1	0.05	0.06	0.04	0.04	0.04
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	40	40	10	10	10	20	20	20
WASTE		1 000	920	750	630	620	620	630	620
a.	Solid Waste Disposal	920	840	660	550	530	530	550	540
b.	Biological Treatment of Solid Waste	20	20	20	20	20	20	20	20
c.	Wastewater Treatment and Discharge	50	53	53	53	53	53	53	53
d.	Incineration and Open Burning of Waste	27	15	17	18	19	19	18	18

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

- Indicates no emissions

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Estimates for the latest year (2014) 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 2014 GHG Emission Summary for Nova Scotia

Greenhouse Gas Categories		Greenhouse Gases									
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
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		14 800	46	1 100	1.3	390	220	0.18	33	-	16 600
ENERGY		14 600	12	290	0.6	200	-	-	-	-	15 000
a.	Stationary Combustion Sources	10 200	9	200	0.2	70	-	-	-	-	10 500
	Public Electricity and Heat Production	7 200	0.28	7	0.1	29	-	-	-	-	7 240
	Petroleum Refining Industries	27	0.0	0.01	0.0	0.1	-	-	-	-	27
	Mining and Upstream Oil and Gas Production	672	1.6	41	0.02	5	-	-	-	-	718
	Manufacturing Industries	375	0.01	0.23	0.01	2	-	-	-	-	378
	Construction	7.09	0.0	0.0	0.0	0.04	-	-	-	-	7.13
	Commercial and Institutional	602	0.01	0.2	0.01	4	-	-	-	-	605
	Residential	1 250	7	200	0.09	30	-	-	-	-	1 460
	Agriculture and Forestry	33	0.0	0.01	0.0	0.2	-	-	-	-	33.1
	b.	Transport ¹	4 370	0.37	9.1	0.34	100	-	-	-	-
	Domestic Aviation	243	0.01	0.2	0.01	2	-	-	-	-	250
	Road Transportation	3 360	0.3	7	0.15	44	-	-	-	-	3 410
	Light-Duty Gasoline Vehicles	970	0.08	2	0.03	9.9	-	-	-	-	982
	Light-Duty Gasoline Trucks	1 150	0.1	2.4	0.04	12	-	-	-	-	1 160
	Heavy-Duty Gasoline Vehicles	137	0.0	0.12	0.01	3.5	-	-	-	-	141
	Motorcycles	4.31	0.0	0.04	0.0	0.02	-	-	-	-	4.37
	Light-Duty Diesel Vehicles	34.5	0.0	0.02	0.0	0.8	-	-	-	-	35.3
	Light-Duty Diesel Trucks	6.5	0.0	0.0	0.0	0.2	-	-	-	-	6.66
	Heavy-Duty Diesel Vehicles	1 040	0.04	1	0.06	20	-	-	-	-	1 060
	Propane and Natural Gas Vehicles	10.9	0.04	1	0.0	0.09	-	-	-	-	12
	Railways	x	x	x	x	x	-	-	-	-	x
	Domestic Navigation	x	x	x	x	x	-	-	-	-	x
	Other Transportation	400	0.06	2	0.1	40	-	-	-	-	440
	Off-Road Gasoline	25.5	0.03	0.8	0.0	0.2	-	-	-	-	26
	Off-Road Diesel	366	0.02	0.5	0.1	40	-	-	-	-	410
	Pipeline Transport	8.55	0.01	0.21	0.0	0.07	-	-	-	-	8.84
c.	Fugitive Sources	22	2.1	53	0.0	0.01	-	-	-	-	75
	Coal Mining	-	0.03	0.7	-	-	-	-	-	-	0.7
	Oil and Natural Gas	22	2.1	53	0.0	0.01	-	-	-	-	75
d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		203	-	-	0.02	6.43	220	0.18	33	-	461
a.	Mineral Products	190	-	-	-	-	-	-	-	-	190
	Cement Production	190	-	-	-	-	-	-	-	-	190
	Lime Production	-	-	-	-	-	-	-	-	-	-
	Mineral Products Use	1.5	-	-	-	-	-	-	-	-	1.5
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	-	-	-	-	-	220	0.05	-	-	220
e.	Non-Energy Products from Fuels and Solvent Use	9.6	-	-	-	-	-	-	-	-	9.6
f.	Other Product Manufacture and Use	1	-	-	0.02	6.4	-	0.14	33	-	41
AGRICULTURE		20	11	260	0.61	180	-	-	-	-	460
a.	Enteric Fermentation	-	7.8	190	-	-	-	-	-	-	190
b.	Manure Management	-	2.8	70	0.2	70	-	-	-	-	140
c.	Agriculture Soils	-	-	-	0.39	120	-	-	-	-	120
	Direct Sources	-	-	-	0.32	95	-	-	-	-	95
	Indirect Sources	-	-	-	0.07	20	-	-	-	-	20
d.	Field Burning of Agricultural Residues	-	0.0	0.03	0.0	0.01	-	-	-	-	0.04
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	20	-	-	-	-	-	-	-	-	20
WASTE		16	23	580	0.09	28	-	-	-	-	620
a.	Solid Waste Disposal	-	21	540	-	-	-	-	-	-	540
b.	Biological Treatment of Solid Waste	-	0.3	8	0.03	8	-	-	-	-	20
c.	Wastewater Treatment and Discharge	-	1.4	35	0.06	20	-	-	-	-	53
d.	Incineration and Open Burning of Waste	16	-	-	0.01	2	-	-	-	-	18

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

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.

0.025 in

- Indicates no emissions

0.0 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2014) 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 1990–2014 GHG Emission Summary for New Brunswick

Greenhouse Gas Categories		1990	2000	2005	2010	2011	2012	2013	2014
<i>kt CO₂ equivalent</i>									
TOTAL		16 400	21 100	20 500	18 600	18 900	16 900	15 000	14 900
ENERGY		14 900	19 300	18 700	16 000	16 700	14 700	13 000	12 500
a.	Stationary Combustion Sources	10 800	13 900	13 200	10 700	10 500	9 370	8 600	8 380
	Public Electricity and Heat Production	6 030	9 010	8 100	5 360	4 950	4 080	4 220	4 660
	Petroleum Refining Industries	1 100	1 700	2 300	2 800	2 600	2 400	2 500	1 900
	Mining and Upstream Oil and Gas Production	126	132	158	147	260	204	58.6	57.9
	Manufacturing Industries	1 640	1 550	1 210	891	905	873	870	806
	Construction	68.6	41.7	5.56	54.4	19	13.7	8.98	9.74
	Commercial and Institutional	580	586	577	502	748	817	312	325
	Residential	1 150	837	821	865	968	854	562	593
	Agriculture and Forestry	52.9	65	31.8	113	116	85.4	56.9	60.1
b.	Transport ¹	4 070	5 300	5 280	5 070	6 030	5 090	4 180	3 980
	Domestic Aviation	140	120	120	100	86	100	110	110
	Road Transportation	3 050	3 690	3 720	3 710	3 930	3 850	3 340	3 100
	Light-Duty Gasoline Vehicles	1 420	1 200	1 160	1 040	1 100	1 060	874	760
	Light-Duty Gasoline Trucks	685	1 080	1 160	1 240	1 400	1 400	1 200	1 090
	Heavy-Duty Gasoline Vehicles	141	146	126	144	164	163	135	118
	Motorcycles	3.21	2.97	4.09	5.43	5.46	6.07	4.91	4.39
	Light-Duty Diesel Vehicles	15.1	12	14.3	14	16.1	16.4	14.8	13.7
	Light-Duty Diesel Trucks	6.86	9.54	9.41	6.08	6.42	5.63	4.54	3.84
	Heavy-Duty Diesel Vehicles	779	1 230	1 250	1 270	1 240	1 200	1 100	1 110
	Propane and Natural Gas Vehicles	5.1	6.8	0.62	0.62	0.77	0.62	0.46	0.15
	Railways	130	230	290	310	x	x	200	x
	Domestic Navigation	240	360	380	360	x	x	240	x
	Other Transportation	510	900	760	590	1 100	530	290	320
	Off-Road Gasoline	100	65	x	x	x	x	x	x
	Off-Road Diesel	410	840	630	530	990	430	180	220
	Pipeline Transport	-	-	x	x	x	x	x	x
c.	Fugitive Sources	60	130	220	210	200	200	190	170
	Coal Mining	1	0.4	0.3	-	-	-	-	-
	Oil and Natural Gas	60	130	220	210	200	200	190	170
d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		165	394	376	1 420	961	1 030	849	1 100
a.	Mineral Products	88	120	94	53	55	56	53	55
	Cement Production	-	-	-	-	-	-	-	-
	Lime Production	76.4	103	85.6	49	51.1	51.7	48.7	51.2
	Mineral Products Use	11	13	7.9	4.1	4	3.9	3.9	3.8
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	-	84	130	170	190	190	190	190
e.	Non-Energy Products from Fuels and Solvent Use	72	180	140	1 200	710	770	600	850
f.	Other Product Manufacture and Use	5.3	11	8.4	5.8	6.5	7.1	7.3	7.2
AGRICULTURE		530	580	570	500	480	520	480	530
a.	Enteric Fermentation	210	200	200	180	180	170	170	170
b.	Manure Management	90	97	93	81	78	78	79	77
c.	Agriculture Soils	170	190	220	170	160	190	150	200
	Direct Sources	140	160	190	140	140	160	120	170
	Indirect Sources	30	30	40	30	30	30	20	30
d.	Field Burning of Agricultural Residues	0.03	0.02	0.02	0.03	0.01	0.02	0.02	0.03
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	70	90	50	70	60	80	80	80
WASTE		790	820	830	740	710	740	740	740
a.	Solid Waste Disposal	740	770	780	680	650	680	680	690
b.	Biological Treatment of Solid Waste	20	20	20	20	20	20	30	30
c.	Wastewater Treatment and Discharge	29	31	31	31	31	32	31	31
d.	Incineration and Open Burning of Waste	-	0.63	0.59	1.2	1.2	1.2	1.2	1.2

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.

3. Emission estimates from consumption of PFCs and NF₃, as well as emissions of SF₆ from semi-conductor manufacturing, are only available at the national level. 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 CF₄ emissions from the use of NF₃.

- Indicates no emissions

0.0 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2014) 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 2014 GHG Emission Summary for New Brunswick

Greenhouse Gas Categories		Greenhouse Gases									
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
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		13 200	44	1 100	1.4	430	190	0.07	0.58	-	14 900
ENERGY		12 200	6.5	160	0.5	200	-	-	-	-	12 500
a.	Stationary Combustion Sources	8 190	5	100	0.2	70	-	-	-	-	8 380
	Public Electricity and Heat Production	4 600	0.32	8	0.07	20	-	-	-	-	4 660
	Petroleum Refining Industries	1 900	0.04	1	0.02	5	-	-	-	-	1 900
	Mining and Upstream Oil and Gas Production	57.6	0.0	0.03	0.0	0.3	-	-	-	-	57.9
	Manufacturing Industries	782	0.1	2.4	0.07	22	-	-	-	-	806
	Construction	9.69	0.0	0.0	0.0	0.04	-	-	-	-	9.74
	Commercial and Institutional	323	0.01	0.14	0.01	2	-	-	-	-	325
	Residential	464	5	100	0.06	20	-	-	-	-	593
	Agriculture and Forestry	59.8	0.0	0.02	0.0	0.3	-	-	-	-	60.1
	b.	Transport ¹	3 880	0.38	9.4	0.3	90	-	-	-	-
	Domestic Aviation	110	0.01	0.2	0.0	1	-	-	-	-	110
	Road Transportation	3 050	0.2	5	0.14	43	-	-	-	-	3 100
	Light-Duty Gasoline Vehicles	749	0.06	1.6	0.03	8.7	-	-	-	-	760
	Light-Duty Gasoline Trucks	1 070	0.1	2.4	0.04	13	-	-	-	-	1 090
	Heavy-Duty Gasoline Vehicles	115	0.0	0.1	0.01	2.9	-	-	-	-	118
	Motorcycles	4.33	0.0	0.04	0.0	0.02	-	-	-	-	4.39
	Light-Duty Diesel Vehicles	13.3	0.0	0.01	0.0	0.3	-	-	-	-	13.7
	Light-Duty Diesel Trucks	3.74	0.0	0.0	0.0	0.09	-	-	-	-	3.84
	Heavy-Duty Diesel Vehicles	1 090	0.05	1	0.06	20	-	-	-	-	1 110
	Propane and Natural Gas Vehicles	0.15	0.0	0.0	0.0	0.0	-	-	-	-	0.15
	Railways	x	x	x	x	x	-	-	-	-	x
	Domestic Navigation	x	x	x	x	x	-	-	-	-	x
	Other Transportation	293	0.1	3	0.08	20	-	-	-	-	320
	Off-Road Gasoline	x	x	x	x	x	-	-	-	-	x
	Off-Road Diesel	196	0.01	0.3	0.08	20	-	-	-	-	220
	Pipeline Transport	x	x	x	x	x	-	-	-	-	x
c.	Fugitive Sources	130	1.1	29	0.01	4	-	-	-	-	170
	Coal Mining	-	-	-	-	-	-	-	-	-	-
	Oil and Natural Gas	130	1.1	29	0.01	4	-	-	-	-	170
d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		902	-	-	0.02	5.14	190	0.07	0.58	-	1 100
a.	Mineral Products	55	-	-	-	-	-	-	-	-	55
	Cement Production	-	-	-	-	-	-	-	-	-	-
	Lime Production	51.2	-	-	-	-	-	-	-	-	51.2
	Mineral Products Use	3.8	-	-	-	-	-	-	-	-	3.8
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	-	-	-	-	-	190	0.04	-	-	190
e.	Non-Energy Products from Fuels and Solvent Use	850	-	-	-	-	-	-	-	-	850
f.	Other Product Manufacture and Use	1	-	-	0.02	5.1	-	0.04	0.58	-	7.2
AGRICULTURE		80	8.4	210	0.81	240	-	-	-	-	530
a.	Enteric Fermentation	-	6.8	170	-	-	-	-	-	-	170
b.	Manure Management	-	1.6	39	0.1	40	-	-	-	-	77
c.	Agriculture Soils	-	-	-	0.68	200	-	-	-	-	200
	Direct Sources	-	-	-	0.57	170	-	-	-	-	170
	Indirect Sources	-	-	-	0.1	30	-	-	-	-	30
d.	Field Burning of Agricultural Residues	-	0.0	0.02	0.0	0.01	-	-	-	-	0.03
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	80	-	-	-	-	-	-	-	-	80
WASTE		1.1	29	720	0.09	26	-	-	-	-	740
a.	Solid Waste Disposal	-	27	690	-	-	-	-	-	-	690
b.	Biological Treatment of Solid Waste	-	0.5	10	0.04	10	-	-	-	-	30
c.	Wastewater Treatment and Discharge	-	0.68	17	0.05	10	-	-	-	-	31
d.	Incineration and Open Burning of Waste	1.1	0.0	0.0	0.0	0.03	-	-	-	-	1.2

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

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

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Estimates for the latest year (2014) 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 1990–2014 GHG Emission Summary for Quebec

Greenhouse Gas Categories								
	1990	2000	2005	2010	2011	2012	2013	2014
<i>kt CO₂ equivalent</i>								
TOTAL	89 100	89 000	89 700	82 400	84 400	81 800	82 900	82 700
ENERGY	59 600	61 700	61 500	57 900	58 900	57 200	57 600	57 700
a. Stationary Combustion Sources	31 200	29 400	27 300	22 300	22 600	21 700	22 500	23 700
Public Electricity and Heat Production	1 500	572	622	430	405	488	371	379
Petroleum Refining Industries	3 400	3 300	3 700	1 900	2 300	2 200	2 100	2 100
Mining and Upstream Oil and Gas Production	824	998	318	1 210	486	655	1 080	729
Manufacturing Industries	12 300	11 300	10 300	8 170	9 090	9 230	9 590	10 600
Construction	458	191	308	420	343	364	362	369
Commercial and Institutional	4 240	5 550	5 250	4 890	4 890	3 980	4 340	4 770
Residential	8 200	7 230	6 590	4 840	4 680	4 390	4 350	4 400
Agriculture and Forestry	291	263	292	450	399	406	405	392
b. Transport ¹	28 000	31 800	33 800	35 300	36 000	35 200	34 800	33 700
Domestic Aviation	820	730	740	620	620	740	730	690
Road Transportation	21 700	26 000	29 400	28 500	27 800	28 400	27 700	24 700
Light-Duty Gasoline Vehicles	12 700	11 900	11 700	10 700	10 300	9 980	9 640	8 120
Light-Duty Gasoline Trucks	3 810	6 570	7 710	8 010	8 180	8 230	8 170	7 180
Heavy-Duty Gasoline Vehicles	726	1 070	1 060	1 250	1 210	1 280	1 240	1 060
Motorcycles	14.3	20.8	46.8	46.4	46	46.7	45.1	38.2
Light-Duty Diesel Vehicles	184	184	143	134	151	164	172	153
Light-Duty Diesel Trucks	66.1	111	90.9	90.2	93.7	95	104	99
Heavy-Duty Diesel Vehicles	4 100	6 120	8 640	8 280	7 730	8 550	8 280	7 930
Propane and Natural Gas Vehicles	110	36	34	31	30	38	44	110
Railways	570	800	710	850	900	940	870	780
Domestic Navigation	1 400	1 300	1 300	1 300	950	800	910	740
Other Transportation	3 400	3 000	1 600	3 900	5 800	4 400	4 600	6 800
Off-Road Gasoline	440	170	250	680	890	680	1 000	3 300
Off-Road Diesel	3 000	2 700	1 000	3 100	4 700	3 500	3 300	3 200
Pipeline Transport	26.1	108	338	156	152	201	268	360
c. Fugitive Sources	430	500	390	340	290	280	260	270
Coal Mining	-	-	-	-	-	-	-	-
Oil and Natural Gas	430	500	390	340	290	280	260	270
d. CO ₂ Transport and Storage	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE	14 600	12 200	12 600	10 100	11 600	10 800	11 200	10 800
a. Mineral Products	1 900	1 900	2 000	1 700	1 800	1 900	1 700	1 700
Cement Production	1 400	1 200	1 300	1 200	1 200	1 400	1 200	1 200
Lime Production	272	430	465	423	441	446	421	442
Mineral Products Use	210	240	260	81	84	80	68	68
b. Chemical Industry ²	-	-	-	-	-	-	-	-
Adipic Acid Production	-	-	-	-	-	-	-	-
c. Metal Production	10 900	8 090	7 560	6 070	6 010	5 630	5 830	5 340
Iron and Steel Production	-	17.5	-	35.6	37.1	31.8	30.6	25.7
Aluminum Production	8 660	6 870	7 460	6 020	5 960	5 580	5 780	5 290
SF ₆ Used in Magnesium Smelters and Casters	2 280	1 210	103	12.7	12.5	15.5	21.8	23.4
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	1.9	680	1 200	1 500	1 600	1 700	1 700	1 700
e. Non-Energy Products from Fuels and Solvent Use	1 700	1 400	1 700	720	2 200	1 500	1 900	1 900
f. Other Product Manufacture and Use	80	140	120	89	95	130	140	89
AGRICULTURE	7 700	7 700	7 900	7 800	7 700	8 000	7 800	7 900
a. Enteric Fermentation	3 300	3 200	3 300	3 000	3 000	2 900	2 900	2 900
b. Manure Management	1 700	1 800	1 800	1 700	1 700	1 700	1 700	1 700
c. Agriculture Soils	2 500	2 400	2 600	2 800	2 800	3 100	3 000	3 000
Direct Sources	2 100	2 000	2 200	2 400	2 300	2 600	2 500	2 600
Indirect Sources	400	400	400	400	400	500	400	400
d. Field Burning of Agricultural Residues	0.4	0.2	0.3	0.3	0.2	0.2	0.2	0.2
e. Liming, Urea Application and Other Carbon-containing Fertilizers	200	300	200	200	200	300	300	300
WASTE	7 200	7 400	7 700	6 500	6 200	5 900	6 300	6 300
a. Solid Waste Disposal	6 400	6 600	6 900	5 700	5 500	5 200	5 600	5 700
b. Biological Treatment of Solid Waste	200	300	300	300	300	300	300	300
c. Wastewater Treatment and Discharge	270	240	240	250	260	260	260	260
d. Incineration and Open Burning of Waste	340	260	270	270	260	130	130	130

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

- Indicates no emissions

0.0 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2014) 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 2014 GHG Emission Summary for Quebec

Greenhouse Gas Categories		Greenhouse Gases									
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
Unit		kt	kt	25 kt CO ₂ eq.	kt	298 kt CO ₂ eq.	kt CO ₂ eq.	kt CO ₂ eq.	22 800 kt CO ₂ eq.	17 200 kt CO ₂ eq.	kt CO ₂ eq.
TOTAL		63 400	460	11 000	18	5 300	1 700	810	48	0.2	82 700
ENERGY		54 900	66	1 700	4	1 000	-	-	-	-	57 700
a.	Stationary Combustion Sources	21 900	60	1 000	1	400	-	-	-	-	23 700
	Public Electricity and Heat Production	370	0.04	1.1	0.02	5.9	-	-	-	-	379
	Petroleum Refining Industries	2 100	0.05	1	0.02	7	-	-	-	-	2 100
	Mining and Upstream Oil and Gas Production	724	0.03	0.64	0.01	4	-	-	-	-	729
	Manufacturing Industries	10 500	0.55	14	0.39	120	-	-	-	-	10 600
	Construction	366	0.01	0.17	0.01	2	-	-	-	-	369
	Commercial and Institutional	4 740	0.09	2.2	0.1	30	-	-	-	-	4 770
	Residential	2 780	60	1 000	0.7	200	-	-	-	-	4 400
	Agriculture and Forestry	387	0.01	0.16	0.02	5	-	-	-	-	392
	Transport ¹	32 800	6.5	160	2.6	790	-	-	-	-	33 700
b.	Domestic Aviation	684	0.03	0.8	0.02	6	-	-	-	-	690
	Road Transportation	24 300	2	50	1.1	340	-	-	-	-	24 700
	Light-Duty Gasoline Vehicles	8 010	0.69	17	0.31	91	-	-	-	-	8 120
	Light-Duty Gasoline Trucks	7 080	0.62	15	0.27	80	-	-	-	-	7 180
	Heavy-Duty Gasoline Vehicles	1 040	0.04	0.88	0.09	27	-	-	-	-	1 060
	Motorcycles	37.6	0.01	0.36	0.0	0.21	-	-	-	-	38.2
	Light-Duty Diesel Vehicles	149	0.0	0.07	0.01	4	-	-	-	-	153
	Light-Duty Diesel Trucks	96.6	0.0	0.06	0.01	2	-	-	-	-	99
	Heavy-Duty Diesel Vehicles	7 800	0.3	8	0.4	100	-	-	-	-	7 930
	Propane and Natural Gas Vehicles	98.8	0.3	8	0.0	0.8	-	-	-	-	110
	Railways	697	0.04	1	0.3	80	-	-	-	-	780
	Domestic Navigation	736	0.07	2	0.02	6	-	-	-	-	740
	Other Transportation	6 370	4	100	1	400	-	-	-	-	6 800
	Off-Road Gasoline	3 160	4	100	0.07	20	-	-	-	-	3 300
	Off-Road Diesel	2 860	0.2	4	1	300	-	-	-	-	3 200
	Pipeline Transport	348	0.35	8.7	0.01	3	-	-	-	-	360
	Fugitive Sources	190	2.8	71	0.02	5	-	-	-	-	270
	Coal Mining	-	-	-	-	-	-	-	-	-	-
	Oil and Natural Gas	190	2.8	71	0.02	5	-	-	-	-	270
	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		8 160	0.0	0.01	0.19	56	1 700	810	48	-	10 800
a.	Mineral Products	1 700	-	-	-	-	-	-	-	-	1 700
	Cement Production	1 200	-	-	-	-	-	-	-	-	1 200
	Lime Production	442	-	-	-	-	-	-	-	-	442
	Mineral Products Use	68	-	-	-	-	-	-	-	-	68
b.	Chemical Industry ²	-	-	-	-	-	-	-	-	-	-
	Adipic Acid Production	-	-	-	-	-	-	-	-	-	-
c.	Metal Production	4 510	0.0	0.01	-	-	-	800	30	-	5 340
	Iron and Steel Production	25.7	0.0	0.01	-	-	-	-	-	-	25.7
	Aluminum Production	4 490	-	-	-	-	-	800	6.61	-	5 290
	SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	23.4	-	23.4
d.	Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	1 700	1.4	0.63	0.2	1 700
e.	Non-Energy Products from Fuels and Solvent Use	1 900	-	-	-	-	-	-	-	-	1 900
f.	Other Product Manufacture and Use	10	-	-	0.19	56	-	4.6	17	-	89
AGRICULTURE		300	150	3 900	13	3 700	-	-	-	-	7 900
a.	Enteric Fermentation	-	110	2 900	-	-	-	-	-	-	2 900
b.	Manure Management	-	40	990	2	700	-	-	-	-	1 700
c.	Agriculture Soils	-	-	-	10	3 000	-	-	-	-	3 000
	Direct Sources	-	-	-	8.6	2 600	-	-	-	-	2 600
	Indirect Sources	-	-	-	2	400	-	-	-	-	400
d.	Field Burning of Agricultural Residues	-	0.01	0.1	0.0	0.05	-	-	-	-	0.2
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	300	-	-	-	-	-	-	-	-	300
WASTE		95	240	5 900	1	310	-	-	-	-	6 300
a.	Solid Waste Disposal	-	230	5 700	-	-	-	-	-	-	5 700
b.	Biological Treatment of Solid Waste	-	6	100	0.4	100	-	-	-	-	300
c.	Wastewater Treatment and Discharge	-	4.3	110	0.5	200	-	-	-	-	260
d.	Incineration and Open Burning of Waste	95	0.1	3	0.1	30	-	-	-	-	130

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.3. 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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

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Estimates for the latest year (2014) 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 1990–2014 GHG Emission Summary for Ontario

Greenhouse Gas Categories								
	1990	2000	2005	2010	2011	2012	2013	2014
<i>kt CO₂ equivalent</i>								
TOTAL	182 000	211 000	211 000	179 000	175 000	171 000	171 000	170 000
ENERGY	133 000	167 000	162 000	136 000	134 000	129 000	129 000	128 000
a. Stationary Combustion Sources	83 100	105 000	96 100	73 400	71 700	68 800	66 900	66 700
Public Electricity and Heat Production	25 800	43 400	34 500	19 800	14 200	14 200	10 200	6 200
Petroleum Refining Industries	6 100	6 800	6 900	6 400	6 200	6 400	5 800	5 700
Mining and Upstream Oil and Gas Production	593	505	613	819	804	906	622	641
Manufacturing Industries	22 000	20 300	18 900	15 000	16 200	16 100	16 200	17 400
Construction	571	440	637	553	411	429	357	378
Commercial and Institutional	9 140	13 100	12 800	10 900	11 800	10 900	11 900	13 000
Residential	18 100	19 600	20 700	18 800	20 500	18 200	20 200	21 800
Agriculture and Forestry	775	907	1 030	1 100	1 640	1 670	1 650	1 540
b. Transport ¹	48 300	60 400	64 600	61 300	61 000	58 400	61 200	60 200
Domestic Aviation	2 200	2 400	2 200	1 900	1 900	2 200	2 300	2 200
Road Transportation	36 200	43 700	51 300	50 300	49 400	47 800	49 900	48 300
Light-Duty Gasoline Vehicles	20 300	18 200	17 800	15 800	15 000	13 900	14 600	13 700
Light-Duty Gasoline Trucks	7 820	13 700	16 900	17 900	17 800	17 200	18 500	18 400
Heavy-Duty Gasoline Vehicles	1 410	1 720	1 930	2 190	2 140	2 070	2 200	2 130
Motorcycles	23.3	24.7	38.2	53.6	54.1	54	55.7	55.2
Light-Duty Diesel Vehicles	149	170	191	240	272	298	352	363
Light-Duty Diesel Trucks	41.9	96.9	87.7	156	173	191	251	285
Heavy-Duty Diesel Vehicles	5 890	9 400	14 000	13 600	13 500	13 600	13 600	13 100
Propane and Natural Gas Vehicles	550	380	350	420	450	510	360	350
Railways	1 800	1 700	1 600	1 300	1 300	1 200	1 300	1 400
Domestic Navigation	920	780	860	1 100	780	980	1 200	1 300
Other Transportation	7 200	12 000	8 700	6 700	7 600	6 200	6 500	7 000
Off-Road Gasoline	830	1 700	1 900	1 800	1 500	470	540	410
Off-Road Diesel	4 100	6 500	3 700	4 000	5 200	4 900	4 900	5 000
Pipeline Transport	2 280	3 640	3 070	897	896	844	1 070	1 530
c. Fugitive Sources	1 600	1 500	1 500	1 400	1 400	1 300	1 300	1 400
Coal Mining	-	-	-	-	-	-	-	-
Oil and Natural Gas	1 600	1 500	1 500	1 400	1 400	1 300	1 300	1 400
d. CO ₂ Transport and Storage	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE	30 200	24 800	28 000	22 500	21 400	23 400	21 800	22 400
a. Mineral Products	3 900	4 800	4 800	3 400	3 500	3 700	3 400	3 400
Cement Production	2 400	3 600	3 700	2 700	2 700	2 900	2 700	2 700
Lime Production	1 090	906	797	572	596	604	569	598
Mineral Products Use	410	340	320	150	160	160	130	130
b. Chemical Industry ²	10 300	865	2 550	-	-	-	-	-
Adipic Acid Production	10 000	870	2 500	-	-	-	-	-
c. Metal Production	11 200	13 200	11 400	9 300	10 200	10 400	8 200	8 780
Iron and Steel Production	10 500	11 800	10 300	9 130	10 000	10 100	8 010	8 570
Aluminum Production	-	-	-	-	-	-	-	-
SF ₆ Used in Magnesium Smelters and Casters	687	1 450	1 130	170	170	232	191	205
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	970	1 300	2 200	2 800	3 000	3 100	3 200	3 400
e. Non-Energy Products from Fuels and Solvent Use	3 700	4 300	6 900	6 800	4 600	6 000	6 800	6 600
f. Other Product Manufacture and Use	140	240	190	160	140	180	180	160
AGRICULTURE	11 000	10 000	10 000	11 000	10 000	9 900	10 000	10 000
a. Enteric Fermentation	4 400	4 300	4 300	3 700	3 600	3 600	3 600	3 600
b. Manure Management	2 100	2 200	2 200	1 900	1 900	1 900	1 900	1 900
c. Agriculture Soils	3 900	3 600	3 600	4 800	4 300	4 200	4 600	4 300
Direct Sources	3 300	3 100	3 100	4 100	3 700	3 600	3 900	3 700
Indirect Sources	600	500	500	700	600	600	700	600
d. Field Burning of Agricultural Residues	4	2	0.6	0.5	0.3	0.4	0.3	0.3
e. Liming, Urea Application and Other Carbon-containing Fertilizers	300	300	200	200	200	200	200	200
WASTE	7 900	8 900	10 000	9 400	9 600	9 600	9 400	9 400
a. Solid Waste Disposal	7 200	7 900	9 100	8 500	8 800	8 700	8 500	8 500
b. Biological Treatment of Solid Waste	300	400	300	300	300	300	300	300
c. Wastewater Treatment and Discharge	230	280	300	310	310	310	320	320
d. Incineration and Open Burning of Waste	260	330	290	280	270	270	290	290

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

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

Table A11–13 2014 GHG Emission Summary for Ontario

Greenhouse Gas Categories		Greenhouse Gases										
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL	
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		143 000	610	15 000	27	8 100	3 400	6.8	250	-	170 000	
ENERGY		124 000	85	2 100	7	2 000	-	-	-	-	128 000	
a.	Stationary Combustion Sources	65 300	30	900	2	500	-	-	-	-	66 700	
	Public Electricity and Heat Production	6 100	1.6	39	0.19	57	-	-	-	-	6 200	
	Petroleum Refining Industries	5 700	0.1	3	0.03	9	-	-	-	-	5 700	
	Mining and Upstream Oil and Gas Production	634	0.01	0.24	0.03	7	-	-	-	-	641	
	Manufacturing Industries	17 300	0.57	14	0.47	140	-	-	-	-	17 400	
	Construction	375	0.01	0.15	0.01	3	-	-	-	-	378	
	Commercial and Institutional	12 900	0.25	6.3	0.3	80	-	-	-	-	13 000	
	Residential	20 700	30	800	0.8	200	-	-	-	-	21 800	
	Agriculture and Forestry	1 530	0.03	0.71	0.04	10	-	-	-	-	1 540	
	b.	Transport ¹	58 500	5.8	150	5.4	1 600	-	-	-	-	60 200
c.	Domestic Aviation	2 210	0.07	2	0.06	20	-	-	-	-	2 200	
	Road Transportation	47 300	3	80	3	900	-	-	-	-	48 300	
	Light-Duty Gasoline Vehicles	13 400	1	26	0.92	270	-	-	-	-	13 700	
	Light-Duty Gasoline Trucks	18 000	1.4	34	1.1	340	-	-	-	-	18 400	
	Heavy-Duty Gasoline Vehicles	2 070	0.07	1.8	0.19	56	-	-	-	-	2 130	
	Motorcycles	54.3	0.02	0.54	0.0	0.31	-	-	-	-	55.2	
	Light-Duty Diesel Vehicles	354	0.01	0.2	0.03	9	-	-	-	-	363	
	Light-Duty Diesel Trucks	278	0.01	0.2	0.02	7	-	-	-	-	285	
	Heavy-Duty Diesel Vehicles	12 800	0.5	10	0.7	200	-	-	-	-	13 100	
	Propane and Natural Gas Vehicles	339	0.3	7	0.01	2	-	-	-	-	350	
	Railways	1 290	0.07	2	0.5	200	-	-	-	-	1 400	
	Domestic Navigation	1 260	0.1	3	0.03	10	-	-	-	-	1 300	
	Other Transportation	6 360	2	60	2	500	-	-	-	-	7 000	
	Off-Road Gasoline	393	0.5	10	0.01	3	-	-	-	-	410	
	Off-Road Diesel	4 490	0.3	6	2	500	-	-	-	-	5 000	
	Pipeline Transport	1 490	1.5	37	0.04	10	-	-	-	-	1 530	
	d.	Fugitive Sources	280	44	1 100	0.02	7	-	-	-	-	1 400
	e.	Coal Mining	-	-	-	-	-	-	-	-	-	-
		Oil and Natural Gas	280	44	1 100	0.02	7	-	-	-	-	1 400
	d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		18 600	0.08	2	0.31	93.3	3 400	6.8	250	-	22 400	
a.	Mineral Products	3 400	-	-	-	-	-	-	-	-	3 400	
	Cement Production	2 700	-	-	-	-	-	-	-	-	2 700	
	Lime Production	598	-	-	-	-	-	-	-	-	598	
	Mineral Products Use	130	-	-	-	-	-	-	-	-	130	
b.	Chemical Industry ²	-	-	-	-	-	-	-	-	-	-	
	Adipic Acid Production	-	-	-	-	-	-	-	-	-	-	
c.	Metal Production	8 570	0.08	2	-	-	-	-	205	-	8 780	
	Iron and Steel Production	8 570	0.08	2	-	-	-	-	-	-	8 570	
	Aluminum Production	-	-	-	-	-	-	-	-	-	-	
d.	SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	205	-	205	
	Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	3 400	1.5	0.47	-	3 400	
	e.	Non-Energy Products from Fuels and Solvent Use	6 600	-	-	-	-	-	-	-	-	6 600
f.	Other Product Manufacture and Use	20	-	-	0.31	93	-	5.3	43	-	160	
AGRICULTURE		200	180	4 500	18	5 400	-	-	-	-	10 000	
a.	Enteric Fermentation	-	140	3 600	-	-	-	-	-	-	3 600	
b.	Manure Management	-	35	870	3	1 000	-	-	-	-	1 900	
c.	Agriculture Soils	-	-	-	15	4 300	-	-	-	-	4 300	
	Direct Sources	-	-	-	13	3 700	-	-	-	-	3 700	
d.	Indirect Sources	-	-	-	2	600	-	-	-	-	600	
	Field Burning of Agricultural Residues	-	0.01	0.2	0.0	0.08	-	-	-	-	0.3	
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	200	-	-	-	-	-	-	-	-	200	
WASTE		210	350	8 700	1.6	470	-	-	-	-	9 400	
a.	Solid Waste Disposal	-	340	8 500	-	-	-	-	-	-	8 500	
b.	Biological Treatment of Solid Waste	-	6	200	0.5	100	-	-	-	-	300	
c.	Wastewater Treatment and Discharge	-	2.4	61	0.9	300	-	-	-	-	320	
d.	Incineration and Open Burning of Waste	210	0.01	0.3	0.3	80	-	-	-	-	290	

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

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

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

Table A11–14 1990–2014 GHG Emission for Manitoba

Greenhouse Gas Categories								
	1990	2000	2005	2010	2011	2012	2013	2014
<i>kt CO₂ equivalent</i>								
TOTAL	18 700	21 200	20 700	19 700	19 500	20 800	21 500	21 500
ENERGY	12 600	13 200	12 500	11 300	11 500	12 800	12 900	13 200
a. Stationary Combustion Sources	4 980	5 480	4 570	3 930	3 900	3 870	4 240	4 330
Public Electricity and Heat Production	523	1 010	338	87.4	119	109	115	122
Petroleum Refining Industries	-	-	-	-	-	-	-	-
Mining and Upstream Oil and Gas Production	79.9	22	115	176	103	111	122	113
Manufacturing Industries	1 190	1 240	1 440	1 250	1 220	1 250	1 190	1 230
Construction	63.4	61.9	85.8	106	113	109	124	111
Commercial and Institutional	1 400	1 670	1 420	1 200	1 230	1 190	1 400	1 470
Residential	1 680	1 420	1 130	1 020	1 080	1 070	1 240	1 250
Agriculture and Forestry	42.6	63.8	45.6	79.7	37.7	42.6	48.2	42.1
b. Transport ¹	7 190	7 270	7 690	7 040	7 230	8 470	8 200	8 430
Domestic Aviation	480	550	560	470	420	480	490	470
Road Transportation	3 880	4 420	4 560	5 430	5 260	6 020	6 190	6 290
Light-Duty Gasoline Vehicles	1 760	1 330	1 220	1 180	1 050	1 280	1 290	1 260
Light-Duty Gasoline Trucks	881	1 390	1 570	1 750	1 710	2 160	2 290	2 350
Heavy-Duty Gasoline Vehicles	288	311	230	236	227	282	290	286
Motorcycles	3.26	1.86	2.51	3.13	3.41	4.49	4.73	4.8
Light-Duty Diesel Vehicles	15.2	10.6	11.8	17.3	17.7	22.5	25.3	26.8
Light-Duty Diesel Trucks	13.1	20	23.4	18.7	15.2	16.6	17.4	16.5
Heavy-Duty Diesel Vehicles	858	1 320	1 480	2 220	2 220	2 240	2 260	2 330
Propane and Natural Gas Vehicles	62	37	14	13	10	12	14	12
Railways	610	320	300	x	x	x	x	x
Domestic Navigation	0.02	1.1	2.2	x	x	x	x	x
Other Transportation	2 200	2 000	2 300	510	860	1 300	940	1 000
Off-Road Gasoline	370	440	380	370	340	410	340	250
Off-Road Diesel	1 000	710	1 300	130	480	920	490	500
Pipeline Transport	848	829	601	17.9	32.3	13.2	109	268
c. Fugitive Sources	450	410	210	300	370	430	440	410
Coal Mining	-	-	-	-	-	-	-	-
Oil and Natural Gas	450	410	210	300	370	430	440	410
d. CO ₂ Transport and Storage	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE	454	609	686	901	929	783	817	845
a. Mineral Products	220	77	69	59	63	65	60	63
Cement Production	150	-	-	-	-	-	-	-
Lime Production	58.1	68.9	58.8	53.6	55.8	56.5	53.3	56
Mineral Products Use	6	8.1	9.9	5.9	7	8	6.4	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	-	140	220	280	300	330	330	360
e. Non-Energy Products from Fuels and Solvent Use	230	370	380	540	550	380	410	410
f. Other Product Manufacture and Use	11	20	17	13	16	13	13	13
AGRICULTURE	4 800	6 400	6 500	6 400	5 800	6 000	6 700	6 300
a. Enteric Fermentation	1 900	2 700	3 300	2 700	2 500	2 400	2 500	2 400
b. Manure Management	490	720	880	790	770	760	780	790
c. Agriculture Soils	2 100	2 700	2 100	2 700	2 300	2 600	3 100	2 800
Direct Sources	1 700	2 100	1 600	2 100	1 800	2 000	2 400	2 200
Indirect Sources	400	600	500	600	500	600	700	600
d. Field Burning of Agricultural Residues	200	80	10	20	10	20	20	20
e. Liming, Urea Application and Other Carbon-containing Fertilizers	100	200	200	200	200	200	300	200
WASTE	780	1 000	1 100	1 200	1 200	1 200	1 100	1 200
a. Solid Waste Disposal	700	920	1 000	1 100	1 100	1 100	1 000	1 100
b. Biological Treatment of Solid Waste	40	50	50	50	50	50	60	60
c. Wastewater Treatment and Discharge	36	40	41	42	42	43	43	44
d. Incineration and Open Burning of Waste	1.1	1.2	0.44	0.12	0.05	0.06	0.06	0.06

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

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

Table A11–15 2014 GHG Emission Summary for Manitoba

Greenhouse Gas Categories		Greenhouse Gases										
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL	
Unit		kt	kt	25 kt CO ₂ eq.	kt	298 kt CO ₂ eq.	kt CO ₂ eq.	kt CO ₂ eq.	22 800 kt CO ₂ eq.	17 200 kt CO ₂ eq.	kt CO ₂ eq.	
TOTAL		13 200	170	4 400	12	3 500	360	0.41	0.91	-	21 500	
ENERGY		12 500	16	390	0.9	300	-	-	-	-	13 200	
a.	Stationary Combustion Sources	4 240	2	60	0.1	40	-	-	-	-	4 330	
	Public Electricity and Heat Production	120	0.01	0.24	0.0	0.68	-	-	-	-	122	
	Petroleum Refining Industries	-	-	-	-	-	-	-	-	-	-	
	Mining and Upstream Oil and Gas Production	111	0.0	0.04	0.01	2	-	-	-	-	113	
	Manufacturing Industries	1 220	0.05	1.3	0.04	12	-	-	-	-	1 230	
	Construction	110	0.0	0.05	0.0	0.6	-	-	-	-	111	
	Commercial and Institutional	1 460	0.03	0.7	0.03	9	-	-	-	-	1 470	
	Residential	1 180	2	50	0.05	10	-	-	-	-	1 250	
	Agriculture and Forestry	41.3	0.0	0.02	0.0	0.8	-	-	-	-	42.1	
	b.	Transport ¹	8 180	1.1	28	0.75	220	-	-	-	-	8 430
Domestic Aviation		463	0.02	0.5	0.01	4	-	-	-	-	470	
Road Transportation		6 180	0.5	10	0.31	93	-	-	-	-	6 290	
Light-Duty Gasoline Vehicles		1 240	0.12	3.1	0.06	17	-	-	-	-	1 260	
Light-Duty Gasoline Trucks		2 320	0.23	5.7	0.1	29	-	-	-	-	2 350	
Heavy-Duty Gasoline Vehicles		279	0.01	0.27	0.03	7.3	-	-	-	-	286	
Motorcycles		4.72	0.0	0.05	0.0	0.03	-	-	-	-	4.8	
Light-Duty Diesel Vehicles		26.1	0.0	0.01	0.0	0.6	-	-	-	-	26.8	
Light-Duty Diesel Trucks		16.1	0.0	0.01	0.0	0.4	-	-	-	-	16.5	
Heavy-Duty Diesel Vehicles		2 290	0.1	2	0.1	40	-	-	-	-	2 330	
Propane and Natural Gas Vehicles		12	0.01	0.1	0.0	0.07	-	-	-	-	12	
Railways		x	x	x	x	x	-	-	-	-	x	
Domestic Navigation		x	x	x	x	x	-	-	-	-	x	
Other Transportation		947	0.6	10	0.2	60	-	-	-	-	1 000	
Off-Road Gasoline		239	0.3	8	0.01	2	-	-	-	-	250	
Off-Road Diesel		449	0.03	0.6	0.2	50	-	-	-	-	500	
Pipeline Transport		259	0.26	6.5	0.01	2	-	-	-	-	268	
c.		Fugitive Sources	100	12	310	0.0	0.06	-	-	-	-	410
		Coal Mining	-	-	-	-	-	-	-	-	-	-
		Oil and Natural Gas	100	12	310	0.0	0.06	-	-	-	-	410
d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-	
INDUSTRIAL PROCESSES AND PRODUCT USE		477	-	-	0.03	8.74	360	0.41	0.91	-	845	
a.	Mineral Products	63	-	-	-	-	-	-	-	-	63	
	Cement Production	-	-	-	-	-	-	-	-	-	-	
	Lime Production	56	-	-	-	-	-	-	-	-	56	
	Mineral Products Use	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	-	-	-	-	-	360	0.08	-	-	360	
e.	Non-Energy Products from Fuels and Solvent Use	410	-	-	-	-	-	-	-	-	410	
f.	Other Product Manufacture and Use	3	-	-	0.03	8.7	-	0.33	0.91	-	13	
AGRICULTURE		200	110	2 900	11	3 200	-	-	-	-	6 300	
a.	Enteric Fermentation	-	97	2 400	-	-	-	-	-	-	2 400	
b.	Manure Management	-	17	430	1	400	-	-	-	-	790	
c.	Agriculture Soils	-	-	-	9.5	2 800	-	-	-	-	2 800	
	Direct Sources	-	-	-	7.4	2 200	-	-	-	-	2 200	
	Indirect Sources	-	-	-	2	600	-	-	-	-	600	
d.	Field Burning of Agricultural Residues	-	0.5	10	0.01	4	-	-	-	-	20	
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	200	-	-	-	-	-	-	-	-	200	
WASTE		0.06	44	1 100	0.17	51	-	-	-	-	1 200	
a.	Solid Waste Disposal	-	42	1 100	-	-	-	-	-	-	1 100	
b.	Biological Treatment of Solid Waste	-	1	30	0.09	30	-	-	-	-	60	
c.	Wastewater Treatment and Discharge	-	0.79	20	0.08	20	-	-	-	-	44	
d.	Incineration and Open Burning of Waste	0.06	0.0	0.0	0.0	0.0	-	-	-	-	0.06	

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2014) 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 1990–2014 GHG Emission Summary from Saskatchewan

Greenhouse Gas Categories		1990	2000	2005	2010	2011	2012	2013	2014
<i>kt CO₂ equivalent</i>									
TOTAL		45 100	68 100	69 600	69 900	69 300	71 700	73 900	75 500
ENERGY		36 200	55 700	55 100	57 000	56 000	57 500	58 400	61 100
a.	Stationary Combustion Sources	20 200	27 000	27 600	29 600	29 100	29 300	28 700	31 200
	Public Electricity and Heat Production	11 200	14 600	15 300	16 300	15 700	16 200	15 200	15 800
	Petroleum Refining Industries	620	630	780	1 100	990	1 200	1 100	1 100
	Mining and Upstream Oil and Gas Production	4 150	6 750	7 540	7 710	8 010	7 490	7 870	9 230
	Manufacturing Industries	792	1 100	533	628	705	808	747	1 010
	Construction	70.4	49.1	42	70.8	55.7	37.3	35.7	39.6
	Commercial and Institutional	985	1 650	1 490	1 380	1 280	1 110	1 120	1 150
	Residential	2 130	1 950	1 630	1 950	1 800	1 750	1 870	1 870
	Agriculture and Forestry	296	272	257	531	615	661	772	997
b.	Transport ¹	9 320	11 200	11 800	15 000	14 400	15 200	16 600	16 400
	Domestic Aviation	260	220	190	190	190	220	230	230
	Road Transportation	4 110	5 740	5 660	7 490	7 430	7 960	8 160	8 100
	Light-Duty Gasoline Vehicles	1 350	1 330	1 250	1 400	1 220	1 270	1 260	1 110
	Light-Duty Gasoline Trucks	898	1 590	1 680	2 450	2 340	2 670	2 850	2 790
	Heavy-Duty Gasoline Vehicles	497	560	327	424	389	441	471	429
	Motorcycles	1.03	2.5	1.38	3.17	3.58	3.61	3.47	3.39
	Light-Duty Diesel Vehicles	10.8	10.8	14.2	24.7	24.9	30	33.3	32.4
	Light-Duty Diesel Trucks	18.7	46.9	66.3	59.7	48.3	45.6	46.6	42.9
	Heavy-Duty Diesel Vehicles	1 280	2 170	2 310	3 110	3 390	3 490	3 480	3 680
	Propane and Natural Gas Vehicles	65	26	11	11	10	13	9.7	12
	Railways	590	410	x	x	x	x	x	x
	Domestic Navigation	0.09	-	x	x	x	x	x	x
	Other Transportation	4 400	4 800	5 500	6 600	6 100	6 400	7 500	7 300
	Off-Road Gasoline	1 200	690	920	1 400	880	1 300	1 400	1 100
	Off-Road Diesel	1 600	1 800	2 700	3 100	3 100	3 100	4 000	3 900
	Pipeline Transport	1 590	2 340	1 900	2 170	2 070	2 040	2 060	2 320
c.	Fugitive Sources	6 700	18 000	16 000	12 000	12 000	13 000	13 000	13 000
	Coal Mining	20	20	20	20	20	20	20	20
	Oil and Natural Gas	6 700	18 000	16 000	12 000	12 000	13 000	13 000	13 000
d.	CO ₂ Transport and Storage	-	0.09	0.09	0.09	0.09	0.09	0.09	0.1
INDUSTRIAL PROCESSES AND PRODUCT USE		316	636	805	807	984	926	1 070	753
a.	Mineral Products	96	10	9.6	8.5	8.6	9.2	9.2	9.3
	Cement Production	88	-	-	-	-	-	-	-
	Lime Production	-	-	-	-	-	-	-	-
	Mineral Products Use	8.2	10	9.6	8.5	8.6	9.2	9.2	9.3
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	-	140	200	280	300	320	330	350
e.	Non-Energy Products from Fuels and Solvent Use	210	470	580	510	660	580	720	380
f.	Other Product Manufacture and Use	8	16	12	9.3	10	12	12	13
AGRICULTURE		7 900	11 000	13 000	11 000	11 000	12 000	13 000	13 000
a.	Enteric Fermentation	3 300	4 700	6 100	4 900	4 800	4 800	4 800	4 800
b.	Manure Management	780	1 100	1 400	1 200	1 100	1 200	1 200	1 200
c.	Agriculture Soils	3 500	4 700	4 700	4 400	4 800	5 600	6 500	5 900
	Direct Sources	3 000	3 800	3 700	3 500	3 700	4 300	5 000	4 600
	Indirect Sources	600	900	1 000	1 000	1 000	1 000	1 000	1 000
d.	Field Burning of Agricultural Residues	70	50	30	20	20	20	30	30
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	200	400	400	600	600	700	900	900
WASTE		660	830	900	970	990	1 000	1 000	1 000
a.	Solid Waste Disposal	590	750	820	880	900	910	920	940
b.	Biological Treatment of Solid Waste	30	40	40	50	50	50	50	50
c.	Wastewater Treatment and Discharge	40	42	41	43	43	44	45	45
d.	Incineration and Open Burning of Waste	0.59	0.08	0.02	0.02	0.02	0.02	0.02	0.02

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

- Indicates no emissions

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

Table A11–17 2014 GHG Emission Summary for Saskatchewan

Greenhouse Gas Categories		Greenhouse Gases									
		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
		Global Warming Potential									
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		49 300	730	18 000	26	7 600	350	0.21	0.42	-	75 500
ENERGY		48 100	490	12 000	3	900	-	-	-	-	61 100
a.	Stationary Combustion Sources	30 600	10	400	0.7	200	-	-	-	-	31 200
	Public Electricity and Heat Production	16 000	1	25	0.36	110	-	-	-	-	15 800
	Petroleum Refining Industries	1 100	0.03	0.6	0.01	4	-	-	-	-	1 100
	Mining and Upstream Oil and Gas Production	8 860	12	300	0.2	70	-	-	-	-	9 230
	Manufacturing Industries	956	0.07	1.7	0.17	50	-	-	-	-	1 010
	Construction	39.3	0.0	0.02	0.0	0.3	-	-	-	-	39.6
	Commercial and Institutional	1 140	0.02	0.57	0.03	7	-	-	-	-	1 150
	Residential	1 820	1	40	0.05	10	-	-	-	-	1 870
	Agriculture and Forestry	990	0.02	0.45	0.02	6	-	-	-	-	997
b.	Transport ¹	15 600	4.6	110	2.1	630	-	-	-	-	16 400
	Domestic Aviation	224	0.02	0.5	0.01	2	-	-	-	-	230
	Road Transportation	7 960	0.6	10	0.41	120	-	-	-	-	8 100
	Light-Duty Gasoline Vehicles	1 090	0.12	3	0.05	16	-	-	-	-	1 110
	Light-Duty Gasoline Trucks	2 750	0.28	6.9	0.11	33	-	-	-	-	2 790
	Heavy-Duty Gasoline Vehicles	417	0.02	0.41	0.04	11	-	-	-	-	429
	Motorcycles	3.33	0.0	0.03	0.0	0.02	-	-	-	-	3.39
	Light-Duty Diesel Vehicles	31.7	0.0	0.02	0.0	0.8	-	-	-	-	32.4
	Light-Duty Diesel Trucks	41.9	0.0	0.03	0.0	1	-	-	-	-	42.9
	Heavy-Duty Diesel Vehicles	3 610	0.2	4	0.2	60	-	-	-	-	3 680
	Propane and Natural Gas Vehicles	11.9	0	0.2	-	0.07	-	-	-	-	12
	Railways	x	x	x	x	x	-	-	-	-	x
	Domestic Navigation	x	x	x	x	x	-	-	-	-	x
	Other Transportation	6 800	4	100	1	400	-	-	-	-	7 300
	Off-Road Gasoline	1 100	1	40	0.03	8	-	-	-	-	1 100
	Off-Road Diesel	3 460	0.2	5	1	400	-	-	-	-	3 900
	Pipeline Transport	2 240	2.3	58	0.06	20	-	-	-	-	2 320
c.	Fugitive Sources	1 800	470	12 000	0.02	6	-	-	-	-	13 000
	Coal Mining	-	0.6	20	-	-	-	-	-	-	20
	Oil and Natural Gas	1 800	470	12 000	0.02	6	-	-	-	-	13 000
d.	CO ₂ Transport and Storage	0.1	-	-	-	-	-	-	-	-	0.1
INDUSTRIAL PROCESSES AND PRODUCT USE		395	-	-	0.03	7.67	350	0.21	0.42	-	753
a.	Mineral Products	9.3	-	-	-	-	-	-	-	-	9.3
	Cement Production	-	-	-	-	-	-	-	-	-	-
	Lime Production	-	-	-	-	-	-	-	-	-	-
	Mineral Products Use	9.3	-	-	-	-	-	-	-	-	9.3
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	-	-	-	-	-	350	0.06	-	-	350
e.	Non-Energy Products from Fuels and Solvent Use	380	-	-	-	-	-	-	-	-	380
f.	Other Product Manufacture and Use	5	-	-	0.03	7.7	-	0.15	0.42	-	13
AGRICULTURE		900	210	5 100	22	6 700	-	-	-	-	13 000
a.	Enteric Fermentation	-	190	4 800	-	-	-	-	-	-	4 800
b.	Manure Management	-	14	350	3	800	-	-	-	-	1 200
c.	Agriculture Soils	-	-	-	20	5 900	-	-	-	-	5 900
	Direct Sources	-	-	-	15	4 600	-	-	-	-	4 600
	Indirect Sources	-	-	-	4	1 000	-	-	-	-	1 000
d.	Field Burning of Agricultural Residues	-	0.9	20	0.02	7	-	-	-	-	30
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	900	-	-	-	-	-	-	-	-	900
WASTE		0.02	40	990	0.15	45	-	-	-	-	1 000
a.	Solid Waste Disposal	-	38	940	-	-	-	-	-	-	940
b.	Biological Treatment of Solid Waste	-	1	30	0.08	20	-	-	-	-	50
c.	Wastewater Treatment and Discharge	-	0.97	24	0.07	20	-	-	-	-	45
d.	Incineration and Open Burning of Waste	0.02	0.0	0.0	0.0	0.0	-	-	-	-	0.02

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

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.

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Table A11–18 1990–2014 GHG Emission Summary for Alberta

Greenhouse Gas Categories								
	1990	2000	2005	2010	2011	2012	2013	2014
<i>kt CO₂ equivalent</i>								
TOTAL	175 000	232 000	233 000	242 000	246 000	260 000	272 000	274 000
ENERGY	153 000	202 000	201 000	212 000	215 000	225 000	239 000	242 000
a. Stationary Combustion Sources	96 800	128 000	130 000	137 000	141 000	148 000	158 000	159 000
Public Electricity and Heat Production	39 800	50 300	52 000	49 100	48 800	47 100	48 200	48 900
Petroleum Refining Industries	2 900	2 900	4 000	3 500	3 600	4 100	4 300	4 500
Mining and Upstream Oil and Gas Production	31 000	48 900	51 000	60 000	61 300	70 100	77 900	79 100
Manufacturing Industries	10 500	11 700	8 990	10 500	11 700	11 100	12 000	10 000
Construction	238	175	170	163	255	282	301	295
Commercial and Institutional	5 040	5 460	5 620	5 550	5 910	6 280	6 320	6 550
Residential	6 850	8 500	7 610	8 320	8 830	8 740	8 760	9 150
Agriculture and Forestry	477	366	240	195	213	205	209	212
b. Transport ¹	22 600	30 700	34 700	40 300	39 800	41 000	43 900	45 300
Domestic Aviation	1 100	1 300	1 300	1 300	1 200	1 400	1 500	1 500
Road Transportation	13 800	17 300	20 300	23 700	23 000	24 200	25 800	26 700
Light-Duty Gasoline Vehicles	4 890	4 030	4 030	3 840	3 380	3 390	3 580	3 560
Light-Duty Gasoline Trucks	3 310	5 250	6 130	7 020	6 640	7 110	8 000	8 530
Heavy-Duty Gasoline Vehicles	1 500	1 970	2 020	2 010	1 840	2 010	2 260	2 310
Motorcycles	11	12.1	18.4	25.3	23.1	24.8	27.4	28.6
Light-Duty Diesel Vehicles	33.7	24.8	45.9	63.6	64.7	72.5	83.5	90.9
Light-Duty Diesel Trucks	27.4	50.8	67.5	76.2	70.7	73.1	83.6	92
Heavy-Duty Diesel Vehicles	3 360	5 730	7 820	10 600	10 900	11 400	11 600	12 000
Propane and Natural Gas Vehicles	640	270	120	83	95	96	95	140
Railways	1 800	1 800	x	2 200	x	x	x	x
Domestic Navigation	0.29	-	x	7.1	x	x	x	x
Other Transportation	5 900	10 000	10 000	13 000	13 000	12 000	14 000	14 000
Off-Road Gasoline	1 400	760	790	500	410	470	390	380
Off-Road Diesel	3 300	6 700	6 300	11 000	11 000	10 000	11 000	11 000
Pipeline Transport	1 300	2 730	3 210	1 560	1 680	1 820	2 190	2 360
c. Fugitive Sources	34 000	43 000	36 000	34 000	35 000	36 000	37 000	38 000
Coal Mining	400	300	300	400	300	300	300	300
Oil and Natural Gas	33 000	43 000	36 000	34 000	34 000	36 000	37 000	37 000
d. CO ₂ Transport and Storage	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE	6 490	9 680	10 500	10 200	11 100	14 300	12 400	10 900
a. Mineral Products	1 100	1 400	1 500	1 200	1 200	1 300	1 200	1 200
Cement Production	790	1 000	1 100	910	910	990	900	890
Lime Production	104	146	120	110	114	116	109	115
Mineral Products Use	200	230	250	140	160	160	140	140
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	0.27	490	800	1 100	1 200	1 200	1 300	1 400
e. Non-Energy Products from Fuels and Solvent Use	5 400	7 700	8 200	7 900	8 700	12 000	9 900	8 300
f. Other Product Manufacture and Use	17	44	38	29	34	44	44	48
AGRICULTURE	14 000	19 000	20 000	17 000	17 000	18 000	18 000	18 000
a. Enteric Fermentation	7 800	11 000	12 000	9 600	9 400	9 500	9 500	9 500
b. Manure Management	1 800	2 500	2 600	2 200	2 100	2 100	2 200	2 200
c. Agriculture Soils	4 200	4 800	4 600	5 000	5 300	5 600	6 000	6 000
Direct Sources	3 400	3 800	3 600	3 900	4 200	4 400	4 800	4 700
Indirect Sources	800	1 000	1 000	1 000	1 000	1 000	1 000	1 000
d. Field Burning of Agricultural Residues	4	0.2	0.7	0.4	0.7	0.6	1	1
e. Liming, Urea Application and Other Carbon-containing Fertilizers	300	400	400	600	600	700	800	800
WASTE	1 500	1 900	2 300	2 400	2 400	2 500	2 700	2 700
a. Solid Waste Disposal	1 400	1 700	2 000	2 100	2 100	2 200	2 300	2 300
b. Biological Treatment of Solid Waste	80	100	200	200	200	200	200	200
c. Wastewater Treatment and Discharge	68	86	95	110	110	110	120	120
d. Incineration and Open Burning of Waste	11	36	35	18	24	45	48	48

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

- Indicates no emissions

0.0 Indicates emissions truncated due to rounding

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Estimates for the latest year (2014) 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 2014 GHG Emission Summary for Alberta

Greenhouse Gas Categories		Greenhouse Gases									
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
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		217 000	1 800	45 000	35	11 000	1 400	1.3	3.2	-	274 000
ENERGY		207 000	1 300	32 000	10	3 000	-	-	-	-	242 000
a.	Stationary Combustion Sources	156 000	70	2 000	3	1 000	-	-	-	-	159 000
	Public Electricity and Heat Production	49 000	2.4	60	0.95	280	-	-	-	-	48 900
	Petroleum Refining Industries	4 500	0.09	2	0.07	20	-	-	-	-	4 500
	Mining and Upstream Oil and Gas Production	77 200	57	1 400	1	400	-	-	-	-	79 100
	Manufacturing Industries	9 910	0.43	11	0.37	110	-	-	-	-	10 000
	Construction	292	0.01	0.13	0.01	3	-	-	-	-	295
	Commercial and Institutional	6 500	0.12	3.1	0.1	40	-	-	-	-	6 550
	Residential	8 930	6	100	0.2	70	-	-	-	-	9 150
	Agriculture and Forestry	210	0.0	0.1	0.01	1	-	-	-	-	212
	b.	Transport ¹	43 200	5.5	140	6.5	1 900	-	-	-	-
Domestic Aviation		1 520	0.05	1	0.04	10	-	-	-	-	1 500
Road Transportation		26 300	2	50	1.4	400	-	-	-	-	26 700
Light-Duty Gasoline Vehicles		3 510	0.34	8.6	0.15	45	-	-	-	-	3 560
Light-Duty Gasoline Trucks		8 420	0.78	19	0.32	95	-	-	-	-	8 530
Heavy-Duty Gasoline Vehicles		2 250	0.08	2	0.2	59	-	-	-	-	2 310
Motorcycles		28.2	0.01	0.27	0.0	0.16	-	-	-	-	28.6
Light-Duty Diesel Vehicles		88.7	0.0	0.04	0.01	2	-	-	-	-	90.9
Light-Duty Diesel Trucks		89.8	0.0	0.06	0.01	2	-	-	-	-	92
Heavy-Duty Diesel Vehicles		11 800	0.5	10	0.7	200	-	-	-	-	12 000
Propane and Natural Gas Vehicles		136	0.3	8	0.0	1	-	-	-	-	140
Railways		x	x	x	x	x	-	-	-	-	x
Domestic Navigation		x	x	x	x	x	-	-	-	-	x
Other Transportation		12 800	3	80	4	1 000	-	-	-	-	14 000
Off-Road Gasoline		366	0.5	10	0.01	2	-	-	-	-	380
Off-Road Diesel		10 100	0.6	10	4	1 000	-	-	-	-	11 000
Pipeline Transport		2 290	2.3	56	0.06	20	-	-	-	-	2 360
c.	Fugitive Sources	7 500	1 200	30 000	0.05	20	-	-	-	-	38 000
Coal Mining		-	10	300	-	-	-	-	-	-	300
Oil and Natural Gas		7 500	1 200	30 000	0.05	20	-	-	-	-	37 000
d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		9 520	-	-	0.09	28.1	1 400	1.3	3.2	-	10 900
a.	Mineral Products	1 200	-	-	-	-	-	-	-	-	1 200
	Cement Production	890	-	-	-	-	-	-	-	-	890
	Lime Production	115	-	-	-	-	-	-	-	-	115
	Mineral Products Use	140	-	-	-	-	-	-	-	-	140
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	-	-	-	-	-	1 400	0.48	0.12	-	1 400
e.	Non-Energy Products from Fuels and Solvent Use	8 300	-	-	-	-	-	-	-	-	8 300
f.	Other Product Manufacture and Use	20	-	-	0.09	28	-	0.86	3.1	-	48
AGRICULTURE		800	410	10 000	25	7 400	-	-	-	-	18 000
a.	Enteric Fermentation	-	380	9 500	-	-	-	-	-	-	9 500
b.	Manure Management	-	29	730	5	1 000	-	-	-	-	2 200
c.	Agriculture Soils	-	-	-	20	6 000	-	-	-	-	6 000
	Direct Sources	-	-	-	16	4 700	-	-	-	-	4 700
	Indirect Sources	-	-	-	4	1 000	-	-	-	-	1 000
d.	Field Burning of Agricultural Residues	-	0.04	0.9	0.0	0.3	-	-	-	-	1
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	800	-	-	-	-	-	-	-	-	800
WASTE		31	99	2 500	0.62	190	-	-	-	-	2 700
a.	Solid Waste Disposal	-	94	2 300	-	-	-	-	-	-	2 300
b.	Biological Treatment of Solid Waste	-	4	100	0.3	90	-	-	-	-	200
c.	Wastewater Treatment and Discharge	-	1.6	41	0.3	80	-	-	-	-	120
d.	Incineration and Open Burning of Waste	31	0.0	0.07	0.06	20	-	-	-	-	48

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

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

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Estimates for the latest year (2014) 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 1990–2014 GHG Emission Summary for British Columbia

Greenhouse Gas Categories								
	1990	2000	2005	2010	2011	2012	2013	2014
<i>kt CO₂ equivalent</i>								
TOTAL	52 900	65 400	65 200	60 900	61 100	62 700	63 100	62 900
ENERGY	42 200	52 200	51 800	48 700	49 200	50 900	51 500	51 600
a. Stationary Combustion Sources	19 300	22 400	21 500	20 000	21 400	21 800	21 400	21 400
Public Electricity and Heat Production	807	1 940	1 340	1 230	780	685	837	791
Petroleum Refining Industries	1 200	420	500	630	530	570	500	590
Mining and Upstream Oil and Gas Production	2 690	3 530	5 410	7 360	8 110	8 720	8 550	8 610
Manufacturing Industries	6 520	7 850	6 360	4 060	4 180	4 280	4 270	4 140
Construction	307	76.7	112	81.9	101	98.5	66.8	65.5
Commercial and Institutional	2 850	3 460	3 030	2 510	2 830	2 820	2 590	2 630
Residential	4 570	4 810	4 650	3 830	4 610	4 290	4 240	4 200
Agriculture and Forestry	323	319	72.6	307	278	385	383	387
b. Transport ¹	18 800	24 100	25 000	23 800	22 400	23 800	24 700	24 800
Domestic Aviation	1 300	1 600	1 600	1 200	1 100	1 300	1 300	1 300
Road Transportation	11 100	13 700	14 400	15 800	15 500	14 900	16 100	15 800
Light-Duty Gasoline Vehicles	4 890	4 910	4 590	4 390	3 940	3 850	4 070	3 950
Light-Duty Gasoline Trucks	2 050	3 800	4 040	4 590	4 330	4 380	4 770	4 890
Heavy-Duty Gasoline Vehicles	1 060	1 270	1 220	1 340	1 230	1 220	1 290	1 250
Motorcycles	13	12.8	12.8	15.9	14.6	15	16.2	16.4
Light-Duty Diesel Vehicles	42.3	57.9	69.9	92.7	97.4	109	122	124
Light-Duty Diesel Trucks	17.5	36.2	45.3	60.3	58.4	61.6	77.3	84.1
Heavy-Duty Diesel Vehicles	2 200	3 250	4 200	5 110	5 650	5 070	5 590	5 350
Propane and Natural Gas Vehicles	790	330	190	220	210	210	180	160
Railways	1 400	1 300	430	510	680	690	540	680
Domestic Navigation	960	1 200	2 400	2 600	2 200	2 600	2 100	1 800
Other Transportation	4 000	6 400	6 200	3 700	2 800	4 300	4 600	5 100
Off-Road Gasoline	590	1 300	1 400	360	430	730	390	610
Off-Road Diesel	2 500	3 500	3 800	2 500	1 600	2 800	3 100	3 400
Pipeline Transport	863	1 670	998	843	813	806	1 020	1 040
c. Fugitive Sources	4 100	5 700	5 300	4 900	5 400	5 200	5 400	5 500
Coal Mining	800	800	1 000	900	900	1 000	1 000	1 000
Oil and Natural Gas	3 300	4 900	4 400	3 900	4 500	4 200	4 300	4 400
d. CO ₂ Transport and Storage	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE	3 210	4 620	4 550	3 780	3 560	3 750	3 640	3 450
a. Mineral Products	870	1 400	1 500	1 200	1 200	1 300	1 200	1 200
Cement Production	650	1 100	1 300	990	990	1 100	980	970
Lime Production	162	218	181	165	172	174	164	172
Mineral Products Use	58	54	51	20	21	21	20	19
b. Chemical Industry ²	-	-	-	-	-	-	-	-
Adipic Acid Production	-	-	-	-	-	-	-	-
c. Metal Production	1 670	2 030	1 220	848	848	886	759	547
Iron and Steel Production	-	-	-	-	-	-	-	-
Aluminum Production	1 670	2 030	1 220	847	847	885	758	546
SF ₆ Used in Magnesium Smelters and Casters	-	0.68	1.46	0.55	0.52	0.53	0.54	0.58
d. Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	410	680	960	1 000	1 100	1 100	1 200
e. Non-Energy Products from Fuels and Solvent Use	600	680	1 100	710	450	450	530	510
f. Other Product Manufacture and Use	77	110	95	91	62	86	81	65
AGRICULTURE	2 300	2 700	2 900	2 300	2 300	2 200	2 300	2 300
a. Enteric Fermentation	1 400	1 700	1 800	1 400	1 300	1 300	1 400	1 400
b. Manure Management	420	500	520	460	460	450	460	460
c. Agriculture Soils	500	440	470	440	440	420	500	430
Direct Sources	390	330	360	340	340	320	390	340
Indirect Sources	100	100	100	100	100	90	100	100
d. Field Burning of Agricultural Residues	-	-	-	-	-	-	-	-
e. Liming, Urea Application and Other Carbon-containing Fertilizers	30	40	20	10	30	20	20	20
WASTE	5 100	5 900	6 000	6 100	6 100	5 800	5 600	5 600
a. Solid Waste Disposal	4 900	5 600	5 600	5 800	5 800	5 500	5 300	5 300
b. Biological Treatment of Solid Waste	90	100	100	100	100	100	100	100
c. Wastewater Treatment and Discharge	96	130	130	140	140	140	140	140
d. Incineration and Open Burning of Waste	81	87	78	66	65	63	61	59

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

- Indicates no emissions

0.0 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2014) 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 2014 GHG Emission Summary for British Columbia

Greenhouse Gas Categories		Greenhouse Gases										
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL	
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		48 800	430	11 000	6.7	2 000	1 200	290	26	-	62 900	
ENERGY		46 800	150	3 700	4	1 000	-	-	-	-	51 600	
a.	Stationary Combustion Sources	20 400	30	700	1	300	-	-	-	-	21 400	
	Public Electricity and Heat Production	770	0.18	4.5	0.05	14	-	-	-	-	791	
	Petroleum Refining Industries	590	0.01	0.3	0.0	1	-	-	-	-	590	
	Mining and Upstream Oil and Gas Production	8 100	18	440	0.2	70	-	-	-	-	8 610	
	Manufacturing Industries	3 970	0.68	17	0.51	150	-	-	-	-	4 140	
	Construction	65.1	0.0	0.03	0.0	0.4	-	-	-	-	65.5	
	Commercial and Institutional	2 620	0.05	1.3	0.05	20	-	-	-	-	2 630	
	Residential	3 900	10	200	0.2	60	-	-	-	-	4 200	
	Agriculture and Forestry	384	0.01	0.18	0.01	2	-	-	-	-	387	
b.	Transport ¹	23 800	3.3	82	2.8	840	-	-	-	-	24 800	
	Domestic Aviation	1 320	0.06	2	0.04	10	-	-	-	-	1 300	
	Road Transportation	15 400	1	30	1.2	370	-	-	-	-	15 800	
	Light-Duty Gasoline Vehicles	3 850	0.3	7.6	0.31	93	-	-	-	-	3 950	
	Light-Duty Gasoline Trucks	4 730	0.38	9.4	0.5	150	-	-	-	-	4 890	
	Heavy-Duty Gasoline Vehicles	1 220	0.05	1.3	0.1	30	-	-	-	-	1 250	
	Motorcycles	16.2	0.01	0.16	0.0	0.09	-	-	-	-	16.4	
	Light-Duty Diesel Vehicles	121	0.0	0.06	0.01	3	-	-	-	-	124	
	Light-Duty Diesel Trucks	82	0.0	0.05	0.01	2	-	-	-	-	84.1	
	Heavy-Duty Diesel Vehicles	5 260	0.2	6	0.3	90	-	-	-	-	5 350	
	Propane and Natural Gas Vehicles	150	0.2	4	0.0	0.9	-	-	-	-	160	
	Railways	606	0.04	0.9	0.2	70	-	-	-	-	680	
	Domestic Navigation	1 830	0.2	4	0.05	10	-	-	-	-	1 800	
	Other Transportation	4 650	2	50	1	400	-	-	-	-	5 100	
	Off-Road Gasoline	589	0.7	20	0.01	4	-	-	-	-	610	
	Off-Road Diesel	3 050	0.2	4	1	400	-	-	-	-	3 400	
	Pipeline Transport	1 000	0.99	25	0.03	8	-	-	-	-	1 040	
	c.	Fugitive Sources	2 600	120	2 900	0.01	1	-	-	-	-	5 500
		Coal Mining	-	40	1 000	-	-	-	-	-	-	1 000
		Oil and Natural Gas	2 600	74	1 800	0.01	1	-	-	-	-	4 400
	d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		1 940	-	-	0.11	31.6	1 200	290	26	-	3 450	
a.	Mineral Products	1 200	-	-	-	-	-	-	-	-	1 200	
	Cement Production	970	-	-	-	-	-	-	-	-	970	
	Lime Production	172	-	-	-	-	-	-	-	-	172	
	Mineral Products Use	19	-	-	-	-	-	-	-	-	19	
b.	Chemical Industry ²	-	-	-	-	-	-	-	-	-	-	
	Adipic Acid Production	-	-	-	-	-	-	-	-	-	-	
c.	Metal Production	259	-	-	-	-	-	287	0.58	-	547	
	Iron and Steel Production	-	-	-	-	-	-	-	-	-	-	
	Aluminum Production	259	-	-	-	-	-	287	-	-	546	
	SF ₆ Used in Magnesium Smelters and Casters	-	-	-	-	-	-	-	0.58	-	0.58	
d.	Production and Consumption of Halocarbons, SF ₆ and NF ₃ ³	-	-	-	-	-	1 200	0.26	-	-	1 200	
e.	Non-Energy Products from Fuels and Solvent Use	510	-	-	-	-	-	-	-	-	510	
f.	Other Product Manufacture and Use	8	-	-	0.11	32	-	0.54	25	-	65	
AGRICULTURE		20	64	1 600	2.2	660	-	-	-	-	2 300	
a.	Enteric Fermentation	-	55	1 400	-	-	-	-	-	-	1 400	
b.	Manure Management	-	9.4	240	0.8	200	-	-	-	-	460	
c.	Agriculture Soils	-	-	-	1.5	430	-	-	-	-	430	
	Direct Sources	-	-	-	1.1	340	-	-	-	-	340	
	Indirect Sources	-	-	-	0.3	100	-	-	-	-	100	
d.	Field Burning of Agricultural Residues	-	-	-	-	-	-	-	-	-	-	
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	20	-	-	-	-	-	-	-	-	20	
WASTE		51	210	5 400	0.49	140	-	-	-	-	5 600	
a.	Solid Waste Disposal	-	210	5 300	-	-	-	-	-	-	5 300	
b.	Biological Treatment of Solid Waste	-	2	60	0.2	50	-	-	-	-	100	
c.	Wastewater Treatment and Discharge	-	2.1	53	0.3	90	-	-	-	-	140	
d.	Incineration and Open Burning of Waste	51	-	-	0.03	8	-	-	-	-	59	

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

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

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

Table A11–22 1990–2014 GHG Emission Summary for Yukon

Greenhouse Gas Categories		1990	2000	2005	2010	2011	2012	2013	2014
<i>kt CO₂ equivalent</i>									
TOTAL		540	505	459	344	384	393	351	268
ENERGY		535	497	448	331	370	378	337	253
a.	Stationary Combustion Sources	220	249	203	135	153	145	117	76.2
	Public Electricity and Heat Production	94.4	22.3	23.1	18.8	27.8	18.6	17.7	17.2
	Petroleum Refining Industries	-	-	-	-	-	-	-	-
	Mining and Upstream Oil and Gas Production	8.84	136	84.9	25.4	19.4	20.5	4.95	4.18
	Manufacturing Industries	6.03	-	-	14.8	14.8	14.5	15	15.3
	Construction	3.55	2.63	1.58	1.82	1.72	1.54	1.54	1.17
	Commercial and Institutional	77	51.4	35.3	43.1	60.7	64.3	56.9	24.5
	Residential	29.5	35.8	49.7	30.7	28.8	25.2	21	13.8
	Agriculture and Forestry	1.09	1.11	8.27	-	-	-	-	-
b.	Transport ¹	315	240	235	186	205	223	220	177
	Domestic Aviation	34	32	34	39	39	47	45	40
	Road Transportation	180	166	198	146	166	175	174	137
	Light-Duty Gasoline Vehicles	82	50.9	20.3	12.6	11.3	11.4	11.1	10
	Light-Duty Gasoline Trucks	28.7	35.5	30.1	22.6	21.6	23.4	24.3	23.5
	Heavy-Duty Gasoline Vehicles	10.8	13.9	14.7	8.96	8.15	8.92	9.3	8.44
	Motorcycles	0.21	0.14	0.08	0.07	0.07	0.07	x	x
	Light-Duty Diesel Vehicles	0.78	0.5	0.23	0.2	0.2	0.23	0.24	0.24
	Light-Duty Diesel Trucks	0.08	0.17	x	x	x	x	0.24	0.24
	Heavy-Duty Diesel Vehicles	56	63.7	131	99.7	123	130	127	93.4
	Propane and Natural Gas Vehicles	1.5	1.2	x	x	x	x	x	x
	Railways	-	-	x	x	x	x	x	x
	Domestic Navigation	-	-	x	x	x	x	x	x
	Other Transportation	100	41	2.4	0.87	0.4	0.45	0.32	0.37
	Off-Road Gasoline	11	4.9	x	x	x	x	x	x
	Off-Road Diesel	90	37	-	-	x	x	x	x
	Pipeline Transport	-	-	x	x	x	x	x	x
c.	Fugitive Sources	-	7.8	10	11	11	10	0.09	0.09
	Coal Mining	-	-	-	-	-	-	-	-
	Oil and Natural Gas	-	7.8	10	11	11	10	0.09	0.09
d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		1.68	4.93	7.39	8.89	10.1	10.7	10	10
a.	Mineral Products	0.13	-	-	-	-	0.01	0.0	0.0
	Cement Production	-	-	-	-	-	-	-	-
	Lime Production	-	-	-	-	-	-	-	-
	Mineral Products Use	0.13	-	-	-	-	0.01	0.0	0.0
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	-	4.2	6.8	7.8	8.6	9.2	9.2	9.1
e.	Non-Energy Products from Fuels and Solvent Use	1.4	0.35	0.28	0.85	1.1	1.1	0.42	0.56
f.	Other Product Manufacture and Use	0.17	0.43	0.36	0.26	0.31	0.37	0.39	0.37
AGRICULTURE		-	-	-	-	-	-	-	-
a.	Enteric Fermentation	-	-	-	-	-	-	-	-
b.	Manure Management	-	-	-	-	-	-	-	-
c.	Agriculture Soils	-	-	-	-	-	-	-	-
	Direct Sources	-	-	-	-	-	-	-	-
	Indirect Sources	-	-	-	-	-	-	-	-
d.	Field Burning of Agricultural Residues	-	-	-	-	-	-	-	-
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	-	-	-	-	-	-	-	-
WASTE		2.9	3.6	3.8	4.1	4.2	4.3	4.3	4.4
a.	Solid Waste Disposal	0.74	1.3	1.5	1.7	1.7	1.8	1.8	1.9
b.	Biological Treatment of Solid Waste	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8
c.	Wastewater Treatment and Discharge	1.3	1.5	1.5	1.6	1.7	1.7	1.7	1.7
d.	Incineration and Open Burning of Waste	-	0.03	0.02	-	-	-	-	-

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.

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 CF₄ emissions from the use of NF₃.

- Indicates no emissions

0.0 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2014) 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 2014 GHG Emission Summary for Yukon

Greenhouse Gas Categories		Greenhouse Gases										
Global Warming Potential		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL	
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		250	0.15	3.7	0.02	5	9.1	0.0	-	-	268	
ENERGY		249	0.02	0.39	0.01	4	-	-	-	-	253	
a.	Stationary Combustion Sources	75	0.0	0.03	0.0	1	-	-	-	-	76.2	
	Public Electricity and Heat Production	16	0.0	0.02	0.0	0.73	-	-	-	-	17.2	
	Petroleum Refining Industries	-	-	-	-	-	-	-	-	-	-	
	Mining and Upstream Oil and Gas Production	4.09	0.0	0.0	0.0	0.09	-	-	-	-	4.18	
	Manufacturing Industries	15.3	0.0	0.0	0.0	0.05	-	-	-	-	15.3	
	Construction	1.16	0.0	0.0	0.0	0.01	-	-	-	-	1.17	
	Commercial and Institutional	24.3	0.0	0.01	0.0	0.2	-	-	-	-	24.5	
	Residential	13.7	0.0	0.0	0.0	0.08	-	-	-	-	13.8	
	Agriculture and Forestry	-	-	-	-	-	-	-	-	-	-	
b.	Transport ¹	174	0.01	0.27	0.01	2.5	-	-	-	-	177	
	Domestic Aviation	39.3	0.0	0.07	0.0	0.3	-	-	-	-	40	
	Road Transportation	135	0.01	0.2	0.01	2.1	-	-	-	-	137	
	Light-Duty Gasoline Vehicles	9.87	0.0	0.02	0.0	0.12	-	-	-	-	10	
	Light-Duty Gasoline Trucks	23.2	0.0	0.05	0.0	0.25	-	-	-	-	23.5	
	Heavy-Duty Gasoline Vehicles	8.23	0.0	0.01	0.0	0.2	-	-	-	-	8.44	
	Motorcycles	x	x	x	x	x	-	-	-	-	x	
	Light-Duty Diesel Vehicles	0.23	0.0	0.0	0.0	0.01	-	-	-	-	0.24	
	Light-Duty Diesel Trucks	0.24	0.0	0.0	0.0	0.01	-	-	-	-	0.24	
	Heavy-Duty Diesel Vehicles	91.8	0.0	0.09	0.01	2	-	-	-	-	93.4	
	Propane and Natural Gas Vehicles	x	x	x	x	x	-	-	-	-	x	
	Railways	x	x	x	x	x	-	-	-	-	x	
	Domestic Navigation	x	x	x	x	x	-	-	-	-	x	
	Other Transportation	0.36	0.0	0.01	0.0	0.0	-	-	-	-	0.37	
	Off-Road Gasoline	x	x	x	x	x	-	-	-	-	x	
	Off-Road Diesel	x	x	x	x	x	-	-	-	-	x	
	Pipeline Transport	x	x	x	x	x	-	-	-	-	x	
	c.	Fugitive Sources	0.0	0.0	0.09	-	-	-	-	-	-	0.09
		Coal Mining	-	-	-	-	-	-	-	-	-	-
		Oil and Natural Gas	0.0	0.0	0.09	-	-	-	-	-	-	0.09
	d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		0.69	-	-	0.0	0.25	9.1	0.0	-	-	10	
a.	Mineral Products	0.0	-	-	-	-	-	-	-	-	0.0	
	Cement Production	-	-	-	-	-	-	-	-	-	-	
	Lime Production	-	-	-	-	-	-	-	-	-	-	
	Mineral Products Use	0.0	-	-	-	-	-	-	-	-	0.0	
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	-	-	-	-	-	9.1	0.0	-	-	9.1	
e.	Non-Energy Products from Fuels and Solvent Use	0.56	-	-	-	-	-	-	-	-	0.56	
f.	Other Product Manufacture and Use	0.1	-	-	0.0	0.25	-	-	-	-	0.37	
AGRICULTURE		-	-	-	-	-	-	-	-	-	-	
a.	Enteric Fermentation	-	-	-	-	-	-	-	-	-	-	
	Manure Management	-	-	-	-	-	-	-	-	-	-	
	Agriculture Soils	-	-	-	-	-	-	-	-	-	-	
c.	Direct Sources	-	-	-	-	-	-	-	-	-	-	
	Indirect Sources	-	-	-	-	-	-	-	-	-	-	
d.	Field Burning of Agricultural Residues	-	-	-	-	-	-	-	-	-	-	
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	-	-	-	-	-	-	-	-	-	-	
WASTE		-	0.13	3.3	0.0	1.1	-	-	-	-	4.4	
a.	Solid Waste Disposal	-	0.08	1.9	-	-	-	-	-	-	1.9	
	Biological Treatment of Solid Waste	-	0.02	0.4	0.0	0.4	-	-	-	-	0.8	
	Wastewater Treatment and Discharge	-	0.04	1	0.0	0.7	-	-	-	-	1.7	
	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 the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2014) 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 1999–2014 GHG Emission Summary for Northwest Territories

Greenhouse Gas Categories		1999	2000	2005	2010	2011	2012	2013	2014
<i>kt CO₂ equivalent</i>									
TOTAL		1 230	1 500	1 660	1 360	1 430	1 490	1 380	1 530
ENERGY		1 220	1 480	1 630	1 340	1 400	1 470	1 360	1 500
a.	Stationary Combustion Sources	603	863	724	657	628	696	637	651
	Public Electricity and Heat Production	91.6	111	98.7	66.7	x	x	x	x
	Petroleum Refining Industries	-	-	-	-	-	-	-	-
	Mining and Upstream Oil and Gas Production	235	469	381	402	370	452	388	370
	Manufacturing Industries	-	-	x	x	x	x	-	-
	Construction	0.83	0.28	x	x	x	x	x	0.43
	Commercial and Institutional	192	168	141	101	96.4	88.3	90.6	87
	Residential	83.9	114	101	87.7	95.6	88	91.5	106
	Agriculture and Forestry	0.02	0.13	1.54	-	-	-	-	-
b.	Transport ¹	602	597	891	665	761	747	702	835
	Domestic Aviation	130	150	240	120	120	140	130	110
	Road Transportation	226	227	299	252	306	297	265	269
	Light-Duty Gasoline Vehicles	38.7	41.5	8.76	12.3	12.1	11.9	8.84	7.2
	Light-Duty Gasoline Trucks	23.5	24.7	31.6	52.1	54.4	56.3	42.5	36.3
	Heavy-Duty Gasoline Vehicles	9.64	10.9	10.3	17.6	17.9	18.9	14.1	11.5
	Motorcycles	0.09	0.11	0.06	0.13	0.14	0.17	x	x
	Light-Duty Diesel Vehicles	0.38	0.45	0.09	0.25	0.25	0.24	0.2	0.18
	Light-Duty Diesel Trucks	0.11	0.14	x	x	x	x	0.2	0.15
	Heavy-Duty Diesel Vehicles	153	149	247	169	220	209	198	213
	Propane and Natural Gas Vehicles	1.1	0.58	x	x	x	x	x	x
	Railways	3.3	3.9	x	x	10	x	11	17
	Domestic Navigation	4.1	-	x	x	0	x	1.1	2.8
	Other Transportation	240	220	350	290	320	300	290	430
	Off-Road Gasoline	21	22	16	13	12	18	17	13
	Off-Road Diesel	220	190	330	270	310	280	270	420
	Pipeline Transport	4.54	5.7	2.76	2.53	1.92	2.53	2.25	1.13
c.	Fugitive Sources	14	21	18	15	14	24	20	19
	Coal Mining	-	-	-	-	-	-	-	-
	Oil and Natural Gas	14	21	18	15	14	24	20	19
d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		8.05	11.2	16.7	14.2	16.3	16.9	17.1	18.5
a.	Mineral Products	0.01	0.04	0.16	0.02	0.04	0.05	0.04	0.04
	Cement Production	-	-	-	-	-	-	-	-
	Lime Production	-	-	-	-	-	-	-	-
	Mineral Products Use	0.01	0.04	0.16	0.02	0.04	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	5.1	6.5	12	12	13	14	14	14
e.	Non-Energy Products from Fuels and Solvent Use	2.4	4.1	4.4	2.1	2.4	2.3	2.8	3.7
f.	Other Product Manufacture and Use	0.53	0.57	0.49	0.33	0.41	0.49	0.51	0.58
AGRICULTURE		-	-	-	-	-	-	-	-
a.	Enteric Fermentation	-	-	-	-	-	-	-	-
b.	Manure Management	-	-	-	-	-	-	-	-
c.	Agriculture Soils	-	-	-	-	-	-	-	-
	Direct Sources	-	-	-	-	-	-	-	-
	Indirect Sources	-	-	-	-	-	-	-	-
d.	Field Burning of Agricultural Residues	-	-	-	-	-	-	-	-
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	-	-	-	-	-	-	-	-
WASTE		6.6	6.6	6.9	7	7.1	7.1	7.2	7.3
a.	Solid Waste Disposal	2.5	2.6	3	3.2	3.3	3.3	3.4	3.4
b.	Biological Treatment of Solid Waste	1	1	0.9	0.9	0.9	0.9	0.9	0.9
c.	Wastewater Treatment and Discharge	2.7	2.7	2.9	2.9	2.9	2.9	2.9	2.9
d.	Incineration and Open Burning of Waste	0.19	0.19	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

- Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
 - Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.
 - 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 CF₄ emissions from the use of NF₃.
 - Indicates no emissions
 - 0.0 Indicates emissions truncated due to rounding
 - x Indicates data has been suppressed to respect confidentiality
- Estimates for the latest year (2014) 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 2014 GHG Emission Summary for Northwest Territories

Greenhouse Gas Categories		Greenhouse Gases									
		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	HFCs ⁴	PFCs ⁴	SF ₆	NF ₃	TOTAL
		Global Warming Potential									
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		1 430	0.63	16	0.22	66	14	0.0			1 530
ENERGY		1 430	0.39	9.8	0.2	60	-	-	-	-	1 500
a.	Stationary Combustion Sources	636	0.02	0.6	0.05	10	-	-	-	-	651
	Public Electricity and Heat Production	x	x	x	x	x	-	-	-	-	x
	Petroleum Refining Industries	-	-	-	-	-	-	-	-	-	-
	Mining and Upstream Oil and Gas Production	360	0.02	0.39	0.03	9	-	-	-	-	370
	Manufacturing Industries	-	-	-	-	-	-	-	-	-	-
	Construction	x	x	x	x	x	-	-	-	-	x
	Commercial and Institutional	86.2	0.0	0.04	0.0	0.8	-	-	-	-	87
	Residential	106	0.0	0.03	0.0	0.4	-	-	-	-	106
	Agriculture and Forestry	-	-	-	-	-	-	-	-	-	-
b.	Transport ¹	784	0.06	1.4	0.17	50	-	-	-	-	835
	Domestic Aviation	113	0.01	0.2	0.0	1	-	-	-	-	110
	Road Transportation	264	0.01	0.3	0.01	4.2	-	-	-	-	269
	Light-Duty Gasoline Vehicles	7.11	0.0	0.02	0.0	0.08	-	-	-	-	7.2
	Light-Duty Gasoline Trucks	35.9	0.0	0.08	0.0	0.37	-	-	-	-	36.3
	Heavy-Duty Gasoline Vehicles	11.2	0.0	0.01	0.0	0.28	-	-	-	-	11.5
	Motorcycles	x	x	x	x	x	-	-	-	-	x
	Light-Duty Diesel Vehicles	0.17	0.0	0.0	0.0	0.0	-	-	-	-	0.18
	Light-Duty Diesel Trucks	0.15	0.0	0.0	0.0	0.0	-	-	-	-	0.15
	Heavy-Duty Diesel Vehicles	209	0.01	0.2	0.01	3	-	-	-	-	213
	Propane and Natural Gas Vehicles	x	x	x	x	x	-	-	-	-	x
	Railways	15.1	0.0	0.02	0.01	2	-	-	-	-	17
	Domestic Navigation	2.73	0.0	0.01	0.0	0.02	-	-	-	-	2.8
	Other Transportation	388	0.04	0.9	0.1	40	-	-	-	-	430
	Off-Road Gasoline	12.7	0.01	0.4	0.0	0.08	-	-	-	-	13
	Off-Road Diesel	374	0.02	0.5	0.1	40	-	-	-	-	420
	Pipeline Transport	1.08	0.0	0.0	0.0	0.05	-	-	-	-	1.13
c.	Fugitive Sources	11	0.31	7.8	0.0	0.01	-	-	-	-	19
	Coal Mining	-	-	-	-	-	-	-	-	-	-
	Oil and Natural Gas	11	0.31	7.8	0.0	0.01	-	-	-	-	19
d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		3.99	-	-	0.0	0.3	14	0.0	-	-	18.5
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	-	-	-	-	-	14	0.0	-	-	14
e.	Non-Energy Products from Fuels and Solvent Use	3.7	-	-	-	-	-	-	-	-	3.7
f.	Other Product Manufacture and Use	0.3	-	-	0.0	0.3	-	-	-	-	0.58
AGRICULTURE		-	-	-	-	-	-	-	-	-	-
a.	Enteric Fermentation	-	-	-	-	-	-	-	-	-	-
b.	Manure Management	-	-	-	-	-	-	-	-	-	-
c.	Agriculture Soils	-	-	-	-	-	-	-	-	-	-
	Direct Sources	-	-	-	-	-	-	-	-	-	-
	Indirect Sources	-	-	-	-	-	-	-	-	-	-
d.	Field Burning of Agricultural Residues	-	-	-	-	-	-	-	-	-	-
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	-	-	-	-	-	-	-	-	-	-
WASTE		0.0	0.24	6	0.0	1.3	-	-	-	-	7.3
a.	Solid Waste Disposal	-	0.14	3.4	-	-	-	-	-	-	3.4
b.	Biological Treatment of Solid Waste	-	0.02	0.5	0.0	0.4	-	-	-	-	0.9
c.	Wastewater Treatment and Discharge	-	0.08	2.1	0.0	0.8	-	-	-	-	2.9
d.	Incineration and Open Burning of Waste	0.0	0.0	0.0	0.0	0.0	-	-	-	-	0.0

Notes:

- Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
 - Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.
 - 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 CF₄ emissions from the use of NF₃.
 - 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
 - 0.0 Indicates emissions truncated due to rounding
 - x Indicates data has been suppressed to respect confidentiality
- Estimates for the latest year (2014) 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 1999–2014 GHG Emission Summary for Nunavut

Greenhouse Gas Categories								
	1999	2000	2005	2010	2011	2012	2013	2014
<i>kt CO₂ equivalent</i>								
TOTAL	263	384	348	424	232	235	227	269
ENERGY	256	376	337	412	219	221	212	255
a. Stationary Combustion Sources	109	92.9	133	125	76.2	76.5	71.7	123
Public Electricity and Heat Production	109	80.6	125	125	x	x	71.7	123
Petroleum Refining Industries	-	-	-	-	-	-	-	-
Mining and Upstream Oil and Gas Production	-	0.77	0.26	x	-	-	-	-
Manufacturing Industries	-	x	x	x	x	-	-	-
Construction	-	x	x	x	x	x	-	-
Commercial and Institutional	-	6.17	8.22	-	-	-	-	-
Residential	-	5.38	-	-	-	-	-	-
Agriculture and Forestry	-	-	-	-	-	-	-	-
b. Transport ¹	147	283	204	286	143	144	141	131
Domestic Aviation	110	130	140	120	120	140	140	130
Road Transportation	20.6	27.8	32	44.9	18.6	7.5	0.65	0.58
Light-Duty Gasoline Vehicles	3.5	5	4.73	5.54	-	-	-	-
Light-Duty Gasoline Trucks	6.17	9.67	7.03	9.92	-	-	-	-
Heavy-Duty Gasoline Vehicles	3.47	5.51	3.48	3.79	-	-	-	-
Motorcycles	0.01	0.01	0.01	0.01	-	-	-	-
Light-Duty Diesel Vehicles	0.04	0.06	0.04	0.08	-	-	-	-
Light-Duty Diesel Trucks	-	-	0.05	0.08	-	-	-	-
Heavy-Duty Diesel Vehicles	6.33	6.99	16	24.9	17.8	6.84	-	-
Propane and Natural Gas Vehicles	1.1	0.58	0.65	0.65	0.77	0.65	0.65	0.58
Railways	-	-	x	x	x	x	-	-
Domestic Navigation	-	-	x	x	x	x	-	-
Other Transportation	16	130	33	120	-	-	-	-
Off-Road Gasoline	-	-	-	-	-	-	-	-
Off-Road Diesel	16	130	33	120	x	x	-	-
Pipeline Transport	-	-	x	x	x	x	-	-
c. Fugitive Sources	-	-	-	-	-	-	-	-
Coal Mining	-	-	-	-	-	-	-	-
Oil and Natural Gas	-	-	-	-	-	-	-	-
d. CO ₂ Transport and Storage	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE	2.85	3.75	6.09	7.37	7.66	8.14	8.39	8.83
a. Mineral Products	0.01	0.04	0.16	0.02	0.04	0.05	0.04	0.04
Cement Production	-	-	-	-	-	-	-	-
Lime Production	-	-	-	-	-	-	-	-
Mineral Products Use	0.01	0.04	0.16	0.02	0.04	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	2.5	3.3	5.6	7.1	7.4	7.8	8.1	8.5
e. Non-Energy Products from Fuels and Solvent Use	-	-	-	-	-	-	-	-
f. Other Product Manufacture and Use	0.35	0.39	0.34	0.23	0.25	0.26	0.25	0.25
AGRICULTURE	-	-	-	-	-	-	-	-
a. Enteric Fermentation	-	-	-	-	-	-	-	-
b. Manure Management	-	-	-	-	-	-	-	-
c. Agriculture Soils	-	-	-	-	-	-	-	-
Direct Sources	-	-	-	-	-	-	-	-
Indirect Sources	-	-	-	-	-	-	-	-
d. Field Burning of Agricultural Residues	-	-	-	-	-	-	-	-
e. Liming, Urea Application and Other Carbon-containing Fertilizers	-	-	-	-	-	-	-	-
WASTE	4.3	4.4	4.9	5.5	5.7	5.8	6	6.1
a. Solid Waste Disposal	1.7	1.8	2.1	2.5	2.6	2.6	2.7	2.8
b. Biological Treatment of Solid Waste	0.8	0.7	0.6	0.7	0.7	0.7	0.7	0.8
c. Wastewater Treatment and Discharge	1.8	1.9	2.1	2.3	2.3	2.4	2.4	2.5
d. Incineration and Open Burning of Waste	-	-	0.06	0.07	0.07	0.07	0.08	0.08

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.

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 CF₄ emissions from the use of NF₃.

- Indicates no emissions

0.0 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2014) 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 2014 GHG Emission Summary for Nunavut

Greenhouse Gas Categories		Greenhouse Gases										
		CO ₂	CH ₄	CH ₄	N ₂ O	N ₂ O	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		248	0.21	5.2	0.03	7.6	8.5	0.0	-	-	269	
ENERGY		248	0.01	0.22	0.02	6	-	-	-	-	255	
a.	Stationary Combustion Sources	118	0.01	0.1	0.02	5	-	-	-	-	123	
	Public Electricity and Heat Production	120	0.01	0.15	0.02	5.2	-	-	-	-	123	
	Petroleum Refining Industries	-	-	-	-	-	-	-	-	-	-	
	Mining and Upstream Oil and Gas Production	-	-	-	-	-	-	-	-	-	-	
	Manufacturing Industries	-	-	-	-	-	-	-	-	-	-	
	Construction	-	-	-	-	-	-	-	-	-	-	
	Commercial and Institutional	-	-	-	-	-	-	-	-	-	-	
	Residential	-	-	-	-	-	-	-	-	-	-	
	Agriculture and Forestry	-	-	-	-	-	-	-	-	-	-	
	b.	Transport ¹	130	0.0	0.07	0.0	1.1	-	-	-	-	131
Domestic Aviation		130	0.0	0.06	0.0	1	-	-	-	-	130	
Road Transportation		0.57	0.0	0.01	0.0	0.0	-	-	-	-	0.58	
Light-Duty Gasoline Vehicles		-	-	-	-	-	-	-	-	-	-	
Light-Duty Gasoline Trucks		-	-	-	-	-	-	-	-	-	-	
Heavy-Duty Gasoline Vehicles		-	-	-	-	-	-	-	-	-	-	
Motorcycles		-	-	-	-	-	-	-	-	-	-	
Light-Duty Diesel Vehicles		-	-	-	-	-	-	-	-	-	-	
Light-Duty Diesel Trucks		-	-	-	-	-	-	-	-	-	-	
Heavy-Duty Diesel Vehicles		-	-	-	-	-	-	-	-	-	-	
Propane and Natural Gas Vehicles		0.57	0.0	0.01	0.0	0.0	-	-	-	-	0.58	
Railways		-	-	-	-	-	-	-	-	-	-	
Domestic Navigation		-	-	-	-	-	-	-	-	-	-	
Other Transportation		-	-	-	-	-	-	-	-	-	-	
Off-Road Gasoline		-	-	-	-	-	-	-	-	-	-	
Off-Road Diesel		-	-	-	-	-	-	-	-	-	-	
Pipeline Transport		-	-	-	-	-	-	-	-	-	-	
c.		Fugitive Sources	-	-	-	-	-	-	-	-	-	-
		Coal Mining	-	-	-	-	-	-	-	-	-	-
	Oil and Natural Gas	-	-	-	-	-	-	-	-	-	-	
d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-	-	
INDUSTRIAL PROCESSES AND PRODUCT USE		0.04	-	-	0.0	0.25	8.5	0.0	-	-	8.83	
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	-	-	-	-	-	8.5	0.0	-	-	8.5	
e.	Non-Energy Products from Fuels and Solvent Use	-	-	-	-	-	-	-	-	-	-	
f.	Other Product Manufacture and Use	-	-	-	0.0	0.25	-	-	-	-	0.25	
AGRICULTURE		-	-	-	-	-	-	-	-	-	-	
a.	Enteric Fermentation	-	-	-	-	-	-	-	-	-	-	
b.	Manure Management	-	-	-	-	-	-	-	-	-	-	
c.	Agriculture Soils	-	-	-	-	-	-	-	-	-	-	
	Direct Sources	-	-	-	-	-	-	-	-	-	-	
	Indirect Sources	-	-	-	-	-	-	-	-	-	-	
d.	Field Burning of Agricultural Residues	-	-	-	-	-	-	-	-	-	-	
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	-	-	-	-	-	-	-	-	-	-	
WASTE		0.07	0.2	5	0.0	1	-	-	-	-	6.1	
a.	Solid Waste Disposal	-	0.11	2.8	-	-	-	-	-	-	2.8	
b.	Biological Treatment of Solid Waste	-	0.02	0.4	0.0	0.4	-	-	-	-	0.8	
c.	Wastewater Treatment and Discharge	-	0.07	1.8	0.0	0.7	-	-	-	-	2.5	
d.	Incineration and Open Burning of Waste	0.07	0.0	0.0	0.0	0.0	-	-	-	-	0.08	

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

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

0.0 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2014) 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 1990–1998 GHG Emission Summary for Northwest Territories and Nunavut

Greenhouse Gas Categories		1990	1991	1992	1993	1994	1995	1996	1997	1998
<i>kt CO₂ equivalent</i>										
TOTAL		1 640	1 600	1 400	1 680	1 850	1 970	1 930	1 740	1 580
ENERGY		1 630	1 580	1 390	1 650	1 730	1 870	1 910	1 720	1 560
a.	Stationary Combustion Sources	921	991	853	950	1 010	1 160	1 030	981	740
	Public Electricity and Heat Production	163	163	132	142	146	162	124	135	181
	Petroleum Refining Industries	7.5	5.8	7	5.1	12	10	4	-	-
	Mining and Upstream Oil and Gas Production	311	237	129	172	244	357	305	294	262
	Manufacturing Industries	25.8	16.3	18.4	8.33	13.5	20	-	-	-
	Construction	5.72	5.29	5.68	3.15	3.74	20.6	0.68	0.7	0.53
	Commercial and Institutional	250	367	357	389	401	474	405	371	207
	Residential	155	188	192	229	188	117	195	181	88.7
	Agriculture and Forestry	2.48	8.99	12	2.04	2.04	0.01	-	0.01	0.02
b.	Transport ¹	615	486	448	603	657	645	817	730	812
	Domestic Aviation	240	210	220	230	240	220	230	230	230
	Road Transportation	120	104	103	115	135	146	162	159	223
	Light-Duty Gasoline Vehicles	33.7	32.1	31.6	39.8	40	35.6	38.3	38.8	37.5
	Light-Duty Gasoline Trucks	12.5	12.6	13.2	17.6	19.3	18.5	21.5	24.3	23.8
	Heavy-Duty Gasoline Vehicles	5.85	5.41	5.59	7.25	9.21	8.86	9.2	10.1	9.7
	Motorcycles	0.09	0.08	0.08	0.11	0.1	0.09	0.1	0.11	0.09
	Light-Duty Diesel Vehicles	0.32	0.31	0.31	0.39	0.39	0.34	0.38	0.38	0.36
	Light-Duty Diesel Trucks	0.01	0.01	0.02	0.03	0.05	0.07	0.1	0.11	0.11
	Heavy-Duty Diesel Vehicles	65.8	52.3	48.9	47.4	60	78.4	90.5	82.7	150
	Propane and Natural Gas Vehicles	1.5	1.5	2.9	2.3	5.9	4	2.3	2.2	2.2
	Railways	2.6	2	2.1	2.2	1.5	2.4	1.2	2.7	2.4
	Domestic Navigation	0.14	0.21	0.53	0.46	0.1	63	-	-	-
	Other Transportation	250	170	130	250	280	210	420	340	360
	Off-Road Gasoline	52	42	43	62	60	46	62	62	38
	Off-Road Diesel	200	130	83	190	220	170	360	280	320
	Pipeline Transport	-	-	-	-	2.3	0.14	0.09	0.04	-
c.	Fugitive Sources	97	100	89	94	65	65	60	12	10
	Coal Mining	-	-	-	-	-	-	-	-	-
	Oil and Natural Gas	97	100	89	94	65	65	60	12	10
d.	CO ₂ Transport and Storage	-	-	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES AND PRODUCT USE		3.4	11.7	2.53	24.7	104	86.5	3.38	4.6	6.53
a.	Mineral Products	-	-	-	-	-	0.01	0.01	0.02	0.0
	Cement Production	-	-	-	-	-	-	-	-	-
	Lime Production	-	-	-	-	-	-	-	-	-
	Mineral Products Use	-	-	-	-	-	0.01	0.01	0.02	0.0
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	-	-	-	-	-	1.4	2.7	3.7	5.6
e.	Non-Energy Products from Fuels and Solvent Use	3	11	2.2	24	100	85	0.2	0.37	0.03
f.	Other Product Manufacture and Use	0.37	0.36	0.3	0.34	0.38	0.46	0.47	0.5	0.86
AGRICULTURE		-	-	-	-	-	-	-	-	-
a.	Enteric Fermentation	-	-	-	-	-	-	-	-	-
b.	Manure Management	-	-	-	-	-	-	-	-	-
c.	Agriculture Soils	-	-	-	-	-	-	-	-	-
	Direct Sources	-	-	-	-	-	-	-	-	-
	Indirect Sources	-	-	-	-	-	-	-	-	-
d.	Field Burning of Agricultural Residues	-	-	-	-	-	-	-	-	-
e.	Liming, Urea Application and Other Carbon-containing Fertilizers	-	-	-	-	-	-	-	-	-
WASTE		7.8	8.2	8.5	10	11	11	12	12	11
a.	Solid Waste Disposal	2	2.2	2.3	2.6	2.9	3.2	3.5	3.9	4
b.	Biological Treatment of Solid Waste	2	2	2	3	3	3	3	3	2
c.	Wastewater Treatment and Discharge	3.9	4	4.1	4.2	4.3	4.5	4.5	4.6	4.5
d.	Incineration and Open Burning of Waste	0.18	0.18	0.18	0.19	0.19	0.19	0.2	0.2	0.19

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.

2. Emissions from the Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use within the provincial/territorial tables as CO₂ eq values.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 CF₄ emissions from the use of NF₃.

- Indicates no emissions

0.0 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

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, 1990–2014

This annex contains summary tables (Table A12–1 to Table A12–14) illustrating GHG emissions by province/territory, allocated to Canadian economic sectors, from 1990–2014. To account for the creation of Nunavut in 1999, a time series from 1999–2014 is provided for both Northwest Territories and Nunavut (Table A12–11 and Table A12–12), and the years 1990–1998 are presented as a combined region in Table A12–14.

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 includes 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 various file formats online at <http://www.open.canada.ca>.

Table A12–1 GHG Emissions for Newfoundland and Labrador by Canadian Economic Sector, Selected Years

	1990	2000	2005	2010	2011	2012	2013	2014
<i>Mt CO₂ eq</i>								
PROVINCIAL GHG TOTAL	9.6	9.1	10.2	10.3	10.3	9.8	9.6	10.6
Oil and Gas	1.1	1.9	2.6	2.6	2.3	2.3	2.6	2.7
Upstream Oil and Gas	-	0.8	1.6	1.6	1.5	1.2	1.6	1.7
Natural Gas Production and Processing	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Conventional Oil Production	-	0.8	1.6	1.6	1.5	1.2	1.6	1.7
Conventional Light Oil Production	-	-	-	-	-	-	-	-
Conventional Heavy Oil Production	-	-	-	-	-	-	-	-
Frontier Oil Production	-	0.8	1.6	1.6	1.5	1.2	1.6	1.7
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	1.1	1.0	1.0	0.8	1.1	1.0	1.0
Petroleum Refining	1.1	1.1	1.0	1.0	0.8	1.1	1.0	1.0
Natural Gas Distribution	-	-	-	-	-	-	-	-
Electricity	1.6	0.8	0.9	0.7	0.9	0.9	0.9	1.2
Transportation	2.9	3.1	3.2	3.7	3.6	3.5	3.1	3.5
Passenger Transport	1.5	1.5	1.6	1.8	1.9	2.1	2.0	2.2
Cars, Trucks and Motorcycles	1.3	1.3	1.4	1.6	1.7	1.8	1.7	1.9
Bus, Rail and Domestic Aviation	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2
Freight Transport	1.0	1.1	1.1	1.5	1.3	1.1	1.0	1.1
Heavy Duty Trucks, Rail	0.4	0.5	0.5	0.7	0.7	0.7	0.8	0.8
Domestic Aviation and Marine	0.7	0.7	0.6	0.8	0.6	0.4	0.3	0.2
Other: Recreational, Commercial and Residential	0.4	0.4	0.4	0.3	0.4	0.3	0.1	0.2
Emissions Intensive & Trade Exposed Industries	1.8	1.3	1.6	1.3	1.2	1.1	0.8	0.7
Mining	1.2	1.1	1.3	1.3	1.1	1.1	0.7	0.7
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	0.2	0.3	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	0.1	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	1.1	1.0	0.9	0.9	1.0	0.8	1.0	1.1
Service Industry	0.3	0.4	0.4	0.4	0.4	0.3	0.7	0.7
Residential	0.8	0.6	0.4	0.5	0.6	0.5	0.4	0.5
Agriculture	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
On Farm Fuel Use	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Crop Production	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Animal Production	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Waste & Others	1.0	1.0	1.0	1.0	1.2	1.1	1.0	1.2
Waste	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.8
Coal Production	-	-	-	-	-	-	-	-
Light Manufacturing, Construction & Forest Resources	0.2	0.1	0.2	0.2	0.4	0.3	0.2	0.3

Note:

Totals may not add up due to rounding.

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 changed in future publications as new data becomes available and methods and models are refined and improved.

- indicates no emissions

0.0 indicates emissions of less than 0.05 Mt CO₂ eq; truncated due to rounding

Table A12–2 GHG Emissions for Nova Scotia by Canadian Economic Sector, Selected Years

	1990	2000	2005	2010	2011	2012	2013	2014
	<i>Mt CO₂ eq</i>							
PROVINCIAL GHG TOTAL	20.0	22.4	23.5	20.4	21.1	19.2	18.4	16.6
Oil and Gas	0.7	1.1	1.5	1.4	1.5	1.5	1.4	0.8
Upstream Oil and Gas	0.0	0.5	0.4	0.5	0.7	0.6	0.6	0.8
Natural Gas Production and Processing	0.0	0.5	0.4	0.5	0.7	0.6	0.6	0.8
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	0.1	0.0	0.0	0.0	0.0
Downstream Oil and Gas	0.7	0.6	1.1	0.8	0.8	0.9	0.8	0.0
Petroleum Refining	0.7	0.6	1.1	0.8	0.8	0.9	0.8	0.0
Natural Gas Distribution	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	7.0	9.6	10.8	8.9	8.6	7.7	7.6	7.3
Transportation	4.7	5.3	5.6	5.0	5.4	5.0	4.7	4.3
Passenger Transport	2.7	3.0	3.0	2.9	3.1	3.0	2.8	2.5
Cars, Trucks and Motorcycles	2.4	2.6	2.7	2.7	2.8	2.7	2.5	2.2
Bus, Rail and Domestic Aviation	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Freight Transport	1.4	1.7	2.2	1.9	1.9	1.7	1.6	1.6
Heavy Duty Trucks, Rail	0.8	1.1	1.3	1.4	1.4	1.3	1.3	1.3
Domestic Aviation and Marine	0.6	0.7	0.9	0.5	0.5	0.4	0.3	0.3
Other: Recreational, Commercial and Residential	0.6	0.6	0.4	0.2	0.4	0.3	0.2	0.2
Emissions Intensive & Trade Exposed Industries	0.9	0.9	0.8	0.6	0.6	0.6	0.5	0.4
Mining	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1
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	0.2	0.2	0.2	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	0.4	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	0.0	0.0	0.1	0.1	0.0
Buildings	3.0	2.9	2.8	2.7	3.1	2.6	2.5	2.2
Service Industry	0.8	1.0	1.4	0.9	1.0	0.8	0.9	0.7
Residential	2.2	1.9	1.4	1.8	2.0	1.8	1.6	1.5
Agriculture	0.7	0.8	0.8	0.6	0.8	0.7	0.6	0.5
On Farm Fuel Use	0.1	0.3	0.3	0.2	0.3	0.2	0.2	0.1
Crop Production	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Animal Production	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Waste & Others	3.0	1.9	1.2	1.2	1.2	1.2	1.2	1.0
Waste	1.0	0.9	0.7	0.6	0.6	0.6	0.6	0.6
Coal Production	1.6	0.6	0.1	0.1	0.1	0.1	0.1	0.0
Light Manufacturing, Construction & Forest Resources	0.3	0.4	0.3	0.5	0.5	0.5	0.5	0.4

Note:

Totals may not add up due to rounding.

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 changed in future publications as new data becomes available and methods and models are refined and improved.

- indicates no emissions

0.0 indicates emissions of less than 0.05 Mt CO₂ eq; truncated due to rounding

Table A12–3 GHG Emissions for Prince Edward Island by Canadian Economic Sector, Selected Years

	1990	2000	2005	2010	2011	2012	2013	2014
	<i>Mt CO₂ eq</i>							
PROVINCIAL GHG TOTAL	2.0	2.2	2.1	2.0	2.1	2.1	1.8	1.8
Oil and Gas	-	-	0.0	-	0.0	-	-	-
Upstream Oil and Gas	-	-	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	-	-	-
Downstream Oil and Gas	-	-	-	-	-	-	-	-
Petroleum Refining	-	-	-	-	-	-	-	-
Natural Gas Distribution	-	-	-	-	-	-	-	-
Electricity	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Transportation	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.8
Passenger Transport	0.4	0.5	0.5	0.5	0.4	0.5	0.5	0.5
Cars, Trucks and Motorcycles	0.4	0.4	0.5	0.5	0.4	0.5	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	0.3	0.3	0.3	0.2	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	0.1	0.1	0.0	0.1	0.1	0.0	0.0
Emissions Intensive & Trade Exposed Industries	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
Cement	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
Chemicals & Fertilizers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buildings	0.5	0.5	0.4	0.4	0.6	0.5	0.4	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	0.3	0.4	0.5	0.4	0.3	0.3
Agriculture	0.4	0.5	0.5	0.4	0.4	0.4	0.3	0.4
On Farm Fuel Use	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0
Crop Production	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2
Animal Production	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Waste & Others	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2
Waste	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Coal Production	-	-	-	-	-	-	-	-
Light Manufacturing, Construction & Forest Resources	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1

Note:

Totals may not add up due to rounding.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex11 of this report.

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

- indicates no emissions

0.0 indicates emissions of less than 0.05 Mt CO₂ eq; truncated due to rounding

Table A12–4 GHG Emissions for New Brunswick by Canadian Economic Sector, Selected Years

	1990	2000	2005	2010	2011	2012	2013	2014
	<i>Mt CO₂ eq</i>							
PROVINCIAL GHG TOTAL	16.4	21.1	20.5	18.6	18.9	16.9	15.0	14.9
Oil and Gas	1.2	1.8	2.5	4.0	3.2	3.2	3.1	2.8
Upstream Oil and Gas	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas Production and Processing	-	-	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
Conventional Light Oil Production	-	-	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	1.8	2.5	4.0	3.2	3.2	3.1	2.8
Petroleum Refining	1.2	1.8	2.5	4.0	3.2	3.2	3.1	2.8
Natural Gas Distribution	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	6.0	9.0	8.1	5.4	4.9	4.1	4.2	4.7
Transportation	3.9	5.0	5.0	4.7	5.4	4.9	4.1	3.9
Passenger Transport	2.3	2.5	2.5	2.5	2.7	2.7	2.3	2.0
Cars, Trucks and Motorcycles	2.1	2.3	2.4	2.3	2.6	2.5	2.1	1.9
Bus, Rail and Domestic Aviation	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Freight Transport	1.3	1.9	2.0	2.1	2.3	2.0	1.7	1.7
Heavy Duty Trucks, Rail	1.0	1.5	1.6	1.7	1.8	1.6	1.4	1.4
Domestic Aviation and Marine	0.3	0.4	0.4	0.4	0.5	0.3	0.3	0.3
Other: Recreational, Commercial and Residential	0.3	0.5	0.5	0.2	0.5	0.2	0.1	0.2
Emissions Intensive & Trade Exposed Industries	1.8	1.6	1.3	1.0	1.3	1.1	0.8	0.8
Mining	0.2	0.2	0.3	0.2	0.4	0.3	0.1	0.1
Smelting and Refining (Non Ferrous Metals)	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2
Pulp and Paper	1.4	1.1	0.7	0.5	0.5	0.5	0.5	0.5
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	0.1	0.1	0.0	0.1	0.1	0.0	0.0
Buildings	1.7	1.6	1.5	1.5	1.8	1.8	1.0	1.0
Service Industry	0.6	0.7	0.7	0.6	0.9	0.9	0.4	0.4
Residential	1.1	0.8	0.8	0.9	1.0	0.9	0.6	0.6
Agriculture	0.6	0.7	0.6	0.7	0.8	0.7	0.6	0.6
On Farm Fuel Use	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.1
Crop Production	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Animal Production	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Waste & Others	1.1	1.4	1.4	1.3	1.4	1.2	1.1	1.1
Waste	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7
Coal Production	0.0	0.0	0.0	-	-	-	-	-
Light Manufacturing, Construction & Forest Resources	0.3	0.6	0.6	0.6	0.7	0.4	0.4	0.3

Note:

Totals may not add up due to rounding.

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 changed in future publications as new data becomes available and methods and models are refined and improved.

- indicates no emissions

0.0 indicates emissions of less than 0.05 Mt CO₂ eq; truncated due to rounding

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

	1990	2000	2005	2010	2011	2012	2013	2014
<i>Mt CO₂ eq</i>								
PROVINCIAL GHG TOTAL	89.1	89.0	89.7	82.4	84.4	81.8	82.9	82.7
Oil and Gas	3.9	3.9	4.4	2.4	2.7	2.7	2.6	2.7
Upstream Oil and Gas	0.2	0.3	0.3	0.1	0.2	0.2	0.3	0.3
Natural Gas Production and Processing	-	-	-	-	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	0.2	0.3	0.3	0.1	0.1	0.2	0.3	0.3
Downstream Oil and Gas	3.6	3.5	4.1	2.3	2.6	2.5	2.4	2.4
Petroleum Refining	3.6	3.5	4.0	2.2	2.5	2.5	2.3	2.3
Natural Gas Distribution	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Electricity	1.5	0.6	0.7	0.5	0.4	0.5	0.4	0.4
Transportation	26.4	30.8	33.3	33.1	32.9	33.0	32.6	30.9
Passenger Transport	18.1	20.3	21.1	20.3	20.2	20.1	19.6	17.0
Cars, Trucks and Motorcycles	16.9	19.0	20.0	19.3	19.1	18.9	18.4	15.9
Bus, Rail and Domestic Aviation	1.2	1.2	1.1	1.0	1.1	1.2	1.2	1.1
Freight Transport	6.5	8.9	11.5	11.5	10.5	11.3	11.1	10.3
Heavy Duty Trucks, Rail	4.9	7.5	10.1	10.0	9.5	10.4	10.1	9.5
Domestic Aviation and Marine	1.5	1.4	1.4	1.4	1.0	0.9	1.0	0.8
Other: Recreational, Commercial and Residential	1.8	1.6	0.6	1.3	2.2	1.7	1.9	3.5
Emissions Intensive & Trade Exposed Industries	24.4	20.7	18.7	15.7	17.1	16.2	17.1	18.0
Mining	1.5	1.7	0.8	1.7	1.1	1.2	1.7	1.5
Smelting and Refining (Non Ferrous Metals)	12.9	10.1	9.8	7.6	8.1	7.6	7.8	7.3
Pulp and Paper	4.6	3.8	2.8	1.5	1.5	1.4	1.5	1.4
Iron and Steel	1.2	1.4	0.9	0.7	1.9	1.5	2.0	2.3
Cement	2.5	2.2	2.4	2.2	2.3	2.5	2.2	2.2
Lime & Gypsum	0.5	0.7	0.9	0.7	0.8	0.8	0.7	0.8
Chemicals & Fertilizers	1.2	0.9	1.1	1.2	1.4	1.2	1.1	2.5
Buildings	12.6	13.4	13.0	10.9	10.8	9.6	9.9	10.5
Service Industry	4.4	6.1	6.3	5.9	6.0	5.0	5.5	5.9
Residential	8.2	7.3	6.7	5.0	4.8	4.5	4.5	4.5
Agriculture	8.4	8.4	8.4	9.0	9.4	9.2	9.1	9.5
On Farm Fuel Use	0.7	0.7	0.5	1.3	1.8	1.2	1.2	1.6
Crop Production	2.0	2.0	1.9	2.3	2.2	2.6	2.5	2.5
Animal Production	5.7	5.7	5.9	5.5	5.4	5.3	5.3	5.3
Waste & Others	12.0	11.3	11.3	10.8	11.0	10.5	11.2	10.8
Waste	7.2	7.4	7.7	6.5	6.2	5.9	6.3	6.3
Coal Production	-	-	-	-	-	-	-	-
Light Manufacturing, Construction & Forest Resources	4.8	3.9	3.6	4.3	4.8	4.7	4.9	4.5

Note:

Totals may not add up due to rounding.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex11 of this report.

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

- indicates no emissions

0.0 indicates emissions of less than 0.05 Mt CO₂ eq; truncated due to rounding

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

	1990	2000	2005	2010	2011	2012	2013	2014
<i>Mt CO₂ eq</i>								
PROVINCIAL GHG TOTAL	181.8	210.9	210.6	178.6	175.2	171.4	170.9	170.2
Oil and Gas	10.1	12.2	11.8	9.2	8.7	9.7	9.9	10.5
Upstream Oil and Gas	3.3	4.7	3.9	1.8	1.7	1.7	1.7	2.2
Natural Gas Production and Processing	0.2	0.4	0.4	0.5	0.3	0.4	0.2	0.2
Conventional Oil Production	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Conventional Light Oil Production	0.0	0.1	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	4.2	3.6	1.3	1.4	1.3	1.4	2.0
Downstream Oil and Gas	6.9	7.5	7.8	7.3	7.0	8.1	8.2	8.3
Petroleum Refining	6.5	7.2	7.3	6.8	6.5	7.6	7.7	7.7
Natural Gas Distribution	0.4	0.4	0.6	0.6	0.5	0.5	0.5	0.6
Electricity	25.9	42.6	33.0	18.5	12.7	12.7	9.1	5.3
Transportation	43.9	54.0	59.6	57.4	56.7	54.6	57.0	55.6
Passenger Transport	31.7	36.0	38.5	37.5	36.7	35.4	37.4	36.4
Cars, Trucks and Motorcycles	29.0	32.9	35.8	35.0	34.3	32.7	34.6	33.7
Bus, Rail and Domestic Aviation	2.7	3.0	2.7	2.4	2.4	2.7	2.7	2.7
Freight Transport	9.6	13.2	18.3	17.9	17.6	17.7	18.2	17.8
Heavy Duty Trucks, Rail	8.3	12.0	17.1	16.6	16.6	16.5	16.7	16.3
Domestic Aviation and Marine	1.3	1.2	1.2	1.3	1.0	1.3	1.5	1.5
Other: Recreational, Commercial and Residential	2.5	4.8	2.9	2.0	2.4	1.5	1.5	1.4
Emissions Intensive & Trade Exposed Industries	42.6	37.1	38.1	29.8	30.0	30.9	28.5	30.1
Mining	0.7	0.6	0.6	0.8	1.0	1.2	1.1	1.1
Smelting and Refining (Non Ferrous Metals)	1.4	2.3	1.9	0.9	0.9	0.9	0.9	0.9
Pulp and Paper	3.2	3.1	2.0	1.6	2.2	1.9	2.0	1.9
Iron and Steel	14.9	17.0	18.3	15.0	14.5	14.7	12.4	13.3
Cement	4.5	5.8	6.4	4.6	4.5	4.8	4.4	4.4
Lime & Gypsum	1.7	1.6	1.7	1.1	1.2	1.2	1.0	1.1
Chemicals & Fertilizers	16.1	6.7	7.1	5.8	5.7	6.3	6.7	7.4
Buildings	27.8	34.4	36.0	32.7	35.3	32.4	35.4	38.2
Service Industry	9.6	14.8	15.2	13.6	14.6	13.9	15.0	16.2
Residential	18.1	19.6	20.8	19.1	20.7	18.5	20.4	22.0
Agriculture	12.2	12.9	12.3	13.4	13.3	12.9	13.3	13.0
On Farm Fuel Use	1.5	2.5	2.0	2.8	3.3	3.0	3.0	2.9
Crop Production	3.2	3.0	2.8	4.2	3.7	3.6	4.0	3.7
Animal Production	7.4	7.4	7.5	6.4	6.3	6.3	6.3	6.3
Waste & Others	19.3	17.7	19.8	17.7	18.4	18.2	17.6	17.5
Waste	7.9	8.9	10.0	9.4	9.6	9.6	9.4	9.4
Coal Production	-	-	-	-	-	-	-	-
Light Manufacturing, Construction & Forest Resources	11.4	8.8	9.8	8.2	8.8	8.6	8.3	8.1

Note:

Totals may not add up due to rounding.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex11 of this report.

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

- indicates no emissions

0.0 indicates emissions of less than 0.05 Mt CO₂ eq; truncated due to rounding

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

	1990	2000	2005	2010	2011	2012	2013	2014
	<i>Mt CO₂ eq</i>							
PROVINCIAL GHG TOTAL	18.7	21.2	20.7	19.7	19.5	20.8	21.5	21.5
Oil and Gas	1.3	1.2	0.8	0.3	0.4	0.5	0.6	0.7
Upstream Oil and Gas	1.3	1.2	0.8	0.3	0.4	0.4	0.5	0.6
Natural Gas Production and Processing	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1
Conventional Oil Production	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3
Conventional Light Oil Production	0.1	0.1	0.1	0.2	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	1.1	0.6	0.0	0.1	0.0	0.1	0.3
Downstream Oil and Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
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	0.1
Electricity	0.5	1.0	0.3	0.1	0.1	0.1	0.1	0.1
Transportation	5.5	5.9	6.2	7.0	6.8	7.8	7.8	7.8
Passenger Transport	3.2	3.4	3.5	3.5	3.3	4.1	4.2	4.3
Cars, Trucks and Motorcycles	2.7	2.8	2.9	3.0	2.9	3.6	3.7	3.7
Bus, Rail and Domestic Aviation	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5
Freight Transport	1.7	2.0	2.1	3.1	3.1	3.2	3.1	3.3
Heavy Duty Trucks, Rail	1.7	1.9	2.0	3.0	3.1	3.1	3.1	3.2
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	0.5	0.5	0.6	0.3	0.3	0.5	0.4	0.3
Emissions Intensive & Trade Exposed Industries	1.3	1.3	1.5	1.2	1.2	1.2	1.3	1.1
Mining	0.1	0.0	0.1	0.2	0.1	0.2	0.1	0.1
Smelting and Refining (Non Ferrous Metals)	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0
Pulp and Paper	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0
Iron and Steel	0.0	0.0	0.0	0.0	0.0	0.0	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	0.7	0.9	0.8	0.9	0.8	0.9	0.8
Buildings	3.1	3.2	2.7	2.6	2.7	2.5	2.9	3.0
Service Industry	1.4	1.8	1.6	1.6	1.6	1.4	1.6	1.8
Residential	1.7	1.4	1.1	1.0	1.1	1.1	1.3	1.3
Agriculture	5.5	7.0	7.4	6.6	6.2	6.6	7.0	6.6
On Farm Fuel Use	0.7	0.6	0.9	0.2	0.4	0.6	0.4	0.3
Crop Production	2.2	2.7	2.0	2.7	2.3	2.6	3.2	2.8
Animal Production	2.6	3.7	4.5	3.7	3.5	3.5	3.5	3.5
Waste & Others	1.4	1.6	1.8	1.9	2.0	2.2	1.8	2.0
Waste	0.8	1.0	1.1	1.2	1.2	1.2	1.1	1.2
Coal Production	-	-	-	-	-	-	-	-
Light Manufacturing, Construction & Forest Resources	0.6	0.6	0.8	0.7	0.8	1.0	0.7	0.8

Note:

Totals may not add up due to rounding.

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 changed in future publications as new data becomes available and methods and models are refined and improved.

- indicates no emissions

0.0 indicates emissions of less than 0.05 Mt CO₂ eq; truncated due to rounding

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

	1990	2000	2005	2010	2011	2012	2013	2014
	<i>Mt CO₂ eq</i>							
PROVINCIAL GHG TOTAL	45.1	68.1	69.6	69.9	69.3	71.7	73.9	75.5
Oil and Gas	12.1	26.5	25.3	22.8	22.2	22.6	23.4	25.3
Upstream Oil and Gas	10.9	24.9	23.7	21.0	20.5	20.8	21.5	23.4
Natural Gas Production and Processing	2.1	3.5	4.2	3.8	3.7	3.5	3.6	3.9
Conventional Oil Production	6.4	16.0	15.1	12.7	12.3	12.4	13.1	14.5
Conventional Light Oil Production	1.8	2.6	2.7	4.1	4.1	4.2	4.5	5.1
Conventional Heavy Oil Production	4.6	13.4	12.3	8.6	8.1	8.2	8.6	9.5
Frontier Oil Production	-	-	-	-	-	-	-	-
Oil Sands (Mining, In-situ, Upgrading)	0.0	2.4	2.1	1.9	2.2	2.3	2.3	2.3
Mining and Extraction	-	-	-	-	-	-	-	-
In-situ	-	-	-	-	-	-	-	-
Upgrading	0.0	2.4	2.1	1.9	2.2	2.3	2.3	2.3
Oil and Natural Gas Transmission	2.4	3.0	2.3	2.5	2.4	2.5	2.5	2.8
Downstream Oil and Gas	1.2	1.6	1.6	1.8	1.7	1.9	1.9	1.9
Petroleum Refining	0.6	1.2	1.4	1.6	1.5	1.7	1.7	1.7
Natural Gas Distribution	0.5	0.4	0.2	0.2	0.2	0.2	0.2	0.2
Electricity	11.2	14.0	14.8	15.0	13.9	14.3	13.6	14.3
Transportation	6.1	7.2	7.5	9.9	9.4	10.2	10.8	10.4
Passenger Transport	2.7	3.3	3.3	4.3	4.0	4.4	4.6	4.4
Cars, Trucks and Motorcycles	2.3	3.0	3.1	4.0	3.7	4.1	4.3	4.1
Bus, Rail and Domestic Aviation	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Freight Transport	2.3	3.1	3.0	4.2	4.5	4.5	4.6	4.8
Heavy Duty Trucks, Rail	2.3	3.1	3.0	4.2	4.4	4.4	4.6	4.8
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	1.1	0.7	1.1	1.4	1.0	1.3	1.6	1.2
Emissions Intensive & Trade Exposed Industries	1.6	2.4	2.2	2.8	4.2	4.2	3.7	3.3
Mining	1.0	1.4	1.3	2.1	3.3	3.3	2.7	2.6
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	0.3	0.2	0.1	0.1	0.1	0.1	0.1
Iron and Steel	0.0	0.2	0.1	0.2	0.1	0.1	0.1	0.1
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	0.4	0.6	0.5	0.7	0.7	0.8	0.5
Buildings	3.1	3.7	3.3	3.5	3.3	3.1	3.2	3.3
Service Industry	1.0	1.7	1.6	1.6	1.5	1.3	1.4	1.4
Residential	2.1	2.0	1.6	2.0	1.8	1.8	1.9	1.9
Agriculture	9.6	12.7	15.0	14.1	14.4	15.4	17.2	16.7
On Farm Fuel Use	1.7	1.7	2.2	3.0	3.0	3.0	3.8	4.0
Crop Production	3.5	4.7	4.8	4.7	5.1	6.0	7.1	6.4
Animal Production	4.3	6.2	8.0	6.4	6.3	6.3	6.3	6.2
Waste & Others	1.4	1.7	1.5	1.8	1.9	1.9	2.0	2.1
Waste	0.7	0.8	0.9	1.0	1.0	1.0	1.0	1.0
Coal Production	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Light Manufacturing, Construction & Forest Resources	0.7	0.8	0.6	0.8	0.9	0.9	1.0	1.1

Note:

Totals may not add up due to rounding.

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 changed in future publications as new data becomes available and methods and models are refined and improved.

- indicates no emissions

0.0 indicates emissions of less than 0.05 Mt CO₂ eq; truncated due to rounding

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

	1990	2000	2005	2010	2011	2012	2013	2014
	<i>Mt CO₂ eq</i>							
PROVINCIAL GHG TOTAL	175.2	232.4	233.0	241.5	246.0	259.8	272.4	273.8
Oil and Gas	68.9	99.0	98.5	106.7	108.7	119.2	129.2	132.0
Upstream Oil and Gas	65.4	95.5	93.8	102.6	104.6	114.6	123.9	126.5
Natural Gas Production and Processing	29.3	48.4	44.4	35.8	33.8	36.9	41.0	39.7
Conventional Oil Production	17.0	20.3	13.4	13.9	15.3	17.4	18.7	18.1
Conventional Light Oil Production	9.5	9.0	8.5	7.6	8.5	10.1	10.9	10.7
Conventional Heavy Oil Production	7.5	11.3	4.9	6.3	6.8	7.3	7.8	7.5
Frontier Oil Production	-	-	-	-	-	-	-	-
Oil Sands (Mining, In-situ, Upgrading)	15.2	22.1	32.0	50.8	53.1	57.8	61.3	65.6
Mining and Extraction	4.4	6.6	9.7	14.8	15.1	15.8	16.4	17.5
In-situ	3.0	4.0	8.0	18.9	19.9	23.6	25.9	30.1
Upgrading	7.9	11.5	14.4	17.1	18.1	18.4	19.0	17.9
Oil and Natural Gas Transmission	3.9	4.7	4.0	2.1	2.3	2.5	2.9	3.1
Downstream Oil and Gas	3.5	3.5	4.7	4.1	4.1	4.6	5.3	5.5
Petroleum Refining	3.1	3.2	4.4	3.9	3.9	4.5	5.1	5.4
Natural Gas Distribution	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2
Electricity	39.8	49.2	47.9	44.7	44.8	42.4	43.8	44.3
Transportation	18.3	22.9	27.2	29.2	28.3	30.1	31.7	32.7
Passenger Transport	10.2	11.2	12.0	12.7	11.9	12.6	13.8	14.4
Cars, Trucks and Motorcycles	8.9	9.7	10.5	11.3	10.4	10.9	12.0	12.6
Bus, Rail and Domestic Aviation	1.3	1.5	1.5	1.5	1.4	1.6	1.7	1.8
Freight Transport	6.5	9.5	12.7	14.8	15.4	16.6	17.0	17.3
Heavy Duty Trucks, Rail	6.3	9.3	12.5	14.6	15.2	16.5	16.8	17.2
Domestic Aviation and Marine	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2
Other: Recreational, Commercial and Residential	1.6	2.2	2.4	1.7	1.0	0.9	0.9	1.0
Emissions Intensive & Trade Exposed Industries	12.2	17.2	16.6	16.0	17.5	17.4	18.2	15.9
Mining	0.2	0.2	0.3	0.5	0.6	0.6	0.7	0.5
Smelting and Refining (Non Ferrous Metals)	0.4	0.7	0.6	0.8	0.8	0.0	0.8	0.8
Pulp and Paper	0.5	0.8	0.8	0.7	0.7	0.8	0.8	0.9
Iron and Steel	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Cement	1.1	1.6	1.8	1.7	1.7	1.6	1.5	1.4
Lime & Gypsum	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2
Chemicals & Fertilizers	9.8	13.7	12.8	12.0	13.4	14.2	14.1	12.1
Buildings	12.1	15.6	16.1	17.8	19.0	22.7	20.3	19.4
Service Industry	5.3	7.1	8.5	9.4	10.1	13.9	11.4	10.2
Residential	6.8	8.5	7.6	8.4	8.9	8.8	8.8	9.2
Agriculture	16.1	21.8	21.6	20.0	20.5	20.9	21.7	22.0
On Farm Fuel Use	2.1	3.0	2.1	2.6	3.0	2.9	3.2	3.6
Crop Production	3.8	4.3	4.1	4.8	5.3	5.6	6.1	6.1
Animal Production	10.2	14.5	15.4	12.5	12.2	12.4	12.4	12.4
Waste & Others	7.7	6.7	5.2	7.0	7.2	7.0	7.6	7.5
Waste	1.5	1.9	2.3	2.4	2.4	2.5	2.7	2.7
Coal Production	0.7	0.7	0.6	1.5	1.4	1.2	1.3	1.0
Light Manufacturing, Construction & Forest Resources	5.5	4.0	2.3	3.1	3.3	3.3	3.6	3.7

Note:

Totals may not add up due to rounding.

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 changed in future publications as new data becomes available and methods and models are refined and improved.

- indicates no emissions

0.0 indicates emissions of less than 0.05 Mt CO₂ eq; truncated due to rounding

Table A12–10 GHG Emissions for British Columbia by Canadian Economic Sector, Selected Years

	1990	2000	2005	2010	2011	2012	2013	2014
	<i>Mt CO₂ eq</i>							
PROVINCIAL GHG TOTAL	52.9	65.4	65.2	60.9	61.1	62.7	63.1	62.9
Oil and Gas	7.5	10.5	11.6	12.3	13.7	13.9	14.0	14.4
Upstream Oil and Gas	6.1	9.9	11.0	11.5	13.0	13.2	13.4	13.7
Natural Gas Production and Processing	3.9	6.7	9.0	10.0	11.3	11.6	11.5	11.8
Conventional Oil Production	0.7	1.0	0.6	0.5	0.6	0.6	0.6	0.6
Conventional Light Oil Production	0.7	1.0	0.6	0.5	0.6	0.6	0.6	0.6
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	2.1	1.4	1.1	1.1	1.0	1.3	1.3
Downstream Oil and Gas	1.4	0.6	0.6	0.8	0.7	0.7	0.6	0.7
Petroleum Refining	1.3	0.5	0.5	0.7	0.6	0.6	0.6	0.7
Natural Gas Distribution	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Electricity	0.9	1.7	1.0	1.0	0.3	0.3	0.4	0.4
Transportation	16.2	20.2	21.3	21.0	20.3	20.6	21.0	20.8
Passenger Transport	9.2	10.8	10.6	10.7	9.9	10.1	10.7	10.7
Cars, Trucks and Motorcycles	7.8	9.3	9.0	9.5	8.8	8.7	9.4	9.4
Bus, Rail and Domestic Aviation	1.5	1.6	1.5	1.2	1.1	1.3	1.4	1.4
Freight Transport	5.6	7.1	8.5	9.8	9.9	9.8	9.7	9.3
Heavy Duty Trucks, Rail	4.4	5.6	5.8	7.0	7.5	7.0	7.4	7.3
Domestic Aviation and Marine	1.2	1.5	2.7	2.8	2.4	2.8	2.3	2.0
Other: Recreational, Commercial and Residential	1.4	2.2	2.2	0.5	0.5	0.8	0.6	0.7
Emissions Intensive & Trade Exposed Industries	8.7	9.1	7.1	5.6	5.7	5.8	5.6	5.6
Mining	0.4	0.2	0.3	0.2	0.2	0.3	0.4	0.5
Smelting and Refining (Non Ferrous Metals)	2.0	2.6	1.7	1.4	1.4	1.4	1.3	0.9
Pulp and Paper	4.2	3.4	1.9	1.9	1.8	1.9	1.8	1.8
Iron and Steel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cement	1.0	1.9	2.0	1.4	1.6	1.5	1.5	1.8
Lime & Gypsum	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.3
Chemicals & Fertilizers	0.9	0.7	0.9	0.4	0.4	0.3	0.3	0.3
Buildings	7.5	8.6	8.3	7.2	8.2	7.9	7.7	7.8
Service Industry	3.0	3.8	3.6	3.3	3.5	3.5	3.4	3.5
Residential	4.6	4.8	4.7	3.9	4.7	4.4	4.3	4.3
Agriculture	2.8	3.6	3.5	3.0	2.9	3.2	3.3	3.4
On Farm Fuel Use	0.5	0.9	0.7	0.7	0.6	0.9	0.9	1.1
Crop Production	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3
Animal Production	2.0	2.4	2.6	2.0	1.9	2.0	2.0	2.0
Waste & Others	9.2	11.8	12.3	10.7	10.1	11.0	11.0	10.7
Waste	5.1	5.9	6.0	6.1	6.1	5.8	5.6	5.6
Coal Production	1.8	1.9	1.8	2.4	2.2	2.6	2.7	2.6
Light Manufacturing, Construction & Forest Resources	2.3	4.0	4.5	2.2	1.9	2.6	2.7	2.4

Note:

Totals may not add up due to rounding.

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 changed in future publications as new data becomes available and methods and models are refined and improved.

- indicates no emissions

0.0 indicates emissions of less than 0.05 Mt CO₂ eq; truncated due to rounding

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

	1990	2000	2005	2010	2011	2012	2013	2014
	<i>Mt CO₂ eq</i>							
PROVINCIAL GHG TOTAL	0.5	0.5	0.5	0.3	0.4	0.4	0.4	0.3
Oil and Gas	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Upstream Oil and Gas	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Natural Gas Production and Processing	0.0	0.1	0.1	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	-	-	-	-	-	-	-	-
Petroleum Refining	-	-	-	-	-	-	-	-
Natural Gas Distribution	-	-	-	-	-	-	-	-
Electricity	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transportation	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Passenger Transport	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Cars, Trucks and Motorcycles	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
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	0.2	0.1	0.1	0.1	0.1	0.1
Heavy Duty Trucks, Rail	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
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
Emissions Intensive & Trade Exposed Industries	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mining	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Smelting and Refining (Non Ferrous Metals)	-	-	-	-	-	-	-	-
Pulp and Paper	-	-	-	-	-	-	-	-
Iron and Steel	-	-	-	-	-	-	-	-
Cement	-	-	-	-	-	-	-	-
Lime & Gypsum	-	-	-	-	-	-	-	-
Chemicals & Fertilizers	-	-	-	-	-	-	-	-
Buildings	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Service Industry	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0
Residential	0.0	0.0	0.1	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 & Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waste	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note:

Totals may not add up due to rounding.

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 changed in future publications as new data becomes available and methods and models are refined and improved.

- indicates no emissions

0.0 indicates emissions of less than 0.05 Mt CO₂ eq; truncated due to rounding

Table A12–12 GHG Emissions for Northwest Territories by Canadian Economic Sector, Selected Years

	1999	2000	2005	2010	2011	2012	2013	2014
<i>Mt CO₂ eq</i>								
PROVINCIAL GHG TOTAL	1.2	1.5	1.7	1.4	1.4	1.5	1.4	1.5
Oil and Gas	0.2	0.4	0.3	0.3	0.3	0.4	0.4	0.3
Upstream Oil and Gas	0.2	0.4	0.3	0.3	0.3	0.4	0.4	0.3
Natural Gas Production and Processing	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Conventional Oil Production	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2
Conventional Light Oil Production	-	-	-	-	-	-	-	-
Conventional Heavy Oil Production	-	-	-	-	-	-	-	-
Frontier Oil Production	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2
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	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Transportation	0.4	0.4	0.6	0.4	0.5	0.5	0.4	0.4
Passenger Transport	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1
Cars, Trucks and Motorcycles	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0
Bus, Rail and Domestic Aviation	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Freight Transport	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.3
Heavy Duty Trucks, Rail	0.1	0.1	0.3	0.2	0.3	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	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Emissions Intensive & Trade Exposed Industries	0.2	0.2	0.4	0.3	0.3	0.3	0.3	0.4
Mining	0.2	0.2	0.4	0.3	0.3	0.3	0.3	0.4
Smelting and Refining (Non Ferrous Metals)	-	-	-	-	-	-	-	-
Pulp and Paper	-	-	-	-	-	-	-	-
Iron and Steel	-	-	-	-	-	-	-	-
Cement	-	-	-	-	-	-	-	-
Lime & Gypsum	-	-	-	-	-	-	-	-
Chemicals & Fertilizers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buildings	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Service Industry	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Residential	0.1	0.1	0.1	0.1	0.1	0.1	0.1	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 & Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waste	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note:

Totals may not add up due to rounding.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex11 of this report.

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

- indicates no emissions

0.0 indicates emissions of less than 0.05 Mt CO₂ eq; truncated due to rounding

Table A12–13 GHG Emissions for Nunavut by Canadian Economic Sector, Selected Years

	1999	2000	2005	2010	2011	2012	2013	2014
	<i>Mt CO₂ eq</i>							
PROVINCIAL GHG TOTAL	0.3	0.4	0.3	0.4	0.2	0.2	0.2	0.3
Oil and Gas	-	-	x	x	x	x	-	-
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	-	-	x	x	x	x	-	-
Downstream Oil and Gas	-	-	-	-	-	-	-	-
Petroleum Refining	-	-	-	-	-	-	-	-
Natural Gas Distribution	-	-	-	-	-	-	-	-
Electricity	0.1	0.1	0.1	0.1	x	x	0.1	0.1
Transportation	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Passenger Transport	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Cars, 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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Heavy Duty Trucks, Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	-	-	-	-
Emissions Intensive & Trade Exposed Industries	0.0	0.1	0.0	x	x	0.0	0.0	0.0
Mining	-	0.1	0.0	x	x	0.0	0.0	0.0
Smelting and Refining (Non Ferrous Metals)	-	-	-	-	-	-	-	-
Pulp and Paper	-	-	-	-	-	-	-	-
Iron and Steel	-	-	-	-	-	-	-	-
Cement	-	-	-	-	-	-	-	-
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	0.0	0.0	0.0	0.0	-	-	-	-
On Farm Fuel Use	0.0	0.0	0.0	0.0	-	-	-	-
Crop Production	-	-	-	-	-	-	-	-
Animal Production	-	-	-	-	-	-	-	-
Waste & Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waste	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note:

Totals may not add up due to rounding.

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

- indicates no emissions

0.0 indicates emissions of less than 0.05 Mt CO₂ eq; truncated due to rounding

x indicates data has been suppressed to respect confidentiality

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

	1990	1991	1992	1993	1994	1995	1996	1997	1998
	<i>Mt CO₂ eq</i>								
PROVINCIAL GHG TOTAL	1.6	1.6	1.4	1.7	1.8	2.0	1.9	1.7	1.6
Oil and Gas	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.2
Upstream Oil and Gas	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.2
Natural Gas Production and Processing	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Conventional Oil Production	0.3	0.2	0.1	0.2	0.2	0.3	0.3	0.3	0.2
Conventional Light Oil Production	-	-	-	-	-	-	-	-	-
Conventional Heavy Oil Production	-	-	-	-	-	-	-	-	-
Frontier Oil Production	0.3	0.2	0.1	0.2	0.2	0.3	0.3	0.3	0.2
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	-	-
Petroleum Refining	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	0.6	0.5	0.5	0.6
Passenger Transport	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Cars, Trucks and Motorcycles	0.0	0.0	0.0	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	0.1	0.1	0.2
Heavy Duty Trucks, Rail	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Domestic Aviation and Marine	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Other: Recreational, Commercial and Residential	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1
Emissions Intensive & Trade Exposed Industries	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.2	0.2
Mining	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.2	0.2
Smelting and Refining (Non Ferrous Metals)	-	-	-	-	-	-	-	-	-
Pulp and Paper	-	-	-	-	-	-	-	-	-
Iron and Steel	-	-	-	-	-	-	-	-	-
Cement	-	-	-	-	-	-	-	-	-
Lime & Gypsum	-	-	-	-	-	-	-	-	-
Chemicals & Fertilizers	-	-	-	-	-	-	-	-	-
Buildings	0.4	0.6	0.5	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	0.0
On Farm Fuel Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crop Production	-	-	-	-	-	-	-	-	-
Animal Production	-	-	-	-	-	-	-	-	-
Waste & Others	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waste	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note:

Totals may not add up due to rounding.

Provincial/territorial GHG emissions allocated to IPCC sectors are provided in Annex11 of this report.

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

- indicates no emissions

0.0 indicates emissions of less than 0.05 Mt CO₂ eq; truncated due to rounding

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 (SF₆) 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, and can be either public or private generators. 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.

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* (RESO) (Statistics Canada 57-003-X), in the publication *Electric Power Generation, Transmission and Distribution* (EPGTD) (Statistics Canada 57-202-X) and online via 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 RESO, while generation data are from CANSIM (2005–2013) 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 in transmission and distribution are subtracted from overall total electricity generation, while SF₆ emissions associated with equipment used in electricity transmission and distribution are added to overall total GHG emissions. The electric energy losses in transmission and distribution are taken to be the utility sector’s share of “unallocated energy,” as presented in Table A13–1 to Table A13–13 and calculated from data provided by CANSIM 127-0008. Likewise, the SF₆ emission values are based on the electric utility sector’s share of total SF₆ 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 A13–13.

Table A13–1 Electricity Generation and GHG Emission Details for Canada¹

	1990	2000	2005	2010	2011	2012	2013	2014 ²
Greenhouse Gas Emissions³								
<i>kt CO₂ equivalent</i>								
Combustion	94 500	131 000	124 000	102 000	94 500	91 400	87 700	85 500
Coal	80 500	108 000	97 300	78 600	68 600	63 300	63 800	61 600
Natural Gas	2 720	13 800	15 400	18 600	21 700	23 900	19 300	19 000
Other Fuels ⁴	11 300	9 440	11 300	4 740	4 120	4 240	4 520	4 840
Other Emissions⁵	–	27.3	52	54	61	83	63	73
Overall Total^{6,7}	94 500	131 000	124 000	102 000	94 500	91 500	87 800	85 500
Electricity Generation^{8,9}								
<i>GWh</i>								
Combustion	101 000	146 000	140 000	117 000	119 000	107 000	104 000	100 000
Coal	82 200	106 000	93 900	74 300	70 200	60 200	60 900	60 500
Natural Gas	4 140	26 600	29 800	33 600	41 500	39 100	35 600	31 400
Other Fuels	14 800	13 400	16 700	8 650	7 170	7 460	7 900	7 980
Refined Petroleum Products	14 700	10 600	10 800	3 010	2 310	2 320	2 150	2 750
Biomass	14.4	1 830	1 780	2 310	2 150	1 990	2 050	1 810
Other	91	960	4 100	3 300	2 700	3 100	3 700	3 400
Steam from Waste Heat	–	–	32.4	7 090	6 440	7 530	7 110	7 340
Nuclear	68 800	68 700	86 800	85 500	88 300	89 500	97 600	101 600
Hydro	263 000	323 000	327 000	321 000	342 000	345 000	357 000	348 000
Other Renewables¹⁰	26.2	264	1 580	8 780	10 370	11 500	11 400	11 500
Other Generation¹¹	–	–	–	2 980	2 510	2 720	2 440	2 240
Overall Total⁷	433 000	539 000	556 000	542 000	568 000	563 000	580 000	571 000
Greenhouse Gas Intensity¹²								
<i>g GHG / kWh electricity generated</i>								
CO ₂ intensity (g CO ₂ / kWh)	220	240	220	190	170	160	150	150
CH ₄ intensity (g CH ₄ / kWh)	0.004	0.009	0.01	0.01	0.01	0.01	0.01	0.01
N ₂ O intensity (g N ₂ O / kWh)	0.004	0.005	0.005	0.004	0.003	0.003	0.003	0.003
Generation Intensity (g CO₂ eq / kWh)⁷	220	240	220	190	170	160	150	150
Unallocated Energy (GWh)^{13,14}	31 000	42 000	37 000	52 000	57 000	46 000	41 000	26 000
SF₆ Emissions (kt CO₂ eq)¹⁵	200	200	160	180	140	190	220	130
Consumption Intensity (g CO₂ eq / kWh)¹⁶	240	260	240	210	190	180	160	160

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 and Demand in Canada*, Catalogue No. 57-003-X, Statistics Canada with the exception of coal data for 2014, which was taken from CANSIM Table 127-0004.
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 CANSIM Tables 127-0006 and 127-0007 (for 2005-2014).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-X, Statistics Canada (for 1990-2004).
10. Other Renewables - includes electricity generation by wind, tidal and solar.
11. NAICS category 221119, Other Electric Power Generation.
12. Intensity values have been rounded so as to present the estimated level of accuracy.
13. Adapted from Statistics Canada CANSIM Table 127-0008 (2005-2014) or Cat. No. 57-202-X (1990-2004).
14. Includes transmission line losses, metering differences and other losses.
15. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF₆).
16. Consumption intensity values are impacted by unallocated energy and SF₆ 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 Labrador¹

	1990	2000	2005	2010	2011	2012	2013	2014 ²
Greenhouse Gas Emissions³								
<i>kt CO₂ equivalent</i>								
Combustion	1 650	823	865	747	866	851	867	1 206
Coal	–	–	–	–	–	–	–	–
Natural Gas	–	–	–	–	–	–	–	–
Other Fuels ⁴	1 650	823	865	747	866	851	867	1 206
Other Emissions⁵	–	–	–	–	–	–	–	–
Overall Total^{6,7}	1 650	823	865	747	866	851	867	1 206
Electricity Generation^{8,9}								
<i>GWh</i>								
Combustion	2 090	1 020	1 360	916	1 009	970	1 090	1 470
Coal	–	–	–	–	–	–	–	–
Natural Gas	–	–	–	–	–	–	–	–
Other Fuels	2 090	1 020	1 360	916	1 009	970	1 090	1 470
Steam from Waste Heat	–	–	–	–	–	–	–	–
Nuclear	–	–	–	–	–	–	–	–
Hydro	34 300	41 800	38 900	39 400	39 100	41 300	40 500	38 200
Other Renewables¹⁰	0	–	–	183	198	195	192	177
Other Generation¹¹	–	–	–	–	–	–	–	–
Overall Total⁷	36 400	42 800	40 300	40 500	40 300	42 500	41 800	39 800
Greenhouse Gas Intensity¹²								
<i>g GHG / kWh electricity generated</i>								
CO ₂ intensity (g CO ₂ / kWh)	45	19	21	18	21	20	21	30
CH ₄ intensity (g CH ₄ / kWh)	0.0006	0.0002	0.0003	0.0003	0.0004	0.0003	0.0003	0.0004
N ₂ O intensity (g N ₂ O / kWh)	0.001	0.0005	0.001	0.001	0.001	0.001	0.0	0.001
Generation Intensity (g CO₂ eq / kWh)⁷	45	19	21	18	21	20	21	30
Unallocated Energy (GWh) ^{13,14}	990	1300	810	1300	1300	1300	1400	1300
SF ₆ Emissions (kt CO ₂ eq) ¹⁵	0.94	0.92	0.50	0.54	0.83	1.0	1.0	1.3
Consumption Intensity (g CO₂ eq / kWh)¹⁶	46	20	22	19	22	21	21	31

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 and Demand in Canada*, Catalogue No. 57-003-X, 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 CANSIM Tables 127-0006 and 127-0007 (for 2005-2014).
9. Taken from the *Electric Power Generation, Transmission and Distribution (EPGTD)* publication, Catalogue No. 57-202-X, Statistics Canada (for 1990-2004).
10. Other Renewables - includes electricity generation by wind, tidal and solar.
11. NAICS category 221119, Other Electric Power Generation.
12. Intensity values have been rounded so as to present the estimated level of accuracy.
13. Adapted from Statistics Canada CANSIM Table 127-0008 (2005-2014) or Cat. No. 57-202-X (1990-2004).
14. Includes transmission line losses, metering differences and other losses.
15. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF₆).
16. Consumption intensity values are impacted by unallocated energy and SF₆ 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 Island¹

	1990	2000	2005	2010	2011	2012	2013	2014 ²
Greenhouse Gas Emissions³								
<i>kt CO₂ equivalent</i>								
Combustion	104	53.0	4.76	1.59	1.23	10.8	3.9	5.0
Coal	–	–	–	–	–	–	–	–
Natural Gas	–	–	–	–	–	–	–	–
Other Fuels ⁴	104	53.0	4.76	1.59	1.23	10.8	3.9	5.0
Other Emissions⁵	–	–	–	–	–	–	–	–
Overall Total^{6,7}	104	53.0	4.76	1.59	1.23	10.8	3.9	5.0
Electricity Generation^{8,9}								
<i>GWh</i>								
Combustion	81.1	48.1	6.31	3.78	4.81	14.5	8.2	8.3
Coal	–	–	–	–	–	–	–	–
Natural Gas	–	–	–	–	–	–	–	–
Other Fuels	81.1	48.1	6.31	3.78	4.81	14.5	8.2	8.3
Steam from Waste Heat	–	–	–	–	–	–	–	–
Nuclear	–	–	–	–	–	–	–	–
Hydro	–	–	–	–	–	–	–	–
Other Renewables¹⁰	–	–	40.1	458	488	468	499	595
Other Generation¹¹	–	–	–	–	–	–	–	–
Overall Total⁷	81.1	48.1	46.4	461	492	482	507	603
Greenhouse Gas Intensity¹²								
<i>g GHG / kWh electricity generated</i>								
CO ₂ intensity (g CO ₂ / kWh)	1 300	1 100	100	3.4	2.5	22	8	8
CH ₄ intensity (g CH ₄ / kWh)	0.02	0.01	0.001	0.00004	0.00006	0.0005	0.0002	0.0002
N ₂ O intensity (g N ₂ O / kWh)	0.03	0.02	0.002	0.0001	0.0001	0.0004	0.0001	0.0002
Generation Intensity (g CO₂ eq / kWh)⁷	1 300	1 100	100	3.4	2.5	22	8	8
Unallocated Energy (GWh) ^{13,14}	unk	unk	unk	8.6	21	20	20	59
SF ₆ Emissions (kt CO ₂ eq) ¹⁵	0	0	–	–	0	0	0	0
Consumption Intensity (g CO₂ eq / kWh)¹⁶	*	*	*	*	*	*	*	*

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 and Demand in Canada*, Catalogue No. 57-003-X, 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 CANSIM Tables 127-0006 and 127-0007 (for 2005-2014).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-X, Statistics Canada (for 1990-2004).
10. Other Renewables - includes electricity generation by wind, tidal and solar.
11. NAICS category 221119, Other Electric Power Generation.
12. Intensity values have been rounded so as to present the estimated level of accuracy.
13. Adapted from Statistics Canada CANSIM Table 127-0008 (2005-2014) or Cat. No. 57-202-X (1990-2004).
14. Includes transmission line losses, metering differences and other losses.
15. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF₆).
16. Consumption intensity values are impacted by unallocated energy and SF₆ 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
- * 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 Scotia¹

	1990	2000	2005	2010	2011	2012	2013	2014 ²
Greenhouse Gas Emissions³								
<i>kt CO₂ equivalent</i>								
Combustion	6 940	9 540	10 800	8 860	8 520	7 680	7 600	7 240
Coal	x	8 260	5 470	6 410	6 170	5 170	5 160	5 060
Natural Gas	–	–	x	x	x	x	x	760
Other Fuels ⁴	x	1 280	x	x	x	x	x	1 420
Other Emissions⁵	–	–	–	–	–	–	–	–
Overall Total^{6,7}	6 940	9 540	10 800	8 860	8 520	7 680	7 600	7 240
Electricity Generation^{8,9}								
<i>GWh</i>								
Combustion	8 440	10 500	11 100	10 300	9 500	9 210	8 770	8 550
Coal	6 020	8 850	6 770	6 790	6 020	5 390	5 500	5 550
Natural Gas	–	–	181	2 270	2 430	2 260	1 370	1 480
Other Fuels	2 430	1 610	4 110	1 270	1 050	1 560	1 890	1 520
Steam from Waste Heat	–	–	–	–	–	–	–	–
Nuclear	–	–	–	–	–	–	–	–
Hydro	1 120	887	1 040	969	1 070	806	964	1 089
Other Renewables¹⁰	26.1	0	113	414	809	827	780	764
Other Generation¹¹	–	–	–	–	–	–	–	–
Overall Total⁷	9 590	11 300	12 200	11 700	11 400	10 800	10 500	10 400
Greenhouse Gas Intensity¹²								
<i>g GHG / kWh electricity generated</i>								
CO ₂ intensity (g CO ₂ / kWh)	720	840	880	750	740	700	720	690
CH ₄ intensity (g CH ₄ / kWh)	0.007	0.008	0.02	0.04	0.04	0.04	0.03	0.03
N ₂ O intensity (g N ₂ O / kWh)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Generation Intensity (g CO₂ eq / kWh)⁷	720	840	880	760	750	710	720	700
Unallocated Energy (GWh) ^{13,14}	580	830	770	670	640	1 200	600	300
SF ₆ Emissions (kt CO ₂ eq) ¹⁵	23	23	29	27	33	22	39	33
Consumption Intensity (g CO₂ eq / kWh)¹⁶	770	910	940	800	800	800	770	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 and Demand in Canada*, Catalogue No. 57-003-X, 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 CANSIM Tables 127-0006 and 127-0007 (for 2005-2014).
9. Taken from the *Electric Power Generation, Transmission and Distribution (EPGTD)* publication, Catalogue No. 57-202-X, Statistics Canada (for 1990-2004).
10. Other Renewables - includes electricity generation by wind, tidal and solar.
11. NAICS category 221119, Other Electric Power Generation.
12. Intensity values have been rounded so as to present the estimated level of accuracy.
13. Adapted from Statistics Canada CANSIM Table 127-0008 (2005-2014) or Cat. No. 57-202-X (1990-2004).
14. Includes transmission line losses, metering differences and other losses.
15. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF₆).
16. Consumption intensity values are impacted by unallocated energy and SF₆ 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 A13–5 Electricity Generation and GHG Emission Details for New Brunswick¹

	1990	2000	2005	2010	2011	2012	2013	2014 ²
Greenhouse Gas Emissions³								
<i>kt CO₂ equivalent</i>								
Combustion	6 030	9 010	8 100	5 360	4 950	4 080	4 220	4 660
Coal	1 180	3 170	2 940	2 110	x	x	x	x
Natural Gas	–	–	x	x	x	x	x	1 040
Other Fuels ⁴	4 840	5 840	x	x	1 620	1 330	1 150	x
Other Emissions⁵	–	–	–	–	–	–	–	–
Overall Total^{6,7}	6 030	9 010	8 100	5 360	4 950	4 080	4 220	4 660
Electricity Generation^{8,9}								
<i>GWh</i>								
Combustion	7 630	11 000	12 100	6 220	6 040	5 160	5 310	5 740
Coal	1 270	3 820	2 920	2 080	2 340	1 900	2 250	2 560
Natural Gas	–	–	1 970	1 840	1 960	1 780	1 770	1 710
Other Fuels	6 360	7 210	7 210	2 300	1 740	1 490	1 290	1 460
Steam from Waste Heat	–	–	–	681	666	551	581	859
Nuclear	5 340	3 960	4 380	–	–	414	4 481	5 388
Hydro	3 460	3 220	3 820	3 330	3 840	2 860	3 400	2 960
Other Renewables¹⁰	–	–	–	389	693	733	737	786
Other Generation¹¹	–	–	–	–	–	–	–	–
Overall Total⁷	16 400	18 200	20 300	10 600	11 200	9 700	14 500	15 700
Greenhouse Gas Intensity¹²								
<i>g GHG / kWh electricity generated</i>								
CO ₂ intensity (g CO ₂ / kWh)	360	490	400	500	440	420	290	290
CH ₄ intensity (g CH ₄ / kWh)	0.004	0.005	0.01	0.03	0.03	0.03	0.02	0.02
N ₂ O intensity (g N ₂ O / kWh)	0.007	0.009	0.007	0.008	0.007	0.007	0.004	0.004
Generation Intensity (g CO₂ eq / kWh)⁷	370	490	400	510	440	420	290	300
Unallocated Energy (GWh) ^{13,14}	990	1 300	1 100	390	160	unk	unk	unk
SF ₆ Emissions (kt CO ₂ eq) ¹⁵	0.71	0.70	–	0.35	0.61	0.53	0.82	0.58
Consumption Intensity (g CO₂ eq / kWh)¹⁶	390	530	420	520	450	unk	270	280

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 and Demand in Canada*, Catalogue No. 57-003-X, 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 CANSIM Tables 127-0006 and 127-0007 (for 2005–2014).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-X, Statistics Canada (for 1990–2004).
10. Other Renewables - includes electricity generation by wind, tidal and solar.
11. NAICS category 221119, Other Electric Power Generation.
12. Intensity values have been rounded so as to present the estimated level of accuracy.
13. Adapted from Statistics Canada CANSIM Table 127-0008 (2005–2014) or Cat. No. 57-202-X (1990–2004).
14. Includes transmission line losses, metering differences and other losses.
15. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF₆).
16. Consumption intensity values are impacted by unallocated energy and SF₆ transmission emissions.
 - Indicates no emissions or no electricity generation
 - 0 Indicates emissions or electricity generation value less than 0.1
 - x Indicates data has been suppressed to respect confidentiality
 - unk Indicates unknown as appropriate data were unavailable

Table A13-6 Electricity Generation and GHG Emission Details for Quebec¹

	1990	2000	2005	2010	2011	2012	2013	2014 ²
Greenhouse Gas Emissions³								
<i>kt CO₂ equivalent</i>								
Combustion	1 500	569	617	430	405	488	371	379
Coal	–	–	–	–	–	–	–	–
Natural Gas	x	x	x	x	x	x	144	143
Other Fuels ⁴	x	x	x	x	x	x	227	234
Other Emissions⁵	–	2.5	4.7	–	–	–	–	–
Overall Total^{6,7}	1 500	572	622	430	405	488	371	379
Electricity Generation^{8,9}								
<i>GWh</i>								
Combustion	1 980	1 150	1 390	1 510	1 360	1 260	1 140	1 130
Coal	–	–	–	–	–	–	–	–
Natural Gas	–	191	212	200	198	191	14	14
Other Fuels	1 980	961	1 170	1 310	1 170	1 070	1 130	1 120
Steam from Waste Heat	–	–	–	–	–	–	–	–
Nuclear	4 070	4 890	4 480	3 550	3 530	4 210	0	0
Hydro	112 000	153 000	155 000	161 000	170 000	171 000	182 000	177 000
Other Renewables¹⁰	–	173	416	1 550	1 000	1 011	1 031	1 010
Other Generation¹¹	–	–	–	–	–	–	–	–
Overall Total⁷	118 000	160 000	161 000	168 000	176 000	178 000	184 000	179 000
Greenhouse Gas Intensity¹²								
<i>g GHG / kWh electricity generated</i>								
CO ₂ intensity (g CO ₂ / kWh)	13	3.5	3.7	2.5	2.3	2.7	2.0	2.1
CH ₄ intensity (g CH ₄ / kWh)	0.0004	0.0005	0.0009	0.0004	0.0002	0.0004	0.0002	0.0002
N ₂ O intensity (g N ₂ O / kWh)	0.0003	0.0002	0.0005	0.0001	0.0001	0.0001	0.0001	0.0001
Generation Intensity (g CO₂ eq / kWh)⁷	13	3.6	3.9	2.6	2.3	2.7	2.0	2.1
Unallocated Energy (GWh) ^{13,14}	7 300	13 000	9 100	13 000	11 000	12 000	12 000	3 000
SF ₆ Emissions (kt CO ₂ eq) ¹⁵	37	36	30	31	30	54	67	17
Consumption Intensity (g CO₂ eq / kWh)¹⁶	14	4.1	4.3	3.0	2.6	3.3	2.5	2.3

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 and Demand in Canada*, Catalogue No. 57-003-X, 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 CANSIM Tables 127-0006 and 127-0007 (for 2005-2014).
9. Taken from the *Electric Power Generation, Transmission and Distribution (EPGTD)* publication, Catalogue No. 57-202-X, Statistics Canada (for 1990-2004).
10. Other Renewables - includes electricity generation by wind, tidal and solar.
11. NAICS category 221119, Other Electric Power Generation.
12. Intensity values have been rounded so as to present the estimated level of accuracy.
13. Adapted from Statistics Canada CANSIM Table 127-0008 (2005-2014) or Cat. No. 57-202-X (1990-2004).
14. Includes transmission line losses, metering differences and other losses.
15. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF₆).
16. Consumption intensity values are impacted by unallocated energy and SF₆ transmission emissions.
 - Indicates no emissions or no electricity generation
 - 0 Indicates emissions or electricity generation value less than 0.1
 - x Indicates data has been suppressed to respect confidentiality

Table A13–7 Electricity Generation and GHG Emission Details for Ontario¹

	1990	2000	2005	2010	2011	2012	2013	2014 ²
Greenhouse Gas Emissions³								
<i>kt CO₂ equivalent</i>								
Combustion	25 800	43 400	34 500	19 800	14 200	14 200	10 200	6 200
Coal	24 600	38 000	28 100	12 300	4 200	4 260	3 070	90
Natural Gas	8	4 930	6 210	7 410	9 940	9 800	7 040	5 960
Other Fuels ⁴	1 160	475	182	139	99	68	60	150
Other Emissions⁵	–	0.77	1.4	0.23	0.23	–	–	–
Overall Total^{6,7}	25 800	43 400	34 500	19 800	14 200	14 200	10 200	6 200
Electricity Generation^{8,9}								
<i>GWh</i>								
Combustion	29 200	52 200	40 900	27 200	23 100	22 400	17 500	11 500
Coal	27 800	40 800	29 400	12 300	3 900	4 100	2 850	30
Natural Gas	3.18	10 200	10 000	14 100	18 500	17 600	13 900	10 700
Other Fuels	1 430	1 140	1 440	864	782	703	722	714
Steam from Waste Heat	–	–	–	3 630	3 500	4 250	3 330	3 300
Nuclear	59 400	59 800	78 000	82 000	84 800	84 900	93 100	96 200
Hydro	38 700	36 600	34 600	31 800	34 600	33 000	36 900	38 200
Other Renewables¹⁰	–	1.22	26.0	3 190	3 420	4 320	4 240	3 660
Other Generation¹¹	–	–	–	–	–	–	–	–
Overall Total⁷	127 000	149 000	153 000	148 000	149 000	149 000	155 000	153 000
Greenhouse Gas Intensity¹²								
<i>g GHG / kWh electricity generated</i>								
CO ₂ intensity (g CO ₂ / kWh)	200	290	220	130	94	94	65	40
CH ₄ intensity (g CH ₄ / kWh)	0.002	0.01	0.01	0.01	0.02	0.02	0.01	0.01
N ₂ O intensity (g N ₂ O / kWh)	0.003	0.005	0.004	0.003	0.002	0.002	0.002	0.001
Generation Intensity (g CO₂ eq / kWh)⁷	200	290	220	130	95	95	66	41
Unallocated Energy (GWh) ^{13,14}	10 000	12 000	12 000	15 000	16 000	15 000	22 000	18 000
SF ₆ Emissions (kt CO ₂ eq) ¹⁵	76	75	50	59	38	56	64	43
Consumption Intensity (g CO₂ eq / kWh)¹⁶	220	320	240	150	110	110	80	50

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 and Demand in Canada*, Catalogue No. 57-003-X, Statistics Canada with the exception of coal data for 2014, which was taken from CANSIM Table 127-0004.
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 CANSIM Tables 127-0006 and 127-0007 (for 2005-2014).
9. Taken from the *Electric Power Generation, Transmission and Distribution (EPGTD)* publication, Catalogue No. 57-202-X, Statistics Canada (for 1990-2004).
10. Other Renewables - includes electricity generation by wind, tidal and solar.
11. NAICS category 221119, Other Electric Power Generation.
12. Intensity values have been rounded so as to present the estimated level of accuracy.
13. Adapted from Statistics Canada CANSIM Table 127-0008 (2005-2014) or Cat. No. 57-202-X (1990-2004).
14. Includes transmission line losses, metering differences and other losses.
15. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF₆).
16. Consumption intensity values are impacted by unallocated energy and SF₆ transmission emissions.
 - Indicates no emissions or no electricity generation
 - 0 Indicates emissions or electricity generation value less than 0.1
 - x Indicates data has been suppressed to respect confidentiality

Table A13–8 Electricity Generation and GHG Emission Details for Manitoba¹

	1990	2000	2005	2010	2011	2012	2013	2014 ²
Greenhouse Gas Emissions³								
<i>kt CO₂ equivalent</i>								
Combustion	523	1 003	329	75.5	107	88.2	99.6	105.1
Coal	x	x	x	x	x	x	x	x
Natural Gas	x	x	x	x	x	x	x	x
Other Fuels ⁴	51.0	12.2	15.8	11.5	12.9	12.9	1.7	1.7
Other Emissions⁵	–	4.8	8.8	12	12	21	16	17
Overall Total^{6,7}	523	1 008	338	87	119	109	115	122
Electricity Generation^{8,9}								
<i>GWh</i>								
Combustion	399	881	447	84	106	94	91	96
Coal	375	869	421	44.4	49.7	51.5	65.4	68.9
Natural Gas	0.904	–	10.6	22.9	41.1	27.4	24.0	25.2
Other Fuels	22.4	12.4	15.1	17.0	15.3	15.2	1.5	1.6
Steam from Waste Heat	–	–	–	–	–	–	–	–
Nuclear	–	–	–	–	–	–	–	–
Hydro	19 800	31 500	36 400	33 300	34 200	32 200	35 300	34 500
Other Renewables¹⁰	–	–	53.4	343	747	877	868	911
Other Generation¹¹	–	–	–	–	–	–	–	–
Overall Total⁷	20 200	32 400	36 900	33 700	35 100	33 200	36 300	35 500
Greenhouse Gas Intensity¹²								
<i>g GHG / kWh electricity generated</i>								
CO ₂ intensity (g CO ₂ / kWh)	26	31	9.1	2.6	3.4	3.2	3.2	3.4
CH ₄ intensity (g CH ₄ / kWh)	0.0005	0.0004	0.0002	0.0002	0.0004	0.0002	0.0003	0.0003
N ₂ O intensity (g N ₂ O / kWh)	0.001	0.001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001
Generation Intensity (g CO₂ eq / kWh)⁷	26	31	9.1	2.6	3.4	3.3	3.2	3.4
Unallocated Energy (GWh) ^{13,14}	2 100	3 750	1 900	4 600	4 600	3 600	3 800	3 900
SF ₆ Emissions (kt CO ₂ eq) ¹⁵	4.3	4.2	4.0	4.3	6.0	1.3	1.2	.9
Consumption Intensity (g CO₂ eq / kWh)¹⁶	29	35	9.7	3.1	4.1	3.7	3.6	3.9

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 and Demand in Canada*, Catalogue No. 57-003-X, 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 CANSIM Tables 127-0006 and 127-0007 (for 2005-2014).
9. Taken from the *Electric Power Generation, Transmission and Distribution (EPGTD)* publication, Catalogue No. 57-202-X, Statistics Canada (for 1990-2004).
10. Other Renewables - includes electricity generation by wind, tidal and solar.
11. NAICS category 221119, Other Electric Power Generation.
12. Intensity values have been rounded so as to present the estimated level of accuracy.
13. Adapted from Statistics Canada CANSIM Table 127-0008 (2005-2014) or Cat. No. 57-202-X (1990-2004).
14. Includes transmission line losses, metering differences and other losses.
15. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF₆).
16. Consumption intensity values are impacted by unallocated energy and SF₆ transmission emissions.
 - Indicates no emissions or no electricity generation
 - 0 Indicates emissions or electricity generation value less than 0.1
 - x Indicates data has been suppressed to respect confidentiality

Table A13–9 Electricity Generation and GHG Emission Details for Saskatchewan¹

	1990	2000	2005	2010	2011	2012	2013	2014 ²
Greenhouse Gas Emissions³								
<i>kt CO₂ equivalent</i>								
Combustion	11 200	14 600	15 300	16 200	15 700	16 200	15 100	15 800
Coal	x	x	x	x	x	x	x	x
Natural Gas	x	x	x	x	x	x	x	x
Other Fuels ⁴	6.77	10.9	4.50	0.280	7.20	6.64	0.28	6.37
Other Emissions⁵	–	10	18	30	30	31	35	35
Overall Total^{6,7}	11 200	14 600	15 300	16 300	15 700	16 200	15 200	15 800
Electricity Generation^{8,9}								
<i>GWh</i>								
Combustion	9 660	14 100	14 800	15 100	13 600	13 900	15 300	13 800
Coal	9 340	11 400	12 200	12 100	11 600	11 400	11 800	9 300
Natural Gas	308	2 660	2 610	3 040	2 000	2 490	3 510	4 430
Other Fuels	8.78	12.5	12.0	17.7	10.0	9.30	12.42	8.94
Steam from Waste Heat	–	–	–	628	342	458	878	1 128
Nuclear	–	–	–	–	–	–	–	–
Hydro	4 210	3 050	4 570	3 870	4 640	4 240	4 450	4 710
Other Renewables¹⁰	–	–	91.9	507	608	655	640	615
Other Generation¹¹	–	–	–	–	–	–	–	–
Overall Total⁷	13 900	17 100	19 500	20 100	19 200	19 300	21 300	20 200
Greenhouse Gas Intensity¹²								
<i>g GHG / kWh electricity generated</i>								
CO ₂ intensity (g CO ₂ / kWh)	800	850	780	800	810	830	710	780
CH ₄ intensity (g CH ₄ / kWh)	0.02	0.03	0.03	0.04	0.04	0.05	0.04	0.05
N ₂ O intensity (g N ₂ O / kWh)	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Generation Intensity (g CO₂ eq / kWh)⁷	810	850	790	810	820	840	710	780
Unallocated Energy (GWh) ^{13,14}	1 300	1 700	1 400	1 300	1 000	1 100	1 900	1 000
SF ₆ Emissions (kt CO ₂ eq) ¹⁵	1.8	1.7	1.3	1.3	1.2	0.75	0.91	0.42
Consumption Intensity (g CO₂ eq / kWh)¹⁶	890	950	850	860	860	890	780	820

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 and Demand in Canada*, Catalogue No. 57-003-X, 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 CANSIM Tables 127-0006 and 127-0007 (for 2005–2014).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-X, Statistics Canada (for 1990–2004).
10. Other Renewables - includes electricity generation by wind, tidal and solar.
11. NAICS category 221119, Other Electric Power Generation.
12. Intensity values have been rounded so as to present the estimated level of accuracy.
13. Adapted from Statistics Canada CANSIM Table 127-0008 (2005–2014) or Cat. No. 57-202-X (1990–2004).
14. Includes transmission line losses, metering differences and other losses.
15. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF₆).
16. Consumption intensity values are impacted by unallocated energy and SF₆ transmission emissions.
 - Indicates no emissions or no electricity generation
 - 0 Indicates emissions or electricity generation value less than 0.1
 - x Indicates data has been suppressed to respect confidentiality

Table A13–10 Electricity Generation and GHG Emission Details for Alberta¹

	1990	2000	2005	2010	2011	2012	2013	2014 ²
Greenhouse Gas Emissions³								
<i>kt CO₂ equivalent</i>								
Combustion	39 800	50 300	52 000	49 100	48 800	47 000	48 200	48 900
Coal	38 100	44 200	46 800	x	x	38 500	40 700	41 400
Natural Gas	1 700	5 740	5 170	x	x	8 490	7 520	7 490
Other Fuels ⁴	11.9	301	68.4	18.3	20.8	18.7	18.5	17.8
Other Emissions⁵	–	5.7	10	5.6	13	23	6	14
Overall Total^{6,7}	39 800	50 300	52 000	49 100	48 800	47 100	48 200	48 900
Electricity Generation^{8,9}								
<i>GWh</i>								
Combustion	39 900	51 300	54 200	51 700	62 100	52 000	53 200	55 700
Coal	37 300	40 700	42 200	41 000	46 300	37 300	38 500	42 900
Natural Gas	2 510	10 200	11 600	10 200	15 200	14 100	14 100	12 100
Other Fuels	21.6	443	424	501	542	630	630	609
Steam from Waste Heat	–	–	32.4	1 500	1 890	2 240	2 230	2 010
Nuclear	–	–	–	–	–	–	–	–
Hydro	2 060	1 760	2 240	1 480	1 970	2 570	1 990	1 820
Other Renewables¹⁰	–	88.9	837	1 630	2 220	2 290	2 260	2 170
Other Generation¹¹	–	–	–	–	–	–	–	–
Overall Total⁷	41 900	53 200	57 300	56 400	68 200	59 100	59 700	61 700
Greenhouse Gas Intensity¹²								
<i>g GHG / kWh electricity generated</i>								
CO ₂ intensity (g CO ₂ / kWh)	940	940	900	860	710	790	800	790
CH ₄ intensity (g CH ₄ / kWh)	0.02	0.04	0.03	0.03	0.03	0.04	0.04	0.04
N ₂ O intensity (g N ₂ O / kWh)	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02
Generation Intensity (g CO₂ eq / kWh)⁷	950	950	910	870	720	800	810	790
Unallocated Energy (GWh) ^{13,14}	3 400	4 100	4 900	9 800	17 400	8 400	0	1 800
SF ₆ Emissions (kt CO ₂ eq) ¹⁵	1.6	1.6	0.43	1.01	1.16	3.1	2.4	3.1
Consumption Intensity (g CO₂ eq / kWh)¹⁶	1 000	1 000	990	1 100	1 000	930	810	820

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 and Demand in Canada*, Catalogue No. 57-003-X, 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 CANSIM Tables 127-0006 and 127-0007 (for 2005-2014).
9. Taken from the *Electric Power Generation, Transmission and Distribution (EPGTD)* publication, Catalogue No. 57-202-X, Statistics Canada (for 1990-2004).
10. Other Renewables - includes electricity generation by wind, tidal and solar.
11. NAICS category 221119, Other Electric Power Generation.
12. Intensity values have been rounded so as to present the estimated level of accuracy.
13. Adapted from Statistics Canada CANSIM Table 127-0008 (2005-2014) or Cat. No. 57-202-X (1990-2004).
14. Includes transmission line losses, metering differences and other losses.
15. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF₆).
16. Consumption intensity values are impacted by unallocated energy and SF₆ transmission emissions.
 - Indicates no emissions or no electricity generation
 - 0 Indicates emissions or electricity generation value less than 0.1
 - x Indicates data has been suppressed to respect confidentiality

Table A13–11 Electricity Generation and GHG Emission Details for British Columbia¹

	1990	2000	2005	2010	2011	2012	2013	2014 ²
Greenhouse Gas Emissions³								
<i>kt CO₂ equivalent</i>								
Combustion	807	1 940	1 330	1 230	773	678	830	783
Coal	–	–	–	–	–	–	–	–
Natural Gas	x	x	x	x	x	x	539	518
Other Fuels ⁴	x	x	x	x	x	x	291	265
Other Emissions⁵	–	2.5	4.6	6.0	6.5	7.2	6.7	7.4
Overall Total^{6,7}	807	1 940	1 340	1 230	780	685	837	791
Electricity Generation^{8,9}								
<i>GWh</i>								
Combustion	1 390	3 930	3 820	3 050	1 810	1 510	1 820	1 670
Coal	–	–	–	–	–	–	–	–
Natural Gas	1 310	3 350	3 140	1 850	1 150	712	892	891
Other Fuels	79.4	585	689	1 210	660	798	926	779
Steam from Waste Heat	–	–	–	651	38.8	27.6	80.2	45.6
Nuclear	–	–	–	–	–	–	–	–
Hydro	46 400	50 800	50 300	45 000	51 700	55 800	50 500	49 000
Other Renewables¹⁰	–	–	–	123	187	158	152	849
Other Generation¹¹	–	–	–	2 980	2 510	2 720	2 440	2 240
Overall Total⁷	47 800	54 700	54 100	51 800	56 300	60 200	55 000	53 900
Greenhouse Gas Intensity¹²								
<i>g GHG / kWh electricity generated</i>								
CO ₂ intensity (g CO ₂ / kWh)	17	35	24	23	13	11.1	14.9	14.3
CH ₄ intensity (g CH ₄ / kWh)	0.004	0.009	0.007	0.007	0.004	0.003	0.003	0.003
N ₂ O intensity (g N ₂ O / kWh)	0.0006	0.001	0.0015	0.0015	0.0011	0.0007	0.0009	0.0009
Generation Intensity (g CO₂ eq / kWh)⁷	17	35	25	24	14	11.4	15.2	14.7
Unallocated Energy (GWh) ^{13,14}	2 200	2 300	2 100	1 900	810	900	0	unk
SF ₆ Emissions (kt CO ₂ eq) ¹⁵	57	56	48	59	27	47	42	25
Consumption Intensity (g CO₂ eq / kWh)¹⁶	19	38	27	26	15	12.3	16.0	14.7

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 and Demand in Canada*, Catalogue No. 57-003-X, 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 CANSIM Tables 127-0006 and 127-0007 (for 2005–2014).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-X, Statistics Canada (for 1990–2004).
10. Other Renewables - includes electricity generation by wind, tidal and solar.
11. NAICS category 221119, Other Electric Power Generation.
12. Intensity values have been rounded so as to present the estimated level of accuracy.
13. Adapted from Statistics Canada CANSIM Table 127-0008 (2005–2014) or Cat. No. 57-202-X (1990–2004).
14. Includes transmission line losses, metering differences and other losses.
15. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF₆).
16. Consumption intensity values are impacted by unallocated energy and SF₆ transmission emissions.
 - Indicates no emissions or no electricity generation
 - 0 Indicates emissions or electricity generation value less than 0.1
 - x Indicates data has been suppressed to respect confidentiality
 - unk Indicates unknown as appropriate data were unavailable

Table A13-12 Electricity Generation and GHG Emission Details for Yukon¹

	1990	2000	2005	2010	2011	2012	2013	2014 ²
Greenhouse Gas Emissions³								
<i>kt CO₂ equivalent</i>								
Combustion	94.4	22.3	23.1	18.8	27.8	18.6	17.7	17.2
Coal	–	–	–	–	–	–	–	–
Natural Gas	–	–	–	–	–	–	–	–
Other Fuels ⁴	94.5	22.3	23.1	18.9	27.9	18.6	17.7	17.2
Other Emissions⁵	–	–	–	–	–	–	–	–
Overall Total^{6,7}	94.5	22.3	23.1	18.9	27.9	18.6	17.7	17.2
Electricity Generation^{8,9}								
<i>GWh</i>								
Combustion	62.1	36.7	22.4	25.0	36.9	24.4	23.3	22.7
Coal	–	–	–	–	–	–	–	–
Natural Gas	–	–	–	–	–	–	–	–
Other Fuels	62.1	36.7	22.4	25.0	36.9	24.4	23.3	22.7
Steam from Waste Heat	–	–	–	–	–	–	–	–
Nuclear	–	–	–	–	–	–	–	–
Hydro	423	261	320	380	388	430	425	411
Other Renewables¹⁰	–	0.388	0.890	0.085	0.402	0.445	0.277	0.334
Other Generation¹¹	–	–	–	–	–	–	–	–
Overall Total⁷	485	298	344	405	425	455	449	434
Greenhouse Gas Intensity¹²								
<i>g GHG / kWh electricity generated</i>								
CO ₂ intensity (g CO ₂ / kWh)	190	72	64	45	63	39	38	38
CH ₄ intensity (g CH ₄ / kWh)	0.009	0.004	0.003	0.002	0.003	0.002	0.002	0.002
N ₂ O intensity (g N ₂ O / kWh)	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Generation Intensity (g CO₂ eq / kWh)⁷	190	75	67	47	66	41	39	40
Unallocated Energy (GWh) ^{13,14}	47	24	45	33	51	58	55	42
SF ₆ Emissions (kt CO ₂ eq) ¹⁵	–	–	–	–	–	–	–	–
Consumption Intensity (g CO₂ eq / kWh)¹⁶	220	81	77	51	74	47	45	44

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 and Demand in Canada*, Catalogue No. 57-003-X, 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 CANSIM Tables 127-0006 and 127-0007 (for 2005-2014).
9. Taken from the *Electric Power Generation, Transmission and Distribution (EPGTD)* publication, Catalogue No. 57-202-X, Statistics Canada (for 1990-2004).
10. Other Renewables - includes electricity generation by wind, tidal and solar.
11. NAICS category 221119, Other Electric Power Generation.
12. Intensity values have been rounded so as to present the estimated level of accuracy.
13. Adapted from Statistics Canada CANSIM Table 127-0008 (2005-2014) or Cat. No. 57-202-X (1990-2004).
14. Includes transmission line losses, metering differences and other losses.
15. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF₆).
16. Consumption intensity values are impacted by unallocated energy and SF₆ 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 and Nunavut¹

	1990	2000	2005	2010	2011	2012	2013	2014 ²
Greenhouse Gas Emissions³								
<i>kt CO₂ equivalent</i>								
Combustion	163	190	219	192	142	142	139	210
Coal	–	–	–	–	–	–	–	–
Natural Gas	–	8.25	27.7	19.7	17.2	3.47	3.66	4.82
Other Fuels ⁴	164	182	191	173	125	139	135	205
Other Emissions⁵	–	1.5	4.6	0	–	–	–	–
Overall Total^{6,7}	164	191	224	192	142	142	139	210
Electricity Generation^{8,9}								
<i>GWh</i>								
Combustion	227	195	219	247	181	181	183	267
Coal	–	–	–	–	–	–	–	–
Natural Gas	–	15.8	23.3	27.5	23.7	5.63	5.77	7.53
Other Fuels	227	179	196	220	157	175	177	259
Steam from Waste Heat	–	–	–	–	–	–	–	–
Nuclear	–	–	–	–	–	–	–	–
Hydro	226	247	259	254	260	253	263	234
Other Renewables¹⁰	–	–	–	–	–	–	–	–
Other Generation¹¹	–	–	–	–	–	–	–	–
Overall Total⁷	453	442	478	501	442	434	446	501
Greenhouse Gas Intensity¹²								
<i>g GHG / kWh electricity generated</i>								
CO ₂ intensity (g CO ₂ / kWh)	350	410	450	370	310	310	300	400
CH ₄ intensity (g CH ₄ / kWh)	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02
N ₂ O intensity (g N ₂ O / kWh)	0.05	0.06	0.06	0.05	0.04	0.05	0.04	0.06
Generation Intensity (g CO₂ eq / kWh)⁷	360	430	470	380	320	330	310	420
Unallocated Energy (GWh) ^{13,14}	21	21	50	41	38	21	30	10
SF ₆ Emissions (kt CO ₂ eq) ¹⁵	–	–	–	–	–	–	–	–
Consumption Intensity (g CO₂ eq / kWh)¹⁶	380	450	520	420	350	340	330	430

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 and Demand in Canada*, Catalogue No. 57-003-X, 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 CANSIM Tables 127-0006 and 127-0007 (for 2005–2014).
9. Taken from the *Electric Power Generation, Transmission and Distribution* (EPGTD) publication, Catalogue No. 57-202-X, Statistics Canada (for 1990–2004).
10. Other Renewables - includes electricity generation by wind, tidal and solar.
11. NAICS category 221119, Other Electric Power Generation.
12. Intensity values have been rounded so as to present the estimated level of accuracy.
13. Adapted from Statistics Canada CANSIM Table 127-0008 (2005–2014) or Cat. No. 57-202-X (1990–2004).
14. Includes transmission line losses, metering differences and other losses.
15. The electric utility sector's share of emissions from electrical equipment from CRF Category 2.F.viii (Production and Consumption of Halocarbons and SF₆).
16. Consumption intensity values are impacted by unallocated energy and SF₆ transmission emissions.
 - Indicates no emissions or no electricity generation
 - 0 Indicates emissions or electricity generation value less than 0.1

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Annex 8, Rounding Protocol

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