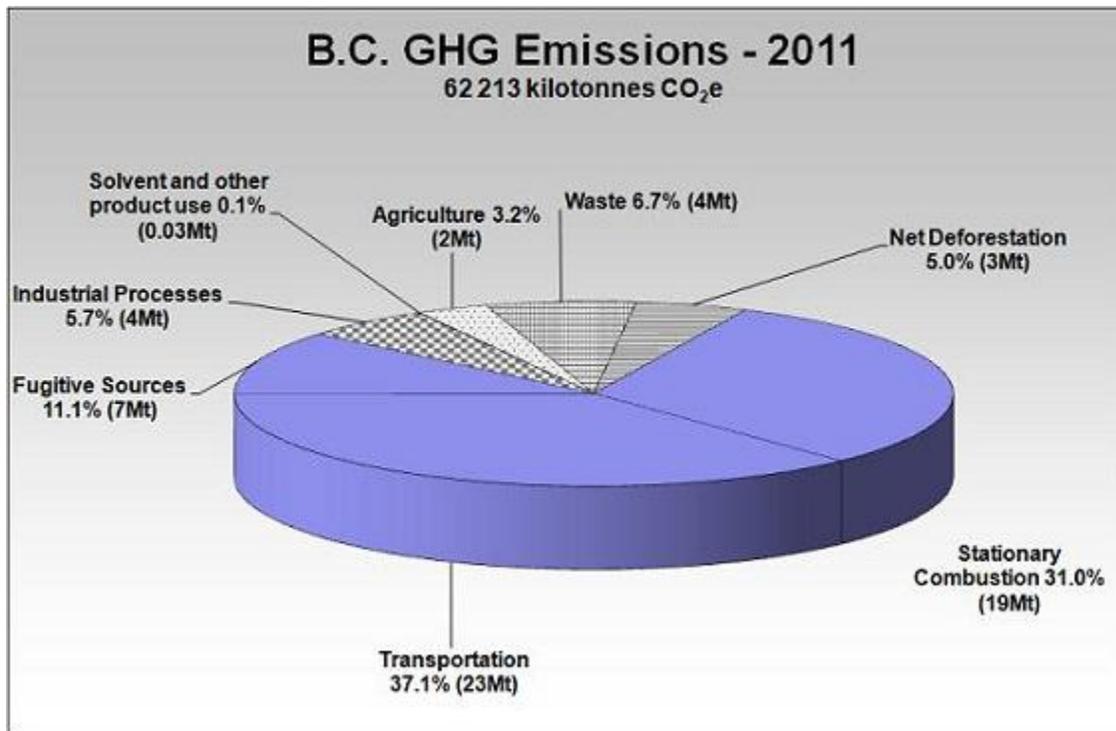


B.C. Greenhouse Gas Emissions 2011

Total GHG emissions in British Columbia in 2011 were 62.2 megatonnes carbon dioxide equivalent (Mt CO₂e).

GHG emissions are attributed to six defined sectors — energy (with three sub-sectors), industrial processes, solvents and other product use, agriculture, waste and afforestation and deforestation — following national and international reporting protocols. These sectors, and energy sub-sectors, are shown in the pie graph and described in the table below.



SECTOR	DESCRIPTION
ENERGY	Emissions from stationary and transport fuel combustion and fugitive emissions from the fossil fuel industry.
Sub-sector a:	Emissions from stationary devices that combust solid, liquid or gaseous fuel

Stationary Combustion	in order to generate useful heat or electricity (excluding devices used in pipeline transport). Emissions are broken down by the following industrial sectors: electricity and heat generation; fossil fuel industries; mining and oil and gas extraction; manufacturing; construction; commercial and institutional; and residential.
Sub-sector b: Transport	Emissions from mobile devices that combust liquid or gaseous fuels for the purpose of generating useful energy (including stationary devices used in pipeline transport). Emissions are broken down by the following vehicle categories: domestic aviation; road transportation; railways; domestic marine; off-road transportation; and pipelines.
Sub-sector c: Fugitive Emissions	Intentional or unintentional emissions from: the production, processing, transmission, storage and delivery of fossil fuels; and the combustion of fossil fuels not used to generate useful heat or electricity.
INDUSTRIAL PROCESSES	Emissions from chemical reactions used in industry that physically or chemically transform materials (occurring during the production of cement, lime, aluminum, other base metals and hydrogen) and fugitive emissions from the use of halocarbons and sulphur hexafluoride in various applications.
SOLVENT & OTHER PRODUCT USE	Fugitive emissions of nitrous oxide when the gas is used as an anaesthetic or propellant.
AGRICULTURE	Emissions from enteric fermentation (digestive processes of ruminant animals such as cattle), manure management and agricultural soils.
WASTE	Emissions from solid waste decomposition at landfills, wastewater treatment and waste incineration.
AFFORESTATION & DEFORESTATION	Emissions from deforestation (i.e., releases at the time of deforestation and the residual decay of dead organic matter) and removals from afforestation (i.e., new trees absorbing and storing CO ₂ from the atmosphere).

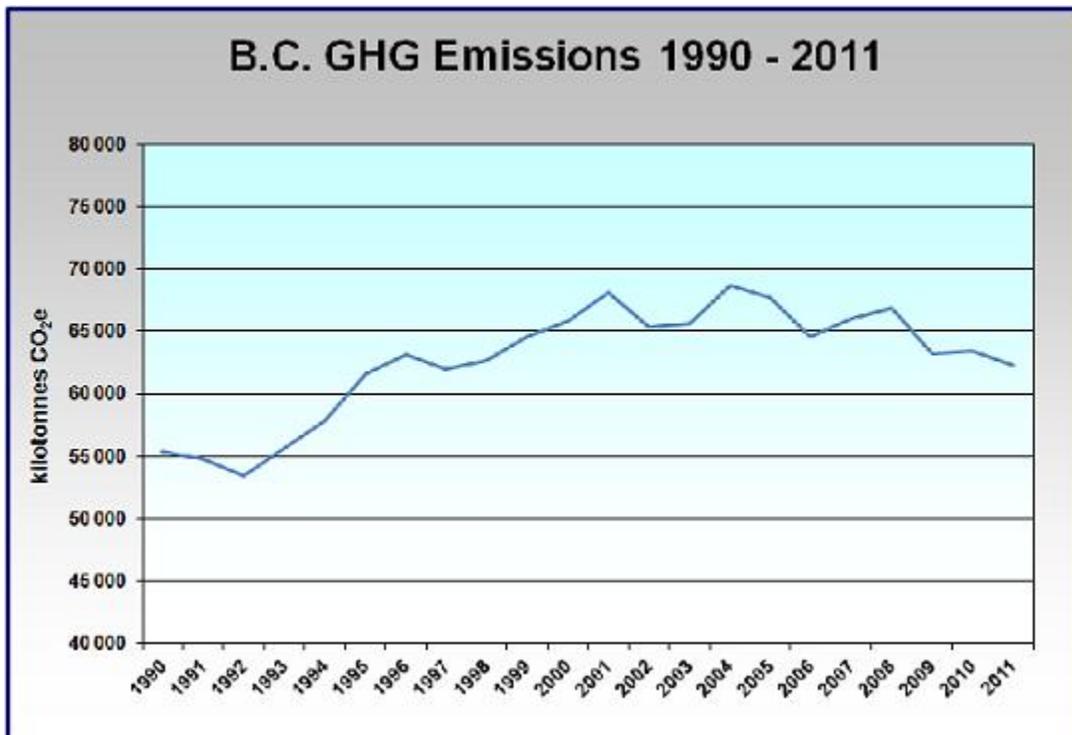


B.C. GHG Emissions by Sector - 1990 to 2011

The [Summary of GHG Emissions, 1990 - 2011](#) (XLS) provides a summary of GHG emissions for B.C. by category for the 1990 to 2010 years. Note that the table includes “Other Land Use” emissions categories. These memo items are reported for transparency and GHG accounting purposes but are not included in total British Columbia GHG emissions. Refer to Chapter 1 of the BC Provincial GHG Inventory Report 2010 for additional information regarding GHG emissions accounting and reporting protocols and procedures.

Trends in Emissions

Total annual GHG emissions in British Columbia decreased by 5.7 per cent between 2007 and 2011 (from 66.0 Mt in 2007) and also by 8.7 per cent (from 68.1 Mt) over the ten year period from 2001 to 2011. From 2010 to 2011 GHG emissions decreased by 1.8 per cent (from 63.4 Mt to 62.2 Mt CO₂e). Note that annual emissions estimates are revised to incorporate data and methodology improvements, hence reported emissions for previous years will change in each inventory report.



SECTOR	2011 GHG Emissions (kt CO ₂ e)	4-Year Change (2007-2011)	10-Year Change (2001-2011)

ENERGY	49 300	-4.3%	-9.4%
INDUSTRIAL PROCESSES	3 588	-22.8%	+9.2%
SOLVENT & OTHER PRODUCT USE	32	-23.3%	-40.0%
AGRICULTURE	2 058	-13.0%	-20.0%
WASTE	4 111	+2.4%	+5.0%
AFFORESTATION & DEFORESTATION	2 904	-9.2%	-20.1%



Sector Trends

Energy Sector – Annual energy sector emissions decreased by 4.3 per cent between 2007 and 2011 and by 9.4 per cent over the ten year period from 2001 to 2011. The short-term (2010-2011) decrease of 1.2 per cent can be attributed to reduced fossil fuel based electricity generation, and some reductions in the transportation sector. However, increased emissions from fugitive sources counterbalance some of those reductions. The economic recession of 2008-2009, and recovery continues to create emissions volatility in the energy sector through fluctuations in economic activity levels. Within the energy sector over the four-year period between 2007 and 2011, both stationary and mobile (transport) combustion emissions have decreased by between 7 and 8 percent, while emissions from fugitive sources have increased 20 per cent over that period.

Industrial Process Sector – Emissions reported under the industrial process category decreased by 22.8 per cent between 2007 and 2011 and but increased by 9.2 per cent between 2001 and 2011. Factors influencing these different emissions patterns over different timescales include significant emissions growth leading up to 2007 in the mineral products sector, followed by emissions decline since then, much of which can be attributed to economic recession. Metal smelting emissions have been declining since 1998 and also contributed to reduced overall industrial process sector emissions since 2007.

Solvent and Other Product Use Sector – Emissions for this sector decreased by 23.3 per cent between 2007 and 2011 and by 40.0 per cent between 2001 and 2011. The sector only represents 0.1 per cent of the overall emissions for British Columbia.

Agriculture Sector – Annual agriculture sector emissions decreased by 13.0 per cent between 2007 and 2011, and by 20.0 per cent between 2001 and 2011. Changes can be attributed for the most part to methane (CH₄) emissions from enteric fermentation (the largest source of agriculture sector emissions).

Waste Sector – Waste sector emissions increased by 2.4 per cent between 2007 and 2011 and by 5.0 per cent between 2001 and 2011. Increases in the quantity of waste generated and sent to landfills, and ongoing emissions from historical waste stored in landfills, have to this point overshadowed the emissions reductions associated with diversion of wastes and the capture, flaring and beneficial use of CH₄ at landfills.

Afforestation and Deforestation – Net emissions in the afforestation and deforestation sector were approximately 3.14 Mt CO₂e in 2011, 5.0 per cent of total B.C. emissions. This included 3.16 Mt CO₂e of emissions from deforestation and 0.020 Mt CO₂e of removals from afforestation. Net GHG emissions from afforestation and deforestation decreased 9.2 per cent between 2007 and 2011 and by 20.1 per cent between 2001 and 2011. Net emissions are influenced primarily by the size of deforested area and forest characteristics (i.e., geographic location, growing conditions, tree species, density and age). Decreases in emissions can be attributed to decreases in the area of deforestation from year to year, particularly in the agricultural sector.

Other Land Use ([Memo items](#) not included in total B.C. GHG emissions) – Emissions associated with “other land use” categories decreased by 19.1 per cent between 2007 and 2011. From 2001 to 2011, “other land use” categories collectively changed from a net sink of GHGs (approximately 30.4 Mt CO₂e removed from the atmosphere in 2001) to a net source in 2011 (approximately 35.2 Mt CO₂e emitted to the atmosphere). This transition can be attributed in large part to the impacts of the mountain pine beetle (MPB) outbreak – which attacked living forests that act as a sink for GHGs and resulted in large areas of dead and decomposing trees. Net emissions associated with these categories are also influenced by wildfires, slash burning and wood harvesting. Because of the large inter-annual fluctuations in emissions from natural disturbances, and wildfires in particular, other land uses emissions are highly volatile, and an assessment of the difference in emissions from any single year to any other single year, is not a meaningful indicator of the trend in emissions from this sector.