

2005 Corporate Inventory of Greenhouse Gas Emissions Summary

Commitment and objective

Montréal is committed to reduce its municipal greenhouse gas (GHG) emissions by 20% by 2012, based on 2002 levels. To achieve this objective, a "Climate Protection Corporate Action Plan," containing twelve actions, was adopted. Inventories are carried out to monitor progress and to determine greenhouse gas emission trends of the City of Montréal. In 2005, the City included 27 boroughs, covering the entire island of Montréal.

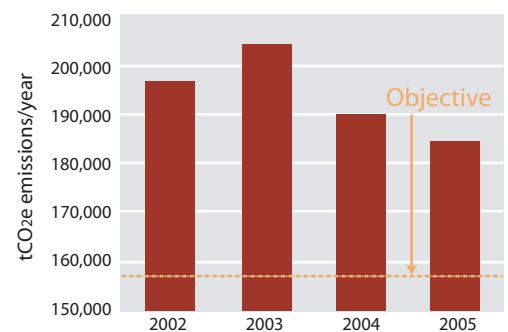
Reducing our energy consumption allows us to save money and to reduce our greenhouse gas emissions.

Where are we now?

In 2005, GHG emissions for the City of Montréal totalled 185,000 tonnes of CO₂e. This is a 2.5% drop over 2004. Better still, emissions in 2005 were 5.6% lower than in 2002. Although mitigated by a 1.7% increase in transportation needs (in relation to 2004), this net reduction in emissions is primarily the result of a decrease in the energy needs of buildings and equipment.

The main source of corporate GHG emissions for the City of Montréal is natural gas combustion, followed by vehicle fuel and indirect emissions from electricity consumption. Energy consumption (natural gas, diesel,

Evolution of emissions

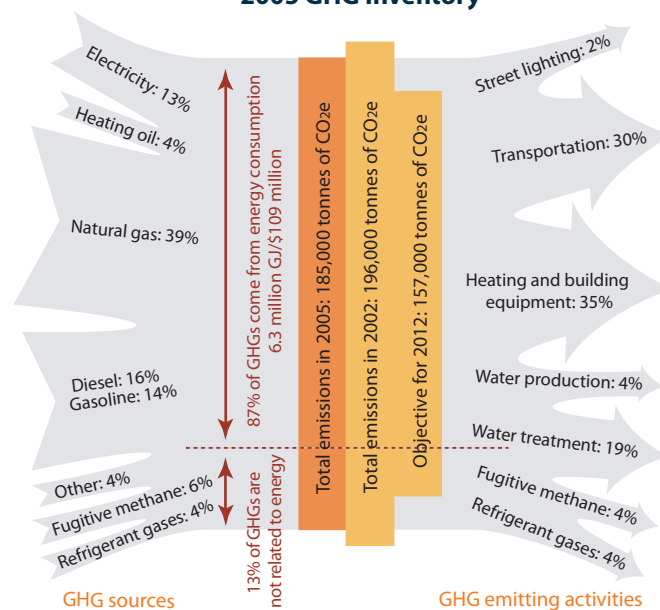


gasoline, heating oil and electricity) accounts for 87% of total municipal emissions. For the year 2005, municipal services consumed 6.3 million gigajoules (GJ) of energy of various kinds, representing costs of \$109 million. With fossil fuels becoming increasingly scarce and international demand growing, municipal administrations must prepare for an increase in energy supply costs.

The City of Montréal's GHG emissions come primarily from the following activities:

- heating and building operation (35%)
- transportation (30%)
- waste water treatment (19%)

2005 GHG Inventory





Performance indicators and comparisons

To direct and monitor the actions for reducing GHGs (and energy consumption), several performance indicators have been created, in particular for heating. In 2005, energy efficiency measures were implemented at the wastewater treatment plant to record emission reductions in the form of CO₂ credits. These carbon credits were then certified and sold by private agreement, positioning the City of Montréal as a leader in this field.

Indicator 1: GHG emissions intensity of buildings by administrative unit. This indicator aims to compare administrative units according to the average intensity of GHG emissions for a same quantity of energy.

Emissions of 11 kg CO₂/GJ were attributed to the borough of Pierrefonds—Senneville, which uses mostly electricity to heat its buildings. However, Pointe-Claire, which heats its buildings with oil, saw its emissions amount to 36 kg CO₂/GJ. Regardless of the total quantity of energy

consumed, Pointe-Claire generates three times more GHGs than Pierrefonds—Senneville for each joule produced. The average GHG emissions intensity is 20.5 kg CO₂/GJ.

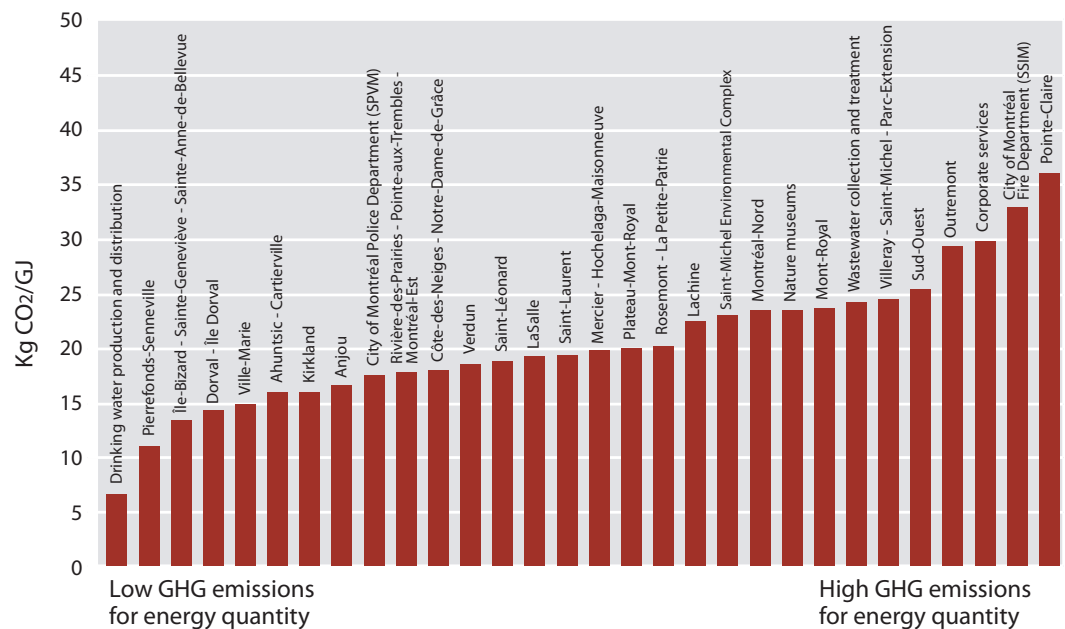
Indicator 2: Energy performance of buildings according to usage. This indicator compares the most energy-efficient building with the least energy-efficient ones. More specifically, this indicator compares the amount of energy consumed with the average consumption of other buildings used for similar purposes.

Average consumption by usage

Consumption usage	Annual average (in GJ/m ²)
Library	1.25
Office	1.34
Fire station	1.41
Cultural centre, theatre, museum	1.04
Sports / recreation centre	1.58
Chalet / Hut / Shelter	2.19
Warehouse	0.67
Garage / Shop	1.70
Arena, curling	1.84
Indoor pool	2.27
Police station	1.61

Using electricity, geothermy or other renewable energies instead of oil and fossil fuels automatically leads to reductions in GHG emissions.

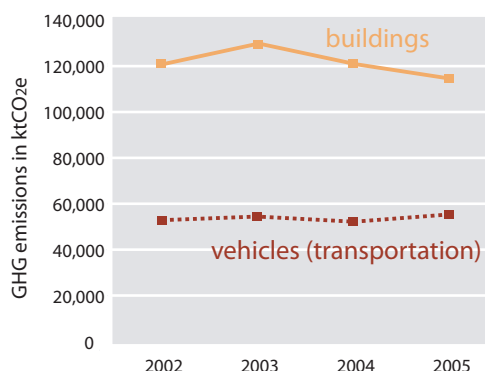
Intensity of GHG emissions by administrative unit



Using this indicator, all municipal buildings in inventory were ranked according to their energy performance. Montréal developed the tools to act and monitor reductions resulting from projects carried out or to come.

The positive performance in terms of emissions reductions achieved by energy efficiency measures in buildings was mitigated by the continual increase of transportation needs. It is therefore important to rapidly implement policies related to vehicles and travel.

Evolution of building and vehicle emissions



The 25 buildings with the most energy savings potential

Building name	Location (and unit responsible)	Usage	Potential savings	
			(GJ)	(\$)
Gosford Building, Municipal Court	Ville-Marie (Corp.)	Office	13,068	240,000
Raymond-Bourque Sports Centre	Saint-Laurent	Arena	11,193	200,000
Garage, Des Carrières Yard	Rosemont – La Petite-Patrie (Corp.)	Garage / Shop	7,509	140,000
Saint-Michel Arena	Villeray – Saint-Michel – Parc-Extension	Arena	7,349	140,000
Viau Municipal Shops	Mercier – Hochelaga-Maisonneuve (Corp.)	Garage / Shop	6,460	120,000
Louvain Distribution Centre (store 1)	Ahuntsic – Cartierville (Corp.)	Warehouse	5,795	110,000
Warehouse Technical Centre, Mechanical Garage	Lachine	Office	4,819	90,000
Côte-des-Neiges Sports Centre	Côte-des-Neiges – Notre-Dame-de-Grâce	Sports / recreation centre	4,261	80,000
Madison Building, C.S.M. Madison	Côte-des-Neiges – Notre-Dame-de-Grâce (Corp.)	Garage / Shop	3,524	60,000
Rosemont Centre	Rosemont – La Petite-Patrie	Sports / recreation centre	3,319	60,000
Père-Marquette Sports Centre	Rosemont – La Petite-Patrie	Sports / recreation centre	3,243	60,000
Operational Centre, North and surrounding area	Ahuntsic – Cartierville (SPVM)	Police station	3,228	60,000
Saint-Charles Sports Centre	Sud-Ouest	Sports / recreation centre	3,210	60,000
Montréal-Nord public works	Montréal-Nord	Office	2,903	50,000
Winter Zoo (Angrignon Park)	Sud-Ouest	Cultural centre, theatre, museum	2,851	50,000
Kirkland Sports Complex	Kirkland	Sports / recreation centre	2,711	50,000
Fleury Arena	Montréal-Nord	Arena	2,628	50,000
Incinerator (ex) (C.S.M. Dickson)	Mercier – Hochelaga-Maisonneuve (Corp.)	Garage / Shop	2,414	40,000
René-Goupil Indoor Pool (outdoor rink)	Villeray – Saint-Michel – Parc-Extension	Indoor pool	2,402	40,000
LaSalle Aquadome	LaSalle	Indoor pool	2,309	40,000
Édouard-River Recreation Centre	Montréal-Est	Cultural centre, theatre, museum	2,286	40,000
Rivière-des-Prairies Aquatic Centre	Rivière-des-Prairies – Pointe-aux-Trembles	Indoor pool	2,084	40,000
Michel-Normandin Arena	Ahuntsic – Cartierville (Corp.)	Arena	1,806	30,000
S.S.I.M. headquarters	Ville-Marie (SSIM)	Office	1,721	30,000
Municipal shops – Warehouse	Montréal-Nord	Warehouse	1,665	30,000

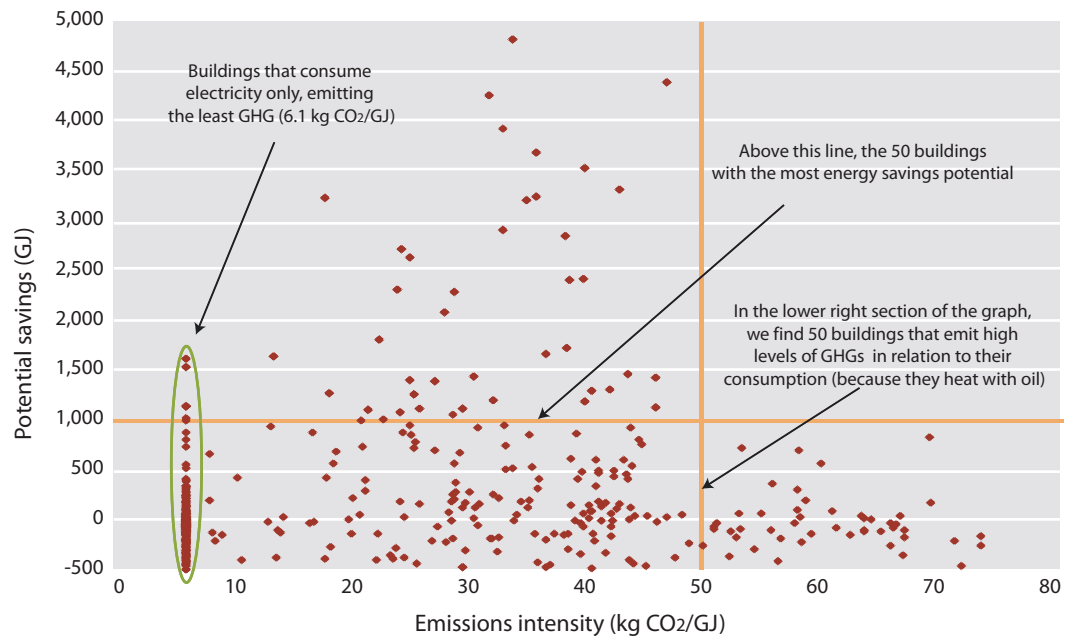
Encouraging managers of buildings identified as “less efficient” to take action is a way of reducing GHG emissions.





Better transportation planning, using more energy-efficient vehicles, using fuel derived in part from organic matter, educating drivers about responsible driving and avoiding unnecessary idling are all measures that reduce GHG emissions.

GHG emissions of municipal buildings



Conclusion

In 2005, GHG emissions of the City of Montréal totalled 185,000 tonnes of CO₂e. This is a decrease of 5.6% compared to 2002. The objective set by the “Climate Protection Corporate Action Plan” is a 20% overall reduction of emissions by 2012 as compared to 2002 levels.

Numerous initiatives are being carried out on the City of Montréal’s three primary sources of GHG emissions (buildings, transportation and

operation of the wastewater treatment plant) in order to reach the municipal administration’s GHG reduction targets.

The document entitled “Inventaire corporatif des émissions de gaz à effet de serre 2005” (2005 Corporate Inventory of Greenhouse Gas Emissions) contains all the data from the boroughs and municipal services of the Montréal administration.

Methodological note

This inventory is conducted according to an internationally recognized methodology, the ISO 14064 standard, and using emission factors from the Écogeste program. This inventory includes direct municipal emissions (resulting from the burning of natural gas, heating oil, etc.) and indirect municipal emissions (resulting from energy production). This inventory does not include emissions that are not directly under municipal control (paramunicipal organizations, goods and services suppliers, etc.).

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