

Greenhouse gas emissions in the Yukon

Climate change has been recognized as an issue requiring international action.

Canada has joined with over 100 other countries in ratifying, approving, accepting or acceding to the Kyoto Protocol for reducing greenhouse gas emissions. In Canada's case this means that we as a nation have committed to reducing our greenhouse gas emissions to a level 6% below 1990 levels by the year 2012. Achieving this commitment will call for a cooperative effort among government, industry, and individual Canadians. In order to make the necessary reductions, we must first understand the contributions of various sectors of our economy to our overall greenhouse gas emissions.

The Yukon situation

The pie chart to the right shows greenhouse gas emissions by sector for the year 2000; however, it is just a snapshot in time. The data comes from Environment Canada's greenhouse gas inventory, and the categories conform with Intergovernmental Panel on Climate Change (IPCC) protocols. In the Yukon it is difficult to evaluate the relative contributions of sectors due to the cyclical nature and size of some of the Yukon's mining operations. For example, when operating, the Faro mine used approximately 40% of all the power generated in the Yukon. The mine's operation also significantly increased emissions produced by the transportation sector.

The remainder of this bulletin deals with the sources of emissions in each sector and methods of reducing these emissions.

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Emissions by sector

TRANSPORTATION (47%)

This sector includes emissions from personal vehicles as well as emissions from the transportation industry, including freight delivery and buses. Because of the Yukon's location and the distance between communities, transportation emissions are the largest single source of greenhouse gas emissions produced in the Yukon. We rely on the transportation network to deliver a large proportion of the goods we consume on a regular basis. As well, because of our small population and large geographical area, the opportunities for

developing public transportation within and between communities are limited.

Bulletin 4 of this series provides more detailed information on reducing greenhouse gas emissions from personal vehicles.

ENERGY INDUSTRIES (19%)

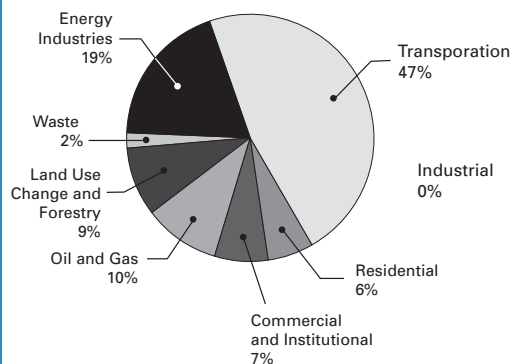
This sector includes emissions produced by power generation as well as emissions from the mining industry. The amount of emissions being produced by this sector varies considerably depending on production from the mining sector. Between 1990 and 1999, Yukon's total CO₂ emissions varied between 436 and 759 kilotonnes per year. Much of this variation can be attributed to the operation or shutdown of various Yukon mines.

The Yukon depends on a number of sources of power to supply our needs. The Whitehorse-Aishihik-Faro (WAF) grid supplies power generated by dams at Aishihik Lake and on the Yukon River at Whitehorse. A small portion of the power supplied by the WAF grid is currently supplied by two wind turbines located on Haeckel Hill in Whitehorse.

The Mayo dam provides power to the Village of Mayo, with a power line to Dawson supplying that community's power needs since 2003.

Other Yukon communities rely on diesel generators to supply their power.

Yukon Greenhouse Gas Emissions
by Sector, 2000



Energy industries include fossil fuel industries, electricity and heat generation, and mining.

Industrial includes manufacturing, construction and industrial processes.

Land use changes include tree harvesting and clearing of land.

Graph Source: Yukon Government.

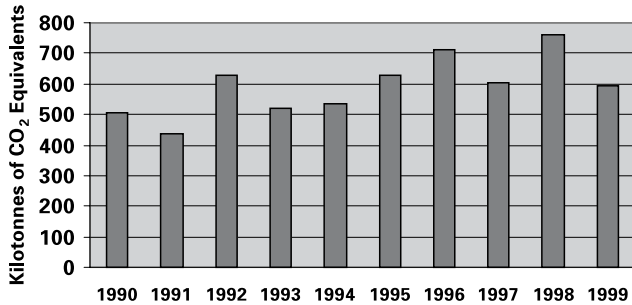


Yukon
College

Yukon
Government

Canada

Yukon Emissions of Greenhouse Gases (1990-1999)



Graph Source: Department of Energy, Mines and Resources, Yukon Government

The choices we make as consumers can reduce energy use at home. Buying Energy Star® rated appliances will reduce energy demand.

OIL AND GAS (10%)

Currently, contributions from this sector are made up almost entirely of emissions from the Kotaneelee gas field in south-eastern Yukon. The emissions from Kotaneelee come mainly from some initial processing of the gas before shipment. Further oil and gas exploration and development has the potential to increase emissions by this sector through processing, transmission, and flaring.

LAND USE AND FORESTRY (9%)

This sector includes tree harvesting as well as the clearing of land. Vegetation absorbs carbon dioxide, and the clearing of land and burning of debris contributes to our overall emissions. Methane, another greenhouse gas, can be released when permafrost in tundra areas is thawed by ground disturbance or a warmer climate.

In the Yukon, greenhouse gases are released in forestry operations during

harvesting and processing of raw lumber products.

COMMERCIAL AND INSTITUTIONAL (7%)

This sector includes small business as well as government. Small business has a role to play in greenhouse gas reduction. Reducing energy use and emissions can help a business become more efficient and reduce costs.

The institutional sector includes different levels of government. The federal, territorial, municipal and First Nation governments all have an important role to play in reducing emissions. Each of these levels of government has a number of initiatives underway to reduce its impact on the environment.

RESIDENTIAL (6%)

Most of the emissions from this sector come from the burning of fossil fuels to heat our homes. The choices we make as

consumers can reduce energy use at home. Buying Energy Star® rated appliances will reduce energy demand. Regular maintenance of your furnace will keep it running efficiently and save on energy bills.

Bulletin 3 of this series provides more detailed information about simple steps you can take to make your home more energy efficient.

WASTE (2%)

The process of disposing of waste generates greenhouse gas emissions. As organic matter decomposes in a landfill, methane, a powerful greenhouse gas, is produced. In some areas of southern Canada, this methane is captured and used to generate energy. In certain Yukon communities waste in landfills is burned to reduce its volume. This releases greenhouse gases and toxic fumes into the atmosphere. Emissions from this sector can be reduced by buying in bulk, shopping for goods with minimal packaging, recycling, and composting.

INDUSTRIAL (0%)

This sector includes manufacturing, construction, and industrial processes. In 2000 there were no large-scale industrial activities taking place in the Yukon; hence the emissions from this sector do not register on this chart.

Additional information

Climate Change Plan for Canada
http://www.climatechange.gc.ca/plan_for_canada/index.html

Yukon Climate Change Initiatives
<http://www.environmentyukon.gov.yk.ca/epa/content/initiatives.pdf>

Canada Yukon Energy Solutions Centre
<http://www.nrgsc.yk.ca/>

Federation of Canadian Municipalities Partners for Climate Protection
http://www.fcm.ca/newfcm/Java/.../scep/support/PCP/pcp_index.htm

Yukon Energy Wind Page
http://www.yec.yk.ca/main.php?inline=frame_wind.htm&hilo=gonz