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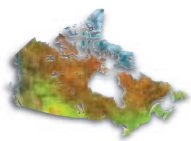
Energy Use Data Handbook

1990 to 2008



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Preface

This is the ninth edition of the *Energy Use Data Handbook, 1990 to 2008*, which fulfils part of the mandate of Natural Resources Canada's (NRCan's) Office of Energy Efficiency (OEE) to strengthen and expand Canada's commitment to energy efficiency and to reduce greenhouse gas (GHG) emissions that contribute to climate change.

The main objective of the handbook is to provide a statistical overview of Canada's sectoral energy markets. The GHG emissions figures presented here are for analytical purposes. Readers should consult Environment Canada's publication *Canada's Greenhouse Gas Inventory* for the official GHG inventory.

The ninth edition of the handbook differs from the previous ones in several ways:

- Data are presented for 1990 to 2008 for all sectors.
- In the industrial sector, the energy intensity of pulp mills and iron and steel is now presented on a gross output basis.
- In the residential sector, we incorporated a new methodology to assess changes in housing stock flow.
- In the transportation sector, the categories of small and large cars were merged into one category, due to data limitation.

The handbook covers five sectors at an aggregate level: residential, commercial/institutional, industrial, transportation and electricity generation. The year 1990 is the reference year for the Kyoto Protocol, whereas 2008 is the most recent year for which data are available.

This handbook provides data on energy use and GHG emissions as well as information on major activities and relevant indicators influencing energy use. Such data form the foundation for OEE analysis in publications such as *Energy Efficiency Trends in Canada, 1990 to 2008*, which assesses factors influencing changes in energy use and related changes in GHGs.

Preface

A comprehensive database, including most data that the OEE uses for its analysis of historical energy use and GHG emissions, is available on the following Web site: oee.nrcan.gc.ca/tables08.

For more information on this product or other services, contact the OEE by e-mail at euc.cec@nrcan-rncan.gc.ca.

This handbook was prepared by Naima Behidj, Yantao Liu, Michael Warbanski, Stéphane Leblanc and Fumiko Yamada, all staff members of the Demand Policy and Analysis Division of the OEE, which is part of NRCan. The project leader was John Appleby, with Laura Oleson and Michel Francoeur providing overall direction.

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The Data Situation

The aggregate energy use data presented in this handbook are based on Statistics Canada's *Report on Energy Supply-Demand in Canada* (Cat. No. 57-003-X), Canada's official report on the energy supply and demand balance in Canada. Greenhouse gas emissions data are estimated using emissions factors developed by Environment Canada.

The Office of Energy Efficiency has developed energy models and/or databases for each sector of the economy presented in this report (i.e. residential, commercial/institutional, industrial, transportation and electricity generation) to assess trends in energy use in the Canadian economy. The data situation for each specific sector is outlined at the beginning of the corresponding chapter of this handbook.

Crude oil and natural gas commodity prices (wholesale prices) are provided by the Oil and Gas Policy and Regulatory Affairs Division of Natural Resources Canada. The crude oil wellhead price is provided by the Energy Information Administration of the U.S. Department of Energy.

Due to rounding, the numbers in the tables may not add up or calculate to their reported totals or growth rates.

1 Total End-Use Sector

Canada's Secondary Energy Use and GHG Emissions by Energy Source

	1990	1995	2000	2001	2002
Total Energy Use (PJ)[a,b,c]	**6,936.2**	**7,437.3**	**8,095.5**	**7,896.1**	**8,192.5**
Energy Use by Energy Source (PJ)					
Electricity	1,550.1	1,670.2	1,799.1	1,797.2	1,855.0
Natural Gas	1,777.6	1,982.2	2,127.8	1,961.9	2,111.0
Motor Gasoline	1,176.5	1,214.9	1,341.8	1,358.4	1,386.0
Oil[1]	1,202.2	1,193.8	1,346.4	1,328.5	1,295.3
Aviation Gasoline	5.5	4.1	3.6	3.5	3.5
Aviation Turbo Fuel	181.9	183.2	235.9	215.1	224.6
Still Gas and Petroleum Coke	309.9	352.6	341.4	378.8	443.1
Wood Waste and Pulping Liquor	341.0	407.0	464.4	425.2	458.6
Other[2]	313.3	346.0	338.7	338.6	322.2
Residential Wood	78.1	83.4	96.4	88.9	93.4
Total GHG Emissions Including Electricity (Mt of CO_2e)[a,b,c,d]	**397.2**	**411.6**	**466.6**	**463.4**	**468.7**
GHG Emissions by Energy Source (Mt of CO_2e)					
Electricity	86.5	84.2	110.9	116.2	112.4
Natural Gas	89.5	99.1	106.5	98.0	105.4
Motor Gasoline	81.2	85.0	91.9	93.0	94.6
Oil[1]	87.4	86.5	97.8	96.5	93.8
Aviation Gasoline	0.4	0.3	0.3	0.3	0.3
Aviation Turbo Fuel	13.0	13.1	16.4	15.0	15.7
Still Gas and Petroleum Coke	15.1	17.4	17.1	19.2	22.3
Wood Waste and Pulping Liquor	0.2	0.2	0.2	0.2	0.2
Other[2]	22.2	24.1	23.5	23.3	22.1
Residential Wood	1.6	1.7	2.0	1.8	1.9
Total GHG Emissions Excluding Electricity (Mt of CO_2e)[a,b,c,d]	**310.7**	**327.4**	**355.7**	**347.2**	**356.3**

1) "Oil" includes diesel fuel oil, light fuel oil, kerosene and heavy fuel oil.
2) "Other" includes coal, coke, coke oven gas, LPG/NGL, steam and waste fuels from the cement industry.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.
c) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.
d) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

Total End-Use Sector

1

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
8,433.2	**8,571.3**	**8,511.8**	**8,284.0**	**8,825.2**	**8,720.2**	**25.7%**
1,878.1	1,902.5	1,929.6	1,877.9	1,907.3	1,962.7	26.6%
2,188.6	2,168.8	2,096.7	2,060.2	2,296.6	2,229.9	25.4%
1,408.0	1,434.8	1,429.2	1,432.0	1,476.8	1,461.6	24.2%
1,411.6	1,455.8	1,490.6	1,403.4	1,483.5	1,456.0	21.1%
3.2	2.9	3.0	3.0	3.1	3.0	-45.6%
222.5	246.2	255.8	252.8	256.6	251.7	38.4%
437.2	415.9	402.4	438.0	504.5	451.7	45.8%
468.0	514.4	468.2	383.9	439.4	458.0	34.3%
318.4	330.2	337.3	341.4	354.3	340.6	8.7%
97.7	99.9	98.9	91.6	103.1	105.0	34.3%
489.0	**487.2**	**479.0**	**471.5**	**502.9**	**487.8**	**22.8%**
120.0	112.1	106.4	105.0	111.0	106.7	23.4%
109.0	108.0	104.3	102.7	114.6	110.9	23.9%
95.9	97.4	96.8	96.8	99.7	98.7	21.5%
102.2	105.4	107.9	101.6	107.4	105.3	20.4%
0.2	0.2	0.2	0.2	0.2	0.2	-45.6%
15.5	17.2	17.8	17.6	17.9	17.5	34.6%
22.1	22.0	21.0	22.0	25.3	22.8	51.0%
0.2	0.2	0.2	0.2	0.2	0.2	27.2%
22.0	22.6	22.2	23.5	24.5	23.3	4.7%
2.0	2.0	2.0	1.9	2.1	2.1	34.3%
369.1	**375.1**	**372.5**	**366.5**	**391.9**	**381.1**	**22.6%**

1 Total End-Use Sector

Canada's Secondary Energy Use by Sector, End-Use and Sub-Sector

	1990	1995	2000	2001	2002
Total Energy Use (PJ)[a,b,e]	**6,936.2**	**7,437.3**	**8,095.5**	**7,896.1**	**8,192.5**
Residential (PJ)[a,b]	1,282.2	1,342.5	1,384.2	1,328.9	1,380.0
Space Heating	794.6	843.4	867.5	796.4	845.3
Water Heating	242.8	255.3	259.7	258.5	257.8
Appliances	182.5	177.5	184.2	189.3	187.6
Major Appliances	*153.0*	*141.6*	*136.6*	*138.1*	*134.1*
Other Appliances [1]	*29.6*	*35.9*	*47.6*	*51.2*	*53.5*
Lighting	51.7	52.3	58.8	61.3	61.0
Space Cooling	10.4	14.0	14.0	23.3	28.3
Commercial/Institutional (PJ)[a,c]	**867.0**	**960.9**	**1,072.8**	**1,060.9**	**1,131.5**
Space Heating	471.8	524.4	578.7	547.9	594.4
Water Heating	67.5	72.7	90.0	92.9	91.4
Auxiliary Equipment	83.2	97.8	133.1	141.2	146.4
Auxiliary Motors	91.1	97.1	95.9	94.1	95.1
Lighting	114.2	121.8	120.2	117.8	119.5
Space Cooling	30.2	39.3	47.2	59.2	76.9
Street Lighting[f]	8.9	7.8	7.7	7.7	7.8
Industrial (PJ)[a,e]	**2,710.0**	**2,919.8**	**3,124.4**	**3,010.8**	**3,168.1**
Mining	347.8	449.4	520.9	531.0	551.9
Pulp and Paper	726.1	794.9	853.3	754.4	777.4
Iron and Steel	219.4	247.8	257.6	228.5	239.5
Smelting and Refining	183.3	220.3	234.7	248.8	255.0
Cement	59.3	61.2	63.6	61.9	66.4
Chemicals	223.2	253.1	230.1	207.8	200.4
Petroleum Refining	323.1	302.1	295.1	311.4	381.1
Other Manufacturing	553.2	534.2	602.9	600.8	625.2
Forestry	7.7	7.9	16.2	18.3	17.1
Construction	66.9	48.9	49.9	47.9	54.2

1) "Other Appliances" includes small appliances such as televisions, video cassette recorders, digital video disc players, radios, computers and toasters.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.
c) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, August 2010.
d) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

Total End-Use Sector

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
8,433.2	**8,571.3**	**8,511.8**	**8,284.0**	**8,825.2**	**8,720.2**	**25.7%**
1,435.8	1,412.9	1,395.5	1,335.0	1,439.5	1,465.3	14.3%
898.3	882.5	856.7	804.7	904.2	920.8	15.9%
262.5	253.7	253.3	251.7	258.0	255.9	5.4%
190.0	195.3	189.9	190.5	190.2	203.0	11.2%
133.5	*134.5*	*129.0*	*126.7*	*124.2*	*129.1*	*-15.6%*
56.6	*60.8*	*60.9*	*63.8*	*66.0*	*73.9*	*149.9%*
62.9	64.2	61.3	60.9	59.6	62.7	21.1%
22.0	17.2	34.4	27.1	27.5	22.8	118.8%
1,166.5	**1,172.8**	**1,162.2**	**1,090.0**	**1,158.4**	**1,205.9**	**39.1%**
615.9	614.6	593.9	534.5	564.1	576.9	22.3%
99.0	102.1	100.8	98.2	93.4	90.6	34.2%
157.9	171.2	172.7	176.7	204.7	232.0	178.8%
94.9	96.7	88.0	88.8	95.6	108.5	19.0%
119.1	121.4	109.0	108.4	116.5	133.1	16.5%
71.7	58.9	89.4	75.0	75.3	55.7	84.1%
7.8	7.8	8.3	8.3	8.8	9.1	1.7%
3,257.8	**3,311.6**	**3,244.2**	**3,155.5**	**3,417.6**	**3,237.8**	**19.5%**
652.7	635.9	680.6	710.5	841.3	826.6	137.7%
803.7	826.2	783.2	649.5	641.9	612.4	-15.7%
233.7	235.2	236.9	233.6	244.3	212.3	-3.2%
263.3	250.2	268.5	269.3	263.8	268.7	46.6%
63.4	65.4	63.0	70.5	66.1	60.5	2.0%
191.1	213.9	207.4	208.3	215.6	200.6	-10.1%
358.6	340.3	302.0	315.3	367.8	337.1	4.3%
615.9	661.8	620.5	616.2	694.7	640.7	15.8%
18.8	22.7	21.6	21.5	19.6	18.1	134.2%
56.7	59.9	60.5	60.7	62.4	60.8	-9.1%

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e) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

f) Statistics Canada, *Electric Power Generation, Transmission and Distribution 2007*, Ottawa, June 2009 (Cat. No. 57-202-X).

Canada's Secondary Energy Use by Sector, End-Use and Sub-Sector (continued)

	1990	1995	2000	2001	2002
Total Transportation (PJ)[a]	**1,877.9**	**2,004.9**	**2,282.1**	**2,277.4**	**2,306.1**
Passenger Transportation (PJ)[a,d]	***1,184.5***	***1,191.5***	***1,288.5***	***1,291.2***	***1,323.5***
Cars	730.6	690.8	648.2	664.3	668.4
Trucks	212.1	264.8	354.6	365.2	380.9
Motorcycles	2.4	2.1	2.6	2.6	3.0
Buses	53.5	51.3	48.8	44.2	48.1
Air	180.9	180.1	231.5	211.9	220.5
Rail	5.1	2.5	2.9	2.9	2.6
Freight Transportation (PJ)[a,d]	***640.0***	***751.3***	***912.6***	***895.9***	***889.8***
Light Trucks	97.1	116.5	144.1	149.8	153.6
Medium Trucks	133.2	159.8	173.9	154.2	144.0
Heavy Trucks	212.2	287.5	392.4	383.2	402.8
Air	6.5	7.3	8.0	6.7	7.5
Rail	84.4	78.5	80.2	78.8	71.5
Marine	106.5	101.7	114.0	123.2	110.5
Off-Road (PJ)[d]	***53.3***	***62.1***	***81.0***	***90.3***	***92.8***
Agriculture (PJ)[a]	***199.2***	***209.2***	***231.9***	***218.1***	***206.8***

1) "Other Appliances" includes small appliances such as televisions, video cassette recorders, digital video disc players, radios, computers and toasters.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.

c) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, August 2010.

d) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

e) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

f) Statistics Canada, *Electric Power Generation, Transmission and Distribution 2007*, Ottawa, June 2009 (Cat. No. 57-202-X).

Total End-Use Sector

continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
2,361.3	**2,465.1**	**2,501.3**	**2,492.2**	**2,594.0**	**2,594.1**	**38.1%**
1,330.1	***1,366.9***	***1,373.7***	***1,361.2***	***1,412.4***	***1,396.9***	***17.9%***
665.9	666.3	654.9	647.6	664.7	648.5	-11.2%
390.9	405.8	413.4	413.0	438.1	440.1	107.5%
3.2	3.5	3.5	3.7	4.0	4.1	67.1%
48.8	47.2	48.5	45.9	49.1	51.8	-3.1%
218.7	241.7	250.9	248.6	253.9	249.6	38.0%
2.5	2.4	2.5	2.5	2.6	2.8	-44.2%
936.7	***1,001.3***	***1,028.4***	***1,030.4***	***1,079.5***	***1,094.5***	***71.0%***
156.6	162.1	163.3	165.3	176.2	177.5	82.8%
159.8	175.1	153.1	163.7	156.2	152.5	14.5%
438.9	469.8	516.5	515.9	548.4	571.3	169.2%
7.0	7.4	7.9	7.1	5.8	5.1	-21.4%
71.3	72.6	76.4	78.9	83.9	87.7	3.9%
103.1	114.2	111.2	99.5	109.0	100.4	-5.8%
94.6	***96.9***	***99.2***	***100.6***	***102.1***	***102.7***	***92.5%***
211.8	***208.9***	***208.5***	***211.4***	***215.6***	***217.2***	***9.1%***

1 Total End-Use Sector

Canada's GHG Emissions by Sector, End-Use and Sub-Sector – Including Electricity-Related Emissions

	1990	1995	2000	2001	2002
Total GHG Emissions Including Electricity (Mt of CO_2e)[a,b,d,e,f]	**397.2**	**411.6**	**466.6**	**463.4**	**468.7**
Residential (Mt of CO_2e)[a,b,e]	68.8	67.9	75.0	73.8	74.2
Space Heating	42.1	42.5	45.3	42.1	43.7
Water Heating	13.1	13.1	14.0	14.1	13.8
Appliances	10.2	8.9	11.3	12.2	11.3
Major Appliances	*8.5*	*7.1*	*8.4*	*8.9*	*8.1*
Other Appliances[1]	*1.6*	*1.8*	*2.9*	*3.3*	*3.2*
Lighting	2.9	2.6	3.6	4.0	3.7
Space Cooling	0.6	0.7	0.9	1.5	1.7
Commercial/Institutional (Mt of CO_2e)[a,c,e]	**47.5**	**50.1**	**61.0**	**61.9**	**64.1**
Space Heating	25.5	27.8	31.3	29.8	32.3
Water Heating	3.6	3.9	4.9	5.0	5.0
Auxiliary Equipment	4.6	5.0	8.2	9.0	8.8
Auxiliary Motors	5.1	4.9	5.9	6.1	5.8
Lighting	6.4	6.1	7.4	7.6	7.2
Space Cooling	1.7	2.0	2.9	3.8	4.6
Street Lighting [g]	0.5	0.4	0.5	0.5	0.5
Industrial (Mt of CO_2e)[a,e,f]	**136.0**	**138.2**	**155.3**	**153.7**	**155.8**
Mining	18.7	22.9	28.3	28.9	29.0
Pulp and Paper	24.3	22.2	25.1	23.7	22.4
Iron and Steel	15.8	17.2	18.1	16.5	16.8
Smelting and Refining	10.8	11.8	14.5	16.0	15.5
Cement	4.4	4.5	4.8	4.8	5.1
Chemicals	10.8	12.0	12.1	11.0	10.3
Petroleum Refining	17.9	17.4	17.3	18.4	21.8
Other Manufacturing	28.5	26.4	30.6	30.0	30.2
Forestry	0.6	0.6	1.2	1.3	1.2
Construction	4.3	3.2	3.3	3.2	3.5

1) "Other Appliances" includes small appliances such as televisions, video cassette recorders, digital video disc players, radios, computers and toasters.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.
c) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, August 2010.

Total End-Use Sector

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
489.0	**487.2**	**479.0**	**471.5**	**502.9**	**487.8**	**22.8%**
78.8	74.7	71.5	68.9	75.4	74.2	8.0%
47.1	45.1	42.7	40.3	45.8	45.5	8.1%
14.2	13.4	13.1	13.1	13.5	13.1	0.5%
12.1	11.5	10.4	10.6	11.0	11.0	8.3%
8.5	*7.9*	*7.1*	*7.0*	*7.2*	*7.0*	*-17.9%*
3.6	*3.6*	*3.4*	*3.6*	*3.8*	*4.0*	*143.5%*
4.0	3.8	3.4	3.4	3.5	3.4	18.0%
1.4	1.0	1.9	1.5	1.6	1.2	113.2%
68.1	**66.2**	**63.8**	**60.0**	**65.0**	**65.3**	**37.6%**
33.9	33.8	32.5	29.0	30.8	31.1	21.9%
5.5	5.6	5.5	5.4	5.1	4.9	34.7%
10.0	10.1	9.5	9.9	11.9	12.7	172.3%
6.1	5.7	4.9	5.0	5.6	5.9	16.0%
7.6	7.2	6.0	6.1	6.8	7.2	13.5%
4.5	3.4	4.9	4.2	4.3	3.0	79.0%
0.5	0.5	0.5	0.5	0.5	0.5	-0.9%
163.6	**161.0**	**156.2**	**155.7**	**168.3**	**154.0**	**13.2%**
34.5	33.3	34.9	36.0	42.9	42.3	126.1%
23.2	23.0	19.8	17.7	17.2	14.2	-41.7%
16.5	16.5	16.4	16.6	17.3	14.7	-7.1%
16.8	15.0	15.3	15.5	15.9	15.4	42.7%
5.2	5.3	5.0	5.7	5.3	4.8	10.3%
10.1	10.9	10.4	10.6	11.1	10.1	-6.6%
20.9	20.5	18.4	18.5	21.1	19.2	7.2%
31.2	30.8	30.5	29.6	32.1	28.1	-1.4%
1.4	1.7	1.6	1.6	1.4	1.3	136.6%
3.7	3.9	3.9	4.0	4.1	4.0	-8.3%

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d) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

e) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

f) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

g) Statistics Canada, *Electric Power Generation, Transmission and Distribution 2007*, Ottawa, June 2009 (Cat. No. 57-202-X).

Canada's GHG Emissions by Sector, End-Use and Sub-Sector – Including Electricity-Related Emissions (continued)

	1990	1995	2000	2001	2002
Total Transportation (Mt of CO_2e)[a,d,e]	**131.6**	**141.4**	**159.1**	**158.7**	**160.4**
Passenger Transportation (Mt of CO_2e)[a,d,e]	***82.3***	***83.8***	***88.8***	***88.9***	***90.9***
Cars	50.4	48.4	44.5	45.5	45.7
Light Trucks	14.7	18.6	24.4	25.1	26.1
Motorcycles	0.2	0.1	0.2	0.2	0.2
Buses	3.6	3.5	3.4	3.1	3.3
Air	13.0	12.9	16.1	14.8	15.4
Rail	0.4	0.2	0.2	0.2	0.2
Freight Transportation (Mt of CO_2e)[a,d,e]	***45.6***	***53.4***	***64.8***	***63.7***	***63.2***
Light Trucks	6.6	8.0	9.9	10.2	10.5
Medium Trucks	9.1	10.9	11.9	10.6	9.9
Heavy Trucks	14.8	20.0	27.6	26.9	28.3
Air	0.5	0.5	0.6	0.5	0.5
Rail	6.6	6.1	6.3	6.2	5.6
Marine	8.2	7.8	8.7	9.3	8.4
Off-Road (Mt of CO_2e)[d,e]	***3.6***	***4.2***	***5.5***	***6.1***	***6.3***
Agriculture (Mt of CO_2e)[a,e]	***13.5***	***14.1***	***16.2***	***15.3***	***14.2***

1) "Other Appliances" includes small appliances such as televisions, video cassette recorders, digital video disc players, radios, computers and toasters.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.
c) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, August 2010.
d) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.
e) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.
f) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.
g) Statistics Canada, *Electric Power Generation, Transmission and Distribution 2007*, Ottawa, June 2009 (Cat. No. 57-202-X).

⊂ continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
163.9	**170.9**	**173.3**	**172.4**	**179.3**	**179.4**	**36.3%**
91.1	***93.4***	***93.7***	***92.6***	***96.0***	***94.9***	***15.4%***
45.3	45.2	44.3	43.6	44.7	43.6	-13.5%
26.7	27.7	28.2	28.1	29.7	29.9	102.7%
0.2	0.2	0.2	0.2	0.3	0.3	64.2%
3.4	3.2	3.3	3.2	3.4	3.6	-1.0%
15.3	16.9	17.5	17.3	17.7	17.4	34.2%
0.2	0.2	0.2	0.2	0.2	0.2	-43.6%
66.4	***71.0***	***72.9***	***73.0***	***76.5***	***77.5***	***69.8%***
10.7	11.0	11.1	11.2	11.9	12.0	81.5%
11.0	12.1	10.5	11.3	10.8	10.5	15.6%
30.8	33.0	36.3	36.2	38.5	40.1	171.9%
0.5	0.5	0.5	0.5	0.4	0.4	-23.5%
5.6	5.7	6.0	6.2	6.6	6.9	4.9%
7.8	8.7	8.4	7.6	8.3	7.6	-6.8%
6.4	***6.5***	***6.7***	***6.8***	***6.9***	***6.9***	***90.7%***
14.7	***14.4***	***14.2***	***14.5***	***14.9***	***14.8***	***10.4%***

1 Total End-Use Sector

Canada's GHG Emissions by Sector, End-Use and Sub-Sector – Excluding Electricity-Related Emissions

	1990	1995	2000	2001	2002
Total GHG Emissions Excluding Electricity (Mt of CO_2e)[a,b,d,e,f]	**310.7**	**327.4**	**355.7**	**347.2**	**356.3**
Residential (Mt of CO_2e)[a,b,e]	42.7	44.0	44.4	41.2	42.8
Space Heating	32.8	33.4	33.5	30.4	32.1
Water Heating	9.7	10.4	10.6	10.5	10.5
Appliances	0.2	0.2	0.2	0.2	0.2
Major Appliances	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*
Other Appliances[1]	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Lighting	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.0	0.0	0.0	0.0	0.0
Commercial/Institutional (Mt of CO_2e)[a,c,e]	**25.7**	**28.9**	**33.1**	**33.1**	**35.2**
Space Heating	22.1	24.9	28.1	27.5	29.8
Water Heating	3.2	3.5	4.3	4.7	4.6
Auxiliary Equipment	0.3	0.4	0.6	0.8	0.6
Auxiliary Motors	0.0	0.0	0.0	0.0	0.0
Lighting	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.1	0.1	0.1	0.2	0.2
Street Lighting[g]	0.0	0.0	0.0	0.0	0.0
Industrial (Mt of CO_2e)[a,e,f]	**99.2**	**101.0**	**105.3**	**101.4**	**106.0**
Mining	12.9	17.1	20.8	20.8	21.4
Pulp and Paper	14.5	12.1	11.4	10.2	9.5
Iron and Steel	14.2	15.6	15.8	13.9	14.3
Smelting and Refining	3.4	3.2	3.2	3.5	3.2
Cement	4.0	4.2	4.4	4.3	4.7
Chemicals	7.1	8.5	7.9	6.8	6.2
Petroleum Refining	16.7	16.5	16.1	17.1	20.5
Other Manufacturing	21.6	20.0	21.2	20.4	21.3
Forestry	0.6	0.6	1.2	1.3	1.2
Construction	4.3	3.2	3.3	3.2	3.5

1) "Other Appliances" includes small appliances such as televisions, video cassette recorders, digital video disc players, radios, computers and toasters.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.
c) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, August 2010.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
369.1	**375.1**	**372.5**	**366.5**	**391.9**	**381.1**	**22.6%**
44.8	42.7	41.5	39.3	43.3	42.8	0.3%
33.9	32.3	31.1	29.0	32.6	32.3	-1.6%
10.6	10.1	10.1	10.0	10.4	10.2	5.0%
0.3	0.3	0.3	0.3	0.3	0.3	79.4%
0.3	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*79.4%*
0.0	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	–
0.0	0.0	0.0	0.0	0.0	0.0	–
0.0	0.0	0.0	0.0	0.0	0.0	–
37.8	**37.7**	**37.0**	**33.5**	**34.9**	**34.8**	**35.6%**
31.8	31.6	30.6	27.3	28.9	28.9	30.9%
5.1	5.2	5.3	5.2	4.9	4.7	47.8%
0.7	0.8	0.8	0.8	0.9	1.0	195.1%
0.0	0.0	0.0	0.0	0.0	0.0	–
0.0	0.0	0.0	0.0	0.0	0.0	–
0.2	0.2	0.3	0.2	0.2	0.2	219.0%
0.0	0.0	0.0	0.0	0.0	0.0	–
110.5	**111.7**	**108.8**	**109.0**	**121.5**	**111.2**	**12.1%**
26.5	25.5	27.5	28.5	35.8	35.8	176.7%
9.5	9.7	7.5	6.1	6.0	4.7	-67.5%
14.2	14.4	14.2	14.7	15.3	12.6	-10.8%
3.3	3.3	3.5	3.3	4.1	4.0	20.4%
4.7	4.9	4.6	5.3	4.9	4.4	10.3%
5.8	6.8	6.5	6.8	7.2	6.7	-6.0%
19.7	19.2	17.1	17.0	19.5	17.6	5.2%
21.8	22.5	22.3	21.7	23.1	20.1	-6.9%
1.4	1.7	1.6	1.6	1.4	1.3	136.6%
3.7	3.9	3.9	4.0	4.1	4.0	-8.3%

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d) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

e) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

f) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

g) Statistics Canada, *Electric Power Generation, Transmission and Distribution 2007*, Ottawa, June 2009 (Cat. No. 57-202-X).

Canada's GHG Emissions by Sector, End-Use and Sub-Sector – Excluding Electricity-Related Emissions (continued)

	1990	1995	2000	2001	2002
Total Transportation (Mt of CO_2e)[a,d,e]	**131.4**	**141.2**	**158.9**	**158.5**	**160.2**
Passenger Transportation (Mt of CO_2e)[a,d,e]	***82.1***	***83.6***	***88.6***	***88.7***	***90.7***
Cars	50.4	48.4	44.5	45.5	45.7
Light Trucks	14.7	18.6	24.4	25.1	26.1
Motorcycles	0.2	0.1	0.2	0.2	0.2
Buses	3.5	3.3	3.2	2.9	3.1
Air	13.0	12.9	16.1	14.8	15.4
Rail	0.4	0.2	0.2	0.2	0.2
Freight Transportation (Mt of CO_2e)[a,d,e]	***45.6***	***53.4***	***64.8***	***63.7***	***63.2***
Light Trucks	6.6	8.0	9.9	10.2	10.5
Medium Trucks	9.1	10.9	11.9	10.6	9.9
Heavy Trucks	14.8	20.0	27.6	26.9	28.3
Air	0.5	0.5	0.6	0.5	0.5
Rail	6.6	6.1	6.3	6.2	5.6
Marine	8.2	7.8	8.7	9.3	8.4
Off-Road (Mt of CO_2e)[d,e]	***3.6***	***4.2***	***5.5***	***6.1***	***6.3***
Agriculture (Mt of CO_2e)[a,e]	**11.7**	**12.4**	**14.0**	**13.0**	**12.1**

1) "Other Appliances" includes small appliances such as televisions, video cassette recorders, digital video disc players, radios, computers and toasters.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.
c) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, August 2010.
d) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.
e) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.
f) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.
g) Statistics Canada, *Electric Power Generation, Transmission and Distribution 2007*, Ottawa, June 2009 (Cat. No. 57-202-X).

⊂ continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
163.7	**170.7**	**173.1**	**172.2**	**179.2**	**179.2**	**36.4%**
90.9	***93.2***	***93.5***	***92.4***	***95.8***	***94.8***	***15.5%***
45.3	45.2	44.3	43.6	44.7	43.6	-13.5%
26.7	27.7	28.2	28.1	29.7	29.9	102.7%
0.2	0.2	0.2	0.2	0.3	0.3	64.2%
3.2	3.0	3.1	3.0	3.3	3.5	0.4%
15.3	16.9	17.5	17.3	17.7	17.4	34.2%
0.2	0.2	0.2	0.2	0.2	0.2	-43.6%
66.4	***71.0***	***72.9***	***73.0***	***76.5***	***77.5***	***69.8%***
10.7	11.0	11.1	11.2	11.9	12.0	81.5%
11.0	12.1	10.5	11.3	10.8	10.5	15.6%
30.8	33.0	36.3	36.2	38.5	40.1	171.9%
0.5	0.5	0.5	0.5	0.4	0.4	-23.5%
5.6	5.7	6.0	6.2	6.6	6.9	4.9%
7.8	8.7	8.4	7.6	8.3	7.6	-6.8%
6.4	***6.5***	***6.7***	***6.8***	***6.9***	***6.9***	***90.7%***
12.4	**12.2**	**12.2**	**12.5**	**13.0**	**13.0**	**10.6%**

1 Total End-Use Sector

Commodity Prices and Background Indicators

	1990	1995	2000	2001	2002
Commodity Prices					
Crude Oil Prices					
Wellhead U.S. Average ($US/bbl.)[a]	20.03	14.62	26.72	21.84	22.51
Edmonton Par[1] ($/m^3)[b]	173.95	151.36	278.98	246.69	251.33
Brent Montréal[2] ($/m^3)[b]	187.35	160.31	280.95	267.49	263.13
Natural Gas Price at AECO-C Hub (intra-Alberta)[3] ($/GJ)[b]	***1.34***	***1.09***	***4.81***	***5.91***	***3.83***
Background Indicators					
Total GDP (million $2002)[c]	***767,185***	***837,839***	***1,025,587***	***1,041,449***	***1,068,785***
Industrial	221,113	238,232	297,784	295,030	301,126
Commercial/Institutional	477,088	528,086	635,817	659,667	681,987
Agriculture	18,373	18,051	20,592	17,532	15,747
Electricity Generation	21,356	23,498	23,301	22,238	23,620
Multifactor Measure of Productivity (2002 = 100)[c]	**93.6**	**94.7**	**99.7**	**99.5**	**100.0**

1) Edmonton crude oil price is based on the price of West Texas Intermediate (WTI) crude, sold on the Chicago Mercantile Exchange. Edmonton par is priced to be competitive with WTI, taking into account transportation costs.
2) Brent Montréal crude oil is the cost of Brent crude oil (in the Montréal market) including the transportation costs through the Portland-Montréal oil pipeline.
3) AECO-C hub is the main pricing point for Alberta natural gas and represents the major pricing point for Canadian gas.

Sources:

a) Energy Information Administration (EIA), *Domestic Crude Oil First Purchase Prices by Area*, **www.eia.doe.gov/pub/oil_gas/petroleum/data_publications/petroleum_marketing_monthly/current/txt/tables01.txt**.
b) Natural Resources Canada, Oil and Gas Policy and Regulatory Affairs Division, Ottawa, May 2008.
c) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
27.56	36.77	50.28	59.69	66.52	94.04	369.5%
371.37	330.27	432.01	457.54	479.23	642.77	269.5%
275.71	336.01	433.55	484.56	504.51	665.16	255.0%
6.31	***6.52***	***8.14***	***6.79***	***6.27***	***7.73***	***476.9%***
1,091,675	***1,130,688***	***1,167,035***	***1,200,184***	***1,231,397***	***1,240,105***	***61.6%***
305,084	315,487	322,120	322,831	322,472	309,520	40.0%
698,531	722,718	746,158	777,590	806,545	825,904	73.1%
18,339	20,285	21,047	20,838	20,806	23,208	26.3%
23,975	24,067	25,593	25,188	26,043	25,765	20.6%
99.5	**99.1**	**98.7**	**98.0**	**97.2**	**94.8**	**–**

Residential Sector 2

The Data Situation

Aggregate data on residential energy use are reported in Statistics Canada's *Report on Energy Supply-Demand in Canada* (RESD) (Cat. No. 57-003-X). To provide more detail on how this energy is used, the Office of Energy Efficiency (OEE) has developed the Residential End-Use Model (REUM). This stock accounting model assesses trends in energy use in the Canadian residential sector by allocating the energy use reported in the RESD to end-uses using annual stock characteristics and sales data, coupled with usage profiles and unit energy consumption for equipment stock. It is disaggregated at the provincial level and includes four building types, five end-uses, eight vintage categories (house age categories) and six fuel types. Some end-uses are further disaggregated by equipment type.

Household characteristics are derived from the *Household Facilities and Equipment Survey* for the years prior to 1997 and from Statistics Canada's *Survey of Household Spending* from 1997 and onward. The two surveys collect similar information but use different methodologies, therefore requiring significant data processing to merge the information. Because Statistics Canada stopped releasing data about vacant housing stock in 2001, the calculation of housing stock for 2001 and onward uses the number of households, new construction completions and demolished dwellings. Floor space information is acquired by combining housing stock estimates with data from two other Statistics Canada surveys: the *Building Permits Survey* and the OEE-sponsored *Survey of Household Energy Use*.

2 Residential Sector

Energy consumption information was drawn from the data collected by various industry associations and external studies (some of which are commissioned by the OEE). Specifically, the Canadian Appliance Manufacturers Association, the Heating, Refrigeration and Air Conditioning Institute of Canada, the Energy Technology Database developed by Marbek Resource Consultants Ltd. and the internal expertise of OEE staff were utilized in this regard.

The REUM also takes into account the influence of weather on residential energy demand. It uses the number of heating degree-days in *Monthly Values of Degree-Days below 18.0°C* and the number of cooling degree-days in *Monthly Values of Degree-Days above 18.0°C*, two reports from Environment Canada.

The residential prices of heating oil and natural gas are weighted averages of regional prices from Statistics Canada's *Energy Statistics Handbook* (Cat. No. 57-601-X). The residential price of electricity is a weighted average of the data found in Hydro-Québec's *Comparison of Electricity Prices in Major North American Cities*.

Due to rounding, the numbers in the tables may not add up or calculate to their reported totals or growth rates.

2 Residential Sector

Residential Secondary Energy Use by Energy Source and End-Use

	1990	1995	2000	2001	2002
Total Energy Use (PJ)[a,b]	**1,282.2**	**1,342.5**	**1,384.2**	**1,328.9**	**1,380.0**
Energy Use by Energy Source (PJ)[a,b]					
Electricity	467.4	473.8	497.6	504.9	517.5
Natural Gas	528.4	630.5	644.8	601.0	640.2
Heating Oil	186.4	138.0	132.4	121.1	116.5
Other[1]	21.9	16.8	13.0	13.1	12.4
Wood	78.1	83.4	96.4	88.9	93.4
Energy Use by End-Use (PJ)[b]					
Space Heating	794.6	843.4	867.5	796.4	845.3
Water Heating	242.8	255.3	259.7	258.5	257.8
Appliances	182.5	177.5	184.2	189.3	187.6
Major Appliances	*153.0*	*141.6*	*136.6*	*138.1*	*134.1*
Other Appliances[2]	*29.6*	*35.9*	*47.6*	*51.2*	*53.5*
Lighting	51.7	52.3	58.8	61.3	61.0
Space Cooling	10.4	14.0	14.0	23.3	28.3
Activity					
Total Floor Space (million m^2)[b]	1,207	1,360	1,456	1,474	1,497
Total Households (thousands)[b,c]	9,895	10,900	11,652	11,837	12,014
Energy Intensity (GJ/m^2)[a,b]	**1.06**	**0.99**	**0.95**	**0.90**	**0.92**
Energy Intensity (GJ/household)[a,b,c]	**129.6**	**123.2**	**118.8**	**112.3**	**114.9**
Heating Degree-Day Index[b,d]	**0.92**	**0.98**	**0.96**	**0.88**	**0.93**
Cooling Degree-Day Index[b,e]	**1.05**	**1.18**	**0.91**	**1.43**	**1.73**

1) "Other" includes coal and propane.
2) "Other Appliances" includes small appliances such as televisions, video cassette recorders, digital video disc players, radios, computers and toasters.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.
c) Statistics Canada, *Survey of Household Spending, 1997–2008*, Ottawa, January 2010.
d) Environment Canada, *Climate Summaries, Monthly Values of Degree-Days below 18.0°C, 1990–2008*, Ottawa.
e) Environment Canada, *Climate Summaries, Monthly Values of Degree-Days above 18.0°C, 1990–2008*, Ottawa.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
1,435.8	**1,412.9**	**1,395.5**	**1,335.0**	**1,439.5**	**1,465.3**	**14.3%**
532.8	543.5	543.6	529.1	550.3	578.5	23.8%
670.2	651.1	646.6	617.4	682.3	689.0	30.4%
122.8	106.0	92.7	82.4	87.8	75.7	-59.4%
12.4	12.4	13.8	14.5	16.0	17.1	-22.1%
97.7	99.9	98.9	91.6	103.1	105.0	34.3%
898.3	882.5	856.7	804.7	904.2	920.8	15.9%
262.5	253.7	253.3	251.7	258.0	255.9	5.4%
190.0	195.3	189.9	190.5	190.2	203.0	11.2%
133.5	*134.5*	*129.0*	*126.7*	*124.2*	*129.1*	*-15.6%*
56.6	*60.8*	*60.9*	*63.8*	*66.0*	*73.9*	*149.9%*
62.9	64.2	61.3	60.9	59.6	62.7	21.1%
22.0	17.2	34.4	27.1	27.5	22.8	118.8%
1,522	1,573	1,623	1,674	1,726	1,756	45.5%
12,189	12,375	12,587	12,756	12,985	13,164	33.0%
0.94	**0.90**	**0.86**	**0.80**	**0.83**	**0.83**	**-21.4%**
117.8	**114.2**	**110.9**	**104.7**	**110.9**	**111.3**	**-14.1%**
0.96	**0.95**	**0.92**	**0.85**	**0.93**	**0.95**	**–**
1.32	**0.95**	**1.79**	**1.38**	**1.45**	**1.08**	**–**

2 Residential Sector

Residential GHG Emissions by Energy Source and End-Use – Including and Excluding Electricity-Related Emissions

	1990	1995	2000	2001	2002
Total GHG Emissions Including Electricity (Mt of CO_2e)[a,b,c]	**68.8**	**67.9**	**75.0**	**73.8**	**74.2**
GHG Emissions by Energy Source (Mt of CO_2e)[a,b,c]					
Electricity	26.1	23.9	30.7	32.6	31.4
Natural Gas	26.6	31.5	32.3	30.0	32.0
Heating Oil	13.1	9.7	9.3	8.5	8.2
Other[1]	1.4	1.1	0.8	0.8	0.8
Wood	1.6	1.7	2.0	1.8	1.9
GHG Emissions by End-Use (Mt of CO_2e)[b,c]					
Space Heating	42.1	42.5	45.3	42.1	43.7
Water Heating	13.1	13.1	14.0	14.1	13.8
Appliances	10.2	8.9	11.3	12.2	11.3
Major Appliances	*8.5*	*7.1*	*8.4*	*8.9*	*8.1*
Other Appliances[2]	*1.6*	*1.8*	*2.9*	*3.3*	*3.2*
Lighting	2.9	2.6	3.6	4.0	3.7
Space Cooling	0.6	0.7	0.9	1.5	1.7
GHG Intensity (tonnes/TJ)[a,b,c]	**53.6**	**50.6**	**54.2**	**55.5**	**53.8**
Total GHG Emissions Excluding Electricity (Mt of CO_2e)[a,b,c]	**42.7**	**44.0**	**44.4**	**41.2**	**42.8**
GHG Emissions by End-Use (Mt of CO_2e)[b,c]					
Space Heating	32.8	33.4	33.5	30.4	32.1
Water Heating	9.7	10.4	10.6	10.5	10.5
Appliances	0.2	0.2	0.2	0.2	0.2
Major Appliances	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*
Other Appliances[2]	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Lighting	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.0	0.0	0.0	0.0	0.0
GHG Intensity (tonnes/TJ)[a,b,c]	**33.3**	**32.8**	**32.1**	**31.0**	**31.0**

1) "Other" includes coal and propane.
2) "Other Appliances" includes small appliances such as televisions, video cassette recorders, digital video disc players, radios, computers and toasters.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
78.8	**74.7**	**71.5**	**68.9**	**75.4**	**74.2**	**8.0%**
34.0	32.0	30.0	29.6	32.0	31.4	20.6%
33.4	32.4	32.1	30.8	34.1	34.3	28.7%
8.6	7.4	6.5	5.8	6.2	5.3	-59.5%
0.8	0.8	0.9	0.9	1.0	1.1	-20.7%
2.0	2.0	2.0	1.9	2.1	2.1	34.3%
47.1	45.1	42.7	40.3	45.8	45.5	8.1%
14.2	13.4	13.1	13.1	13.5	13.1	0.5%
12.1	11.5	10.4	10.6	11.0	11.0	8.3%
8.5	*7.9*	*7.1*	*7.0*	*7.2*	*7.0*	*-17.9%*
3.6	*3.6*	*3.4*	*3.6*	*3.8*	*4.0*	*143.5%*
4.0	3.8	3.4	3.4	3.5	3.4	18.0%
1.4	1.0	1.9	1.5	1.6	1.2	113.2%
54.9	**52.9**	**51.3**	**51.6**	**52.4**	**50.7**	**-5.5%**
44.8	**42.7**	**41.5**	**39.3**	**43.3**	**42.8**	**0.3%**
33.9	32.3	31.1	29.0	32.6	32.3	-1.6%
10.6	10.1	10.1	10.0	10.4	10.2	5.0%
0.3	0.3	0.3	0.3	0.3	0.3	79.4%
0.3	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*79.4%*
0.0	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	–
0.0	0.0	0.0	0.0	0.0	0.0	–
0.0	0.0	0.0	0.0	0.0	0.0	–
31.2	**30.2**	**29.8**	**29.5**	**30.1**	**29.2**	**-12.2%**

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.

c) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

2 Residential Sector

Residential Housing Stock and Floor Space

	1990	1995	2000	2001	2002
Total Housing Stock (thousands)[a]	**10,426**	**11,507**	**12,208**	**12,348**	**12,523**
Housing Stock by Building Type (thousands)					
Single Detached	5,857	6,485	6,919	7,005	7,109
Single Attached	968	1,125	1,249	1,275	1,301
Apartments	3,381	3,661	3,794	3,821	3,861
Mobile Homes	220	236	246	248	251
Housing Stock by Vintage (thousands)					
Before 1946	2,156	2,044	1,930	1,908	1,887
1946–1960	1,479	1,420	1,357	1,345	1,334
1961–1977	3,099	3,004	2,908	2,889	2,871
1978–1983	1,749	1,703	1,658	1,649	1,640
1984–1995	1,943	3,336	3,280	3,268	3,257
1996–2000[1]	0	0	1,076	1,074	1,073
2001–2005[2]	0	0	0	215	463
2006–2008[3]	0	0	0	0	0
Total Floor Space (million m^2)[a]	**1,207**	**1,360**	**1,456**	**1,474**	**1,497**
Floor Space by Building Type (million m^2)					
Single Detached	793	900	971	984	1,000
Single Attached	110	128	144	148	152
Apartments	285	312	318	319	322
Mobile Homes	20	21	22	23	23
Floor Space by Vintage (million m^2)					
Before 1946	238	226	214	212	210
1946–1960	148	142	135	134	133
1961–1977	344	334	316	312	308
1978–1983	219	213	206	204	202
1984–1995	259	446	434	431	428
1996–2000[1]	0	0	150	150	149
2001–2005[2]	0	0	0	31	67
2006–2008[3]	0	0	0	0	0

1) Growth rate shown in the final column entitled "Total Growth 1990–2008" is for 1996 to 2008.
2) Growth rate shown in the final column entitled "Total Growth 1990–2008" is for 2001 to 2008.
3) Growth rate shown in the final column entitled "Total Growth 1990–2008" is for 2006 to 2008.

Source:

a) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
12,712	**12,918**	**13,120**	**13,327**	**13,526**	**13,730**	**31.7%**
7,220	7,334	7,441	7,544	7,648	7,740	32.1%
1,330	1,364	1,398	1,432	1,466	1,501	55.1%
3,908	3,962	4,020	4,085	4,143	4,218	24.8%
254	257	261	265	269	272	23.3%
1,866	1,845	1,825	1,804	1,784	1,765	-18.2%
1,322	1,310	1,299	1,287	1,276	1,265	-14.5%
2,852	2,834	2,816	2,798	2,780	2,762	-10.9%
1,631	1,622	1,613	1,604	1,596	1,587	-9.3%
3,246	3,235	3,223	3,212	3,201	3,190	64.2%
1,071	1,069	1,068	1,066	1,065	1,063	353.3%
725	1,003	1,277	1,276	1,276	1,275	493.8%
0	0	0	278	547	822	196.1%
1,522	**1,573**	**1,623**	**1,674**	**1,726**	**1,756**	**45.5%**
1,018	1,057	1,095	1,134	1,173	1,190	50.1%
156	162	168	174	180	185	68.8%
325	330	336	342	347	355	24.3%
24	24	24	25	26	26	32.8%
208	209	209	210	210	208	-12.6%
131	132	133	134	135	134	-9.4%
304	305	306	307	308	306	-10.9%
200	201	202	203	205	203	-7.0%
425	430	435	441	446	444	71.6%
149	149	149	149	150	149	366.9%
105	146	187	190	192	192	516.2%
0	0	0	40	80	119	197.7%

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Residential Housing Stock and Floor Space (continued)

	1990	1995	2000	2001	2002
Average Size of Housing Unit (m^2/house)[a]	**116**	**118**	**119**	**119**	**120**
Average Size by Building Type (m^2/house)					
Single Detached	135	139	140	140	141
Single Attached	113	113	115	116	117
Apartments	84	85	84	84	83
Mobile Homes	89	90	91	92	92
Average Size by Vintage (m^2/house)					
Before 1946	110	111	111	111	111
1946–1960	100	100	100	100	100
1961–1977	111	111	109	108	107
1978–1983	125	125	124	124	123
1984–1995	133	134	132	132	131
1996–2000[1]	0	0	140	139	139
2001–2005[2]	0	0	0	145	145
2006–2008[3]	0	0	0	0	0

1) Growth rate shown in the final column entitled "Total Growth 1990–2008" is for 1996 to 2008.
2) Growth rate shown in the final column entitled "Total Growth 1990–2008" is for 2001 to 2008.
3) Growth rate shown in the final column entitled "Total Growth 1990–2008" is for 2006 to 2008.

Source:

a) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.

continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
120	**122**	**124**	**126**	**128**	**128**	**10.5%**
141	144	147	150	153	154	13.6%
117	119	120	121	123	123	8.9%
83	83	83	84	84	84	-0.4%
93	93	94	94	95	95	7.7%
112	113	115	116	118	118	6.8%
99	101	103	104	106	106	6.0%
107	108	109	110	111	111	-0.1%
123	124	125	127	128	128	2.5%
131	133	135	137	139	139	4.5%
139	139	140	140	141	141	3.0%
145	146	147	148	150	150	3.8%
0	0	0	144	147	145	0.5%

2 Residential Sector

Residential Space Heating Energy Use by Energy Source and Building Type

	1990	1995	2000	2001	2002
Total Space Heating Energy Use (PJ)[a]	**794.6**	**843.4**	**867.5**	**796.4**	**845.3**
Energy Use by Energy Source (PJ)[a]					
Electricity	166.2	179.2	190.8	180.7	191.2
Natural Gas	370.5	448.2	459.3	416.8	454.2
Heating Oil	163.1	119.8	112.0	101.0	98.0
Other[1]	17.5	14.4	11.8	11.9	11.5
Wood	77.3	81.9	93.5	86.0	90.5
Energy Use by Building Type (PJ)[a]					
Single Detached	581.4	618.3	639.0	587.5	624.4
Single Attached	62.2	68.7	73.3	68.0	72.7
Apartments	130.1	135.2	133.3	120.8	126.9
Mobile Homes	21.0	21.3	21.9	20.0	21.4
Activity					
Total Floor Space (million m^2)[a]	1,207	1,360	1,456	1,474	1,497
Energy Intensity (GJ/m^2)[a]	**0.66**	**0.62**	**0.60**	**0.54**	**0.56**
Heat Gains (PJ)[a]	**98.0**	**103.7**	**106.5**	**100.5**	**106.3**
Heating Degree-Day Index[a,b]	**0.92**	**0.98**	**0.96**	**0.88**	**0.93**

1) "Other" includes coal and propane.

Sources:

a) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.

b) Environment Canada, Climate Summaries, *Monthly Values of Degree-Days below 18.0°C, 1990–2008*, Ottawa.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
898.3	**882.5**	**856.7**	**804.7**	**904.2**	**920.8**	**15.9%**
207.7	216.4	209.8	202.1	226.3	242.8	46.0%
480.6	466.9	459.1	431.0	487.8	495.0	33.6%
103.9	90.8	79.4	69.8	75.5	65.4	-59.9%
11.5	11.5	12.6	13.3	14.7	15.8	-10.1%
94.7	96.9	95.8	88.4	99.8	101.8	31.8%
660.8	651.0	634.2	597.9	673.9	685.3	17.9%
79.3	77.3	75.9	70.7	79.4	82.3	32.3%
136.4	133.0	126.7	117.1	129.7	131.9	1.4%
21.8	21.2	19.9	19.1	21.2	21.4	1.9%
1,522	1,573	1,623	1,674	1,726	1,756	45.5%
0.59	**0.56**	**0.53**	**0.48**	**0.52**	**0.52**	**-20.3%**
111.0	**111.2**	**104.7**	**97.7**	**107.5**	**115.5**	**17.8%**
0.96	**0.95**	**0.92**	**0.85**	**0.93**	**0.95**	**–**

2 Residential Sector

Residential Space Heating System Stock Share

	1990	1995	2000	2001	2002
Heating System Stock Share by System Type (%)[a]					
Heating Oil – Normal Efficiency	14.0	8.7	3.7	3.1	2.4
Heating Oil – Medium Efficiency	0.3	3.0	6.4	6.7	7.0
Heating Oil – High Efficiency	0.0	0.0	0.0	0.0	0.0
Natural Gas – Normal Efficiency	39.7	31.4	23.3	21.6	19.8
Natural Gas – Medium Efficiency	1.4	8.8	15.1	16.3	17.7
Natural Gas – High Efficiency	2.9	5.4	8.1	8.9	9.7
Electric Baseboard	28.1	29.0	27.8	27.7	27.6
Heat Pump	2.3	2.7	3.4	3.5	3.7
Other[1]	0.8	1.0	1.1	1.1	1.1
Wood	1.7	1.9	2.2	2.1	2.1
Dual Systems					
Wood/Electric	5.1	4.6	4.9	5.0	4.9
Wood/Heating Oil	2.4	2.1	2.3	2.4	2.4
Natural Gas/Electric	0.3	0.4	0.4	0.4	0.5
Heating Oil/Electric	0.8	0.9	1.1	1.1	1.2

1) "Other" includes coal and propane.

Source:

a) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.

2003	2004	2005	2006	2007	2008
1.8	1.4	1.0	0.8	0.7	0.5
7.1	7.3	7.3	7.4	7.4	7.4
0.0	0.0	0.0	0.0	0.0	0.0
17.9	15.8	13.8	11.8	9.9	8.2
18.8	20.2	21.3	22.3	23.2	23.8
10.7	11.6	12.6	13.6	14.7	15.9
27.8	27.7	27.9	28.0	28.0	28.0
3.8	3.9	4.0	4.1	4.3	4.4
1.0	1.0	1.0	1.0	1.0	1.0
2.1	2.1	2.1	2.0	2.0	2.0
4.9	4.9	4.9	4.8	4.8	4.8
2.4	2.3	2.3	2.3	2.3	2.3
0.5	0.5	0.5	0.5	0.5	0.5
1.2	1.2	1.2	1.2	1.2	1.2

2 Residential Sector

Residential Lighting and Space Cooling Details

	1990	1995	2000	2001	2002
Total Lighting Energy Use[1] (PJ)[a]	**51.7**	**52.3**	**58.8**	**61.3**	**61.0**
Activity					
Total Households (thousands)[a]	9,895	10,900	11,652	11,837	12,014
Energy Intensity (GJ/Household)[a]	**5.2**	**4.8**	**5.0**	**5.2**	**5.1**
Heat Loss (PJ)[a]	**21.7**	**23.4**	**25.7**	**24.7**	**26.1**
Total Space Cooling Energy Use[1] (PJ)[a]	**10.4**	**14.0**	**14.0**	**23.3**	**28.3**
Energy Use by Cooling System Type (PJ)[a]					
Room	2.7	2.8	2.4	4.0	5.0
Central	7.7	11.2	11.6	19.2	23.3
Activity					
Cooled Floor Space (million m^2)[a]	267	348	482	512	543
Energy Intensity (MJ/m^2)[a]	**39.2**	**40.3**	**29.1**	**45.4**	**52.1**
Cooling Degree-Day Index[a,b]	**1.05**	**1.18**	**0.91**	**1.43**	**1.73**
Total Cooling System Stock (thousands)[a]	**2,438**	**3,045**	**4,030**	**4,272**	**4,513**
System Stock by Type (thousands)[a]					
Room	1,067	1,142	1,425	1,533	1,670
Central	1,371	1,903	2,605	2,740	2,843
New Unit Efficiency[a]					
Room (EER)	7.1	9.2	9.4	9.4	9.4
Central (SEER)	9.1	10.2	10.3	10.3	10.3
Stock Efficiency[a]					
Room (EER)	6.8	7.4	8.3	8.4	8.6
Central (SEER)	8.6	9.2	9.6	9.7	9.7

1) Lighting and space cooling consume only electricity.

Sources:

a) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.

b) Environment Canada, *Climate Summaries, Monthly Values of Degree-Days above 18.0°C, 1990–2008*, Ottawa.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
62.9	**64.2**	**61.3**	**60.9**	**59.6**	**62.7**	**21.1%**
12,189	12,375	12,587	12,756	12,985	13,164	33.0%
5.2	**5.2**	**4.9**	**4.8**	**4.6**	**4.8**	**-9.0%**
27.6	**27.7**	**25.7**	**23.8**	**25.7**	**27.4**	**26.1%**
22.0	**17.2**	**34.4**	**27.1**	**27.5**	**22.8**	**118.8%**
4.1	2.9	5.6	4.8	5.0	4.0	46.9%
17.9	14.3	28.8	22.3	22.5	18.9	144.2%
582	617	656	711	707	749	180.8%
37.9	**27.9**	**52.5**	**38.1**	**38.9**	**30.5**	**-22.1%**
1.32	**0.95**	**1.79**	**1.38**	**1.45**	**1.08**	–
4,808	**5,151**	**5,572**	**6,144**	**6,282**	**6,554**	**168.8%**
1,805	1,795	1,992	2,289	2,446	2,398	124.8%
3,003	3,357	3,580	3,855	3,836	4,156	203.0%
9.4	9.4	9.4	9.4	9.4	9.4	31.5%
10.3	10.3	10.3	13.0	13.0	13.0	42.2%
8.8	8.9	9.1	9.2	9.3	9.3	36.3%
9.8	9.9	10.0	10.3	10.5	10.7	24.0%

Residential Appliance Details

	1990	1995	2000	2001	2002
Total Appliance Energy Use (PJ)[a]	**182.5**	**177.5**	**184.2**	**189.3**	**187.6**
Energy Use by Energy Source (PJ)[a]					
Electricity	178.9	173.4	179.7	184.6	182.7
Natural Gas	3.6	4.0	4.6	4.7	4.9
Energy Use by Appliance Type (PJ)[a]					
Refrigerator	60.9	52.9	46.7	46.3	44.0
Freezer	24.6	21.2	16.7	16.1	14.9
Dishwasher[1]	4.0	3.7	3.3	3.3	3.2
Clothes Washer[1]	2.7	2.7	2.8	2.8	2.7
Clothes Dryer	32.5	32.1	34.7	35.7	35.4
Range	28.4	29.0	32.5	33.9	33.9
Other Appliances[2]	29.6	35.9	47.6	51.2	53.5
Activity					
Total Households (thousands)[a,b]	9,895	10,900	11,652	11,837	12,014
Energy Intensity (GJ/household)[a,b]	**18.4**	**16.3**	**15.8**	**16.0**	**15.6**
Heat Loss by Appliance Type (PJ)[a]					
Refrigerator	25.7	23.9	20.6	18.8	19.0
Freezer	10.5	9.6	7.4	6.6	6.5
Dishwasher[1]	0.6	0.6	0.5	0.4	0.5
Clothes Washer[1]	0.6	0.7	0.7	0.6	0.7
Clothes Dryer	3.8	4.1	4.3	4.0	4.3
Range	10.0	10.9	11.9	11.4	12.2
Other Appliances[2]	12.5	16.2	21.0	20.7	23.0
Appliances per Household by Appliance Type[a,b]					
Refrigerator	1.18	1.20	1.23	1.23	1.24
Freezer	0.57	0.58	0.58	0.57	0.57
Dishwasher	0.42	0.47	0.52	0.52	0.54
Clothes Washer	0.74	0.78	0.81	0.81	0.81
Clothes Dryer	0.72	0.76	0.81	0.81	0.82
Range	0.98	0.99	0.99	0.99	0.99
Other Appliances[2]	10.12	11.11	12.77	13.37	13.85

1) Excludes hot water requirements.
2) "Other Appliances" includes small appliances such as televisions, video cassette recorders, digital video disc players, radios, computers and toasters.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
190.0	**195.3**	**189.9**	**190.5**	**190.2**	**203.0**	**11.2%**
184.8	189.9	184.2	184.7	183.9	196.4	9.8%
5.2	5.4	5.7	5.9	6.3	6.6	81.7%
41.9	41.2	38.6	36.4	34.7	35.3	-42.0%
14.3	13.9	12.9	12.4	11.9	12.2	-50.5%
3.1	3.1	2.8	2.7	2.4	2.4	-40.6%
2.7	2.7	2.5	2.5	2.3	2.2	-18.5%
36.3	37.5	36.9	37.4	37.5	40.1	23.3%
35.1	36.2	35.3	35.5	35.4	37.1	30.7%
56.6	60.8	60.9	63.8	66.0	73.9	149.9%
12,189	12,375	12,587	12,756	12,985	13,164	33.0%
15.6	**15.8**	**15.1**	**14.9**	**14.7**	**15.4**	**-16.4%**
18.6	18.0	16.3	14.3	15.0	15.5	-39.7%
6.4	6.1	5.5	4.9	5.2	5.4	-48.1%
0.5	0.4	0.4	0.3	0.3	0.3	-38.4%
0.7	0.7	0.6	0.5	0.6	0.5	-15.2%
4.5	4.6	4.4	4.1	4.5	4.9	28.0%
12.9	13.1	12.4	11.6	12.7	13.5	35.5%
25.1	26.5	25.7	25.0	28.6	32.5	159.5%
1.24	1.25	1.26	1.27	1.27	1.27	8.2%
0.57	0.56	0.55	0.55	0.55	0.54	-4.4%
0.55	0.56	0.57	0.58	0.58	0.59	39.2%
0.81	0.81	0.82	0.82	0.82	0.81	10.6%
0.82	0.82	0.83	0.84	0.84	0.85	17.3%
0.99	0.99	0.99	0.99	0.99	0.99	1.1%
14.17	14.66	15.22	15.46	15.65	15.73	55.4%

Sources:

a) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.

b) Statistics Canada, *Survey of Household Spending, 1997–2008*, Ottawa, January 2010.

Residential Appliance Unit Energy Consumption (UEC)

	1990	1995	2000	2001	2002
UEC[1] for New Electric Appliances (kWh/year)[a]					
Refrigerator	956	642	640	559	506
Freezer	714	382	391	393	368
Dishwasher[2]	227	140	120	116	107
Clothes Washer[2]	97	77	67	65	62
Clothes Dryer	1,103	909	910	916	916
Range	772	771	760	763	756
UEC[1] for New Natural Gas Appliances (kWh/year)[b]					
Clothes Dryer	925	889	880	880	880
Range	1,357	1,236	1,226	1,226	1,226
UEC[1] for Stock of Electric Appliances (kWh/year)[b]					
Refrigerator	1,504	1,262	958	905	857
Freezer	1,272	1,051	732	680	631
Dishwasher[2]	277	226	163	153	143
Clothes Washer[2]	106	98	86	84	81
Clothes Dryer	1,294	1,186	1,073	1,054	1,037
Range	803	793	781	779	776
UEC[1] for Stock of Natural Gas Appliances (kWh/year)[b]					
Clothes Dryer	1,480	1,122	888	885	883
Range	1,519	1,388	1,305	1,296	1,278

1) Unit energy consumption is based on rated efficiency.
2) Excludes hot water requirements.

Sources:

a) Special Tabulations from the Canadian Appliance Manufacturers Association, Mississauga, January 2010.
b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
487	478	469	481	483	467	-51.1%
369	373	386	380	384	375	-47.5%
92	79	67	61	57	53	-76.5%
57	46	35	31	23	21	-78.5%
914	912	904	905	912	916	-16.9%
718	653	573	537	524	522	-32.4%
880	880	880	880	880	880	-4.9%
1,226	1,226	1,226	1,226	1,226	1,226	-9.7%
781	730	689	632	597	558	-62.9%
588	553	522	495	470	449	-64.7%
132	121	111	102	90	82	-70.5%
78	74	70	66	61	54	-48.9%
1,022	1,007	992	978	964	951	-26.5%
771	762	747	732	717	697	-13.2%
882	881	880	880	880	880	-40.5%
1,264	1,257	1,251	1,246	1,240	1,236	-18.6%

2 Residential Sector

Residential Water Heating Energy Use and Water Heater Stock Share

	1990	1995	2000	2001	2002
Total Water Heating Energy Use (PJ)[a]	**242.8**	**255.3**	**259.7**	**258.5**	**257.8**
Energy Use by Energy Source (PJ)[a]					
Electricity	60.1	54.9	54.3	54.9	54.3
Natural Gas	154.3	178.3	181.0	179.4	181.1
Heating Oil	23.3	18.2	20.4	20.1	18.6
Other[1]	4.3	2.4	1.1	1.1	0.9
Wood	0.8	1.5	2.9	2.9	2.9
Activity					
Total Households (thousands)[a,b]	9,895	10,900	11,652	11,837	12,014
Energy Intensity (GJ/household)[a,b]	**24.5**	**23.4**	**22.3**	**21.8**	**21.5**
Water Heater Stock Market Share (%)[a]					
Electricity	52.5	49.7	47.4	46.9	46.5
Natural Gas	41.5	44.6	46.6	47.1	47.6
Heating Oil	5.1	4.7	5.0	5.0	4.9
Other[1]	0.6	0.6	0.3	0.3	0.3
Wood	0.2	0.4	0.6	0.6	0.6
Heat Loss (PJ)[a]	**12.5**	**14.3**	**14.5**	**13.2**	**14.2**

1) "Other" includes coal and propane.

Sources:

a) Natural Resources Canada, *Residential End-Use Model*, Ottawa, August 2010.

b) Statistics Canada, *Survey of Household Spending, 1997–2008*, Ottawa, January 2010.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
262.5	**253.7**	**253.3**	**251.7**	**258.0**	**255.9**	**5.4%**
55.3	55.8	53.9	54.3	53.0	53.8	-10.4%
184.4	178.8	181.8	180.5	188.2	187.5	21.5%
18.9	15.2	13.3	12.5	12.3	10.2	-56.1%
0.9	1.0	1.1	1.2	1.3	1.3	-70.4%
3.0	3.0	3.1	3.1	3.2	3.1	269.7%
12,189	12,375	12,587	12,756	12,985	13,164	33.0%
21.5	**20.5**	**20.1**	**19.7**	**19.9**	**19.4**	**-20.8%**
46.3	45.9	45.6	45.4	45.2	45.2	–
48.0	48.4	48.9	49.1	49.5	49.6	–
4.7	4.6	4.5	4.4	4.3	4.2	–
0.3	0.4	0.4	0.4	0.4	0.4	–
0.6	0.7	0.7	0.7	0.7	0.7	–
14.8	**14.1**	**13.7**	**13.0**	**14.8**	**15.2**	**21.6%**

2 Residential Sector

Residential Energy Prices and Background Indicators

	1990	1995	2000	2001	2002
Energy Prices by Energy Source (incl. taxes)					
Natural Gas (cents/m³)[a,d]	19.1	22.4	31.9	44.6	36.6
Heating Oil (cents/litre)[a,d,e]	35.6	35.6	53.6	53.5	49.7
Electricity (cents/kWh)[b,d]	6.2	7.8	7.9	8.1	8.5
Background Indicators					
Consumer Price Index (2002 = 100)[c]					
Natural Gas	52.1	62.6	94.2	122.1	100.0
Fuel Oil and Other Fuels	72.8	75.1	108.7	108.8	100.0
Electricity	68.7	87.3	91.3	92.9	100.0
Real Personal Disposable Income per Household ($2002)[c]	***56,057***	***52,675***	***55,961***	***56,477***	***56,828***
Total Population (thousands)[f]	***27,691***	***29,302***	***30,686***	***31,019***	***31,354***

Sources:

a) Statistics Canada, *Energy Statistics Handbook*, Ottawa, September 2009 (Cat. No. 57-601-X).

b) Hydro-Québec, *Comparison of Electricity Prices in Major North American Cities*, April 2008.

c) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

d) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

e) Statistics Canada, *Total Population, Census Divisions and Census Metropolitan Areas*, Tables 051-0014 and 051-0034, Ottawa, 2009 (CANSIM).

f) Statistics Canada, *Estimates of Population, by Age Group and Sex, Provinces and Territories*, Table 051-0001, Ottawa, 2009 (CANSIM).

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
46.9	46.6	51.3	53.0	50.5	52.3	173.4%
57.2	62.2	78.0	81.7	84.7	111.2	212.3%
8.6	8.8	9.2	9.4	9.6	9.7	56.1%
130.1	127.4	136.3	140.5	131.3	146.8	–
114.9	126.5	158.7	165.9	172.5	225.4	–
98.0	102.0	104.9	110.8	112.9	113.2	–
57,286	***58,776***	***59,077***	***61,691***	***62,892***	***64,671***	***15.4%***
31,640	***31,941***	***32,245***	***32,576***	***32,927***	***33,311***	***20.3%***

Commercial/ Institutional Sector

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The Data Situation

Of all the sectors reviewed in this handbook, the commercial/institutional sector has the most significant limitations with regard to available data.

Aggregate data on commercial/institutional energy use are reported in Statistics Canada's *Report on Energy Supply-Demand in Canada* (RESD) (Cat. No. 57-003-X) under the "public administration" and "commercial and other institutional" categories. Statistics Canada defines these categories as final consumers not reported in the other end-use sectors. Therefore, energy use data for the commercial/institutional sector essentially represent the residual energy use not accounted for in the residential, industrial, transportation and agriculture sectors.

In previous Energy Use Data Handbook publications, the Office of Energy Efficiency (OEE) reported some anomalies in petroleum products data for the commercial and institutional sector, more specifically, a sharp increase in consumption of these products since 1999. Some heavy fuel oil, light fuel oil and kerosene may be erroneously attributed to the commercial sector. There is some evidence that fuel marketers (included in the commercial/ institutional sector) are buying petroleum products from refineries and then re-selling them to other sectors (e.g. industrial, transportation). Natural Resources Canada (NRCan) is working with Statistics Canada to better understand the data trends and to improve the quality of the commercial/ institutional data reported.

The OEE developed the Commercial/Institutional End-Use Model (CEUM) to assess Canadian energy use trends in this sector. The CEUM uses floor space estimates, by region and building type, and energy intensity by region, building type and end-use to allocate energy reported by Statistics Canada in the RESD to ten activity types and six end-uses. Floor space estimates are developed by Informetrica Limited for the OEE from average costs per unit of floor space and investment flows for new construction. These estimates are categorized using the North American Industry Classification System

Commercial/ Institutional Sector

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(NAICS). The CEUM used the *Commercial and Institutional Consumption of Energy Survey* (CICES) as source data for energy intensities. The 2010 CICES collected data for the reference year 2008. This survey was undertaken by Statistics Canada on behalf of the OEE. Statistics Canada also reviewed and revised the two previous editions, which collected data for 2005 and 2007, respectively.

The CICES included new information related to the penetration rate for air conditioners. This information was used to update the penetration rate for air conditioners in the model and to refine the space cooling energy intensity calculation.

The model also takes into account the influence of weather on commercial/ institutional energy demand. It uses the number of heating degree-days in *Monthly Values of Degree-Days below 18.0°C* and the number of cooling degree-days in *Monthly Values of Degree-Days above 18.0°C* (both reports from Environment Canada).

The commercial/institutional price of heating oil and natural gas are weighted averages of regional prices taken from the Oil and Gas Policy and Regulatory Affairs Division of NRCan and Statistics Canada's *Energy Statistics Handbook* (Cat. No. 57-601-X), respectively. The commercial/institutional price of electricity is a weighted average of the data found in Hydro-Québec's *Comparison of Electricity Prices in Major North American Cities*.

Due to rounding, the numbers in the tables may not add up or calculate to their reported totals or growth rates.

3 Commercial/Institutional Sector

Commercial/Institutional Secondary Energy Use by Energy Source, End-Use and Activity Type

	1990	1995	2000	2001	2002
Total Energy Use (PJ)[a]	**867.0**	**960.9**	**1,072.8**	**1,060.9**	**1,131.5**
Energy Use by Energy Source (PJ)[a]					
Electricity	390.1	421.2	453.0	445.2	476.8
Natural Gas	387.1	427.6	503.2	488.4	517.2
Light Fuel Oil and Kerosene	62.0	61.2	60.4	63.6	73.9
Heavy Fuel Oil	11.4	8.6	19.8	26.8	27.4
Steam	0.2	0.4	0.3	0.3	0.3
Other[1]	16.3	41.8	36.1	36.6	35.9
Energy Use by End-Use (PJ)[b]					
Space Heating	471.8	524.4	578.7	547.9	594.4
Water Heating	67.5	72.7	90.0	92.9	91.4
Auxiliary Equipment	83.2	97.8	133.1	141.2	146.4
Auxiliary Motors	91.1	97.1	95.9	94.1	95.1
Lighting	114.2	121.8	120.2	117.8	119.5
Space Cooling	30.2	39.3	47.2	59.2	76.9
Street Lighting[f]	8.9	7.8	7.7	7.7	7.8

1) "Other" includes coal and propane.
2) Excludes street lighting.
3) "Offices" includes activities related to finance and insurance; real estate and rental and leasing; professional, scientific and technical services; and public administration.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
b) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, August 2010.
c) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.
d) Environment Canada, *Climate Summaries, Monthly Values of Degree-Days below 18.0°C, 1990–2008*, Ottawa.
e) Environment Canada, *Climate Summaries, Monthly Values of Degree-Days above 18.0°C, 1990–2008*, Ottawa.
f) Statistics Canada, *Electric Power Generation, Transmission and Distribution 2007*, Ottawa, June 2009 (Cat. No. 57-202-X).

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
1,166.5	**1,172.8**	**1,162.2**	**1,090.0**	**1,158.4**	**1,205.9**	**39.1%**
474.4	483.4	485.9	474.0	517.0	561.0	43.8%
525.1	514.1	504.9	467.6	479.6	491.0	26.8%
80.1	91.5	83.3	75.7	79.1	68.2	10.1%
53.5	48.8	55.6	42.5	47.0	47.3	316.7%
0.3	0.4	2.7	2.5	3.8	3.8	–
32.9	34.5	29.7	27.7	31.8	34.6	112.8%
615.9	614.6	593.9	534.5	564.1	576.9	22.3%
99.0	102.1	100.8	98.2	93.4	90.6	34.2%
157.9	171.2	172.7	176.7	204.7	232.0	178.8%
94.9	96.7	88.0	88.8	95.6	108.5	19.0%
119.1	121.4	109.0	108.4	116.5	133.1	16.5%
71.7	58.9	89.4	75.0	75.3	55.7	84.1%
7.8	7.8	8.3	8.3	8.8	9.1	1.7%

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Commercial/Institutional Secondary Energy Use by Energy Source, End-Use and Activity Type (continued)

	1990	1995	2000	2001	2002
Energy Use by Activity Type[2] (PJ)[b]					
Wholesale Trade	61.8	65.0	69.8	68.3	72.0
Retail Trade	142.5	154.1	173.3	171.6	182.7
Transportation and Warehousing	51.4	52.6	52.5	50.1	52.2
Information and Cultural Industries	16.7	19.7	23.3	23.1	24.9
Offices[3]	272.5	313.4	361.5	359.1	385.0
Educational Services	112.8	124.9	138.9	137.9	147.2
Health Care and Social Assistance	97.2	107.5	118.6	117.8	125.9
Arts, Entertainment and Recreation	19.6	24.2	27.2	26.9	28.6
Accommodation and Food Services	64.0	70.9	77.9	76.6	82.4
Other Services	19.6	20.8	22.2	21.7	22.9
Activity					
Total Floor Space (million m^2)[c]	509.9	558.7	601.1	610.2	620.8
Energy Intensity[2] (GJ/m^2)[a,c]	**1.68**	**1.71**	**1.77**	**1.73**	**1.81**
Heating Degree-Day Index[b,d]	**0.92**	**0.98**	**0.96**	**0.88**	**0.93**
Cooling Degree-Day Index[b,e]	**1.05**	**1.18**	**0.91**	**1.43**	**1.73**

1) "Other" includes coal and propane.
2) Excludes street lighting.
3) "Offices" includes activities related to finance and insurance; real estate and rental and leasing; professional, scientific and technical services; and public administration.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
b) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, August 2010.
c) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.
d) Environment Canada, *Climate Summaries, Monthly Values of Degree-Days below 18.0°C, 1990–2008*, Ottawa.
e) Environment Canada, *Climate Summaries, Monthly Values of Degree-Days above 18.0°C, 1990–2008*, Ottawa.
f) Statistics Canada, *Electric Power Generation, Transmission and Distribution 2007*, Ottawa, June 2009 (Cat. No. 57-202-X).

Commercial/Institutional Sector

⊂ continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
73.6	73.8	71.3	66.5	70.8	73.3	18.6%
188.9	193.2	191.7	180.9	194.2	203.6	42.9%
52.8	51.8	48.6	44.4	46.6	47.2	-8.2%
25.8	25.9	25.2	23.5	25.0	25.9	55.1%
398.1	398.2	406.1	381.1	405.4	422.4	55.0%
152.4	153.2	149.0	138.5	146.2	152.5	35.1%
128.5	129.2	126.4	118.9	125.9	131.1	34.9%
29.5	29.4	29.0	27.3	29.2	30.8	56.9%
85.6	87.1	84.6	80.3	85.0	88.2	37.9%
23.4	23.3	22.2	20.4	21.3	21.9	11.3%
631.2	642.6	654.2	667.3	679.7	698.3	36.9%
1.84	**1.81**	**1.76**	**1.62**	**1.69**	**1.71**	**1.8%**
0.96	**0.95**	**0.92**	**0.85**	**0.93**	**0.95**	–
1.32	**0.95**	**1.79**	**1.38**	**1.45**	**1.08**	–

3 Commercial/Institutional Sector

Commercial/Institutional GHG Emissions by Energy Source, End-Use and Activity Type – Including Electricity-Related Emissions

	1990	1995	2000	2001	2002
Total GHG Emissions Including Electricity (Mt of CO_2e)[a,d]	**47.5**	**50.1**	**61.0**	**61.9**	**64.1**
GHG Emissions by Energy Source (Mt of CO_2e)[a,d]					
Electricity	21.8	21.2	27.9	28.8	28.9
Natural Gas	19.5	21.4	25.2	24.4	25.8
Light Fuel Oil and Kerosene	4.4	4.3	4.2	4.5	5.2
Heavy Fuel Oil	0.9	0.7	1.5	2.0	2.0
Steam	0.0	0.0	0.0	0.0	0.0
Other[1]	1.0	2.5	2.2	2.2	2.2
GHG Emissions by End-Use (Mt of CO_2e)[b,d]					
Space Heating	25.5	27.8	31.3	29.8	32.3
Water Heating	3.6	3.9	4.9	5.0	5.0
Auxiliary Equipment	4.6	5.0	8.2	9.0	8.8
Auxiliary Motors	5.1	4.9	5.9	6.1	5.8
Lighting	6.4	6.1	7.4	7.6	7.2
Space Cooling	1.7	2.0	2.9	3.8	4.6
Street Lighting[c]	0.5	0.4	0.5	0.5	0.5
GHG Emissions by Activity Type[2] (Mt of CO_2e)[b,d]					
Wholesale Trade	3.4	3.4	3.9	3.9	4.0
Retail Trade	7.7	8.0	9.8	9.9	10.3
Transportation and Warehousing	2.8	2.7	3.0	2.9	2.9
Information and Cultural Industries	0.9	1.0	1.3	1.4	1.4
Offices[3]	14.9	16.3	20.5	20.9	21.8
Educational Services	6.2	6.5	7.9	8.1	8.4
Health Care and Social Assistance	5.4	5.6	6.8	6.9	7.2
Arts, Entertainment and Recreation	1.1	1.3	1.6	1.6	1.7
Accommodation and Food Services	3.5	3.7	4.4	4.5	4.7
Other Services	1.1	1.1	1.3	1.3	1.3
GHG Intensity (tonnes/TJ)[a,d]	**54.8**	**52.1**	**56.9**	**58.3**	**56.7**

1) "Other" includes coal and propane.
2) Excludes street lighting.
3) "Offices" includes activities related to finance and insurance; real estate and rental and leasing; professional, scientific and technical services; and public administration.

Commercial/Institutional Sector

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2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
68.1	**66.2**	**63.8**	**60.0**	**65.0**	**65.3**	**37.6%**
30.3	28.5	26.8	26.5	30.1	30.5	40.1%
26.2	25.6	25.1	23.3	23.9	24.4	25.2%
5.6	6.4	5.9	5.3	5.6	4.8	9.7%
4.0	3.6	4.1	3.1	3.5	3.5	309.2%
0.0	0.0	0.0	0.0	0.0	0.0	–
2.0	2.1	1.9	1.7	1.9	2.1	117.0%
33.9	33.8	32.5	29.0	30.8	31.1	21.9%
5.5	5.6	5.5	5.4	5.1	4.9	34.7%
10.0	10.1	9.5	9.9	11.9	12.7	172.3%
6.1	5.7	4.9	5.0	5.6	5.9	16.0%
7.6	7.2	6.0	6.1	6.8	7.2	13.5%
4.5	3.4	4.9	4.2	4.3	3.0	79.0%
0.5	0.5	0.5	0.5	0.5	0.5	-0.9%
4.3	4.1	3.9	3.6	3.9	3.9	17.5%
10.9	10.8	10.4	9.9	10.8	11.0	41.6%
3.0	2.9	2.7	2.4	2.6	2.6	-9.0%
1.5	1.5	1.4	1.3	1.4	1.4	54.1%
23.2	22.4	22.3	20.9	22.7	22.9	53.3%
8.9	8.7	8.2	7.6	8.2	8.3	33.5%
7.6	7.4	7.0	6.6	7.1	7.1	33.3%
1.8	1.7	1.6	1.5	1.7	1.7	56.3%
5.0	4.9	4.7	4.5	4.8	4.8	37.3%
1.4	1.3	1.2	1.1	1.2	1.2	9.7%
58.3	**56.5**	**54.9**	**55.0**	**56.1**	**54.2**	**-1.0%**

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, August 2010.

c) Statistics Canada, *Electric Power Generation, Transmission and Distribution 2007*, Ottawa, June 2009 (Cat. No. 57-202-X).

d) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

3 Commercial/Institutional Sector

Commercial/Institutional GHG Emissions by End-Use and Activity Type – Excluding Electricity-Related Emissions

	1990	1995	2000	2001	2002
Total GHG Emissions Excluding Electricity (Mt of CO_2e)[a,d]	**25.7**	**28.9**	**33.1**	**33.1**	**35.2**
GHG Emissions by End-Use (Mt of CO_2e)[b,d]					
Space Heating	22.1	24.9	28.1	27.5	29.8
Water Heating	3.2	3.5	4.3	4.7	4.6
Auxiliary Equipment	0.3	0.4	0.6	0.8	0.6
Auxiliary Motors	0.0	0.0	0.0	0.0	0.0
Lighting	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.1	0.1	0.1	0.2	0.2
Street Lighting[c]	0.0	0.0	0.0	0.0	0.0
GHG Emissions by Activity Type[1] (Mt of CO_2e)[b,d]					
Wholesale Trade	1.8	1.9	2.1	2.1	2.2
Retail Trade	4.2	4.6	5.3	5.3	5.6
Transportation and Warehousing	1.6	1.7	1.8	1.7	1.8
Information and Cultural Industries	0.5	0.6	0.7	0.7	0.8
Offices[2]	8.1	9.4	11.1	11.2	11.9
Educational Services	3.4	3.8	4.3	4.3	4.6
Health Care and Social Assistance	2.9	3.3	3.7	3.8	4.0
Arts, Entertainment and Recreation	0.6	0.7	0.8	0.8	0.9
Accommodation and Food Services	1.9	2.2	2.5	2.5	2.7
Other Services	0.6	0.6	0.7	0.7	0.7
GHG Intensity (tonnes/TJ)[a,d]	**29.6**	**30.0**	**30.9**	**31.2**	**31.2**

1) Excludes street lighting.
2) "Offices" includes activities related to finance and insurance; real estate and rental and leasing; professional, scientific and technical services; and public administration.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
b) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, August 2010.
c) Statistics Canada, *Electric Power Generation, Transmission and Distribution 2007*, Ottawa, June 2009 (Cat. No. 57-202-X).
d) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

Commercial/Institutional Sector

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
37.8	**37.7**	**37.0**	**33.5**	**34.9**	**34.8**	**35.6%**
31.8	31.6	30.6	27.3	28.9	28.9	30.9%
5.1	5.2	5.3	5.2	4.9	4.7	47.8%
0.7	0.8	0.8	0.8	0.9	1.0	195.1%
0.0	0.0	0.0	0.0	0.0	0.0	–
0.0	0.0	0.0	0.0	0.0	0.0	–
0.2	0.2	0.3	0.2	0.2	0.2	219.0%
0.0	0.0	0.0	0.0	0.0	0.0	–
2.4	2.4	2.2	2.0	2.1	2.1	14.3%
6.0	6.1	6.0	5.5	5.8	5.8	37.6%
1.9	1.9	1.7	1.5	1.6	1.6	-5.2%
0.8	0.8	0.8	0.7	0.7	0.7	49.1%
12.8	12.7	13.0	11.7	12.3	12.2	50.5%
5.0	5.0	4.7	4.2	4.4	4.4	30.5%
4.2	4.3	4.1	3.7	3.9	3.9	31.8%
1.0	1.0	0.9	0.8	0.9	0.9	53.5%
2.9	2.9	2.8	2.6	2.7	2.7	37.0%
0.8	0.8	0.7	0.6	0.6	0.6	9.0%
32.4	**32.2**	**31.8**	**30.7**	**30.2**	**28.9**	**-2.5%**

3 Commercial/Institutional Sector

Commercial/Institutional Secondary Energy Use by Activity Type and Energy Source

	1990	1995	2000	2001	2002
Total Energy Use for Wholesale Trade (PJ)[a]	**61.8**	**65.0**	**69.8**	**68.3**	**72.0**
Energy Use by Energy Source (PJ)[a]					
Electricity	27.4	28.2	29.0	28.4	30.0
Natural Gas	29.1	30.2	34.7	33.4	34.6
Light Fuel Oil and Kerosene	3.5	3.3	2.5	2.8	3.5
Heavy Fuel Oil	0.6	0.5	1.2	1.3	1.6
Steam	0.0	0.0	0.0	0.0	0.0
Other[1]	1.2	2.8	2.3	2.3	2.2
Activity					
Floor Space (million m^2)[b]	38.61	39.95	41.05	41.27	41.45
Energy Intensity (GJ/m^2)[a,b]	**1.60**	**1.63**	**1.70**	**1.65**	**1.74**
Total Energy Use for Retail Trade (PJ)[a]	**142.5**	**154.1**	**173.3**	**171.6**	**182.7**
Energy Use by Energy Source (PJ)[a]					
Electricity	63.2	66.7	72.5	71.4	76.6
Natural Gas	66.9	71.7	85.8	83.9	87.7
Light Fuel Oil and Kerosene	8.1	7.8	6.2	7.1	8.8
Heavy Fuel Oil	1.5	1.2	2.8	3.2	4.0
Steam	0.0	0.1	0.1	0.1	0.1
Other[1]	2.6	6.7	5.8	5.9	5.6
Activity					
Floor Space (million m^2)[b]	80.84	86.04	92.95	94.59	96.19
Energy Intensity (GJ/m^2)[a,b]	**1.76**	**1.79**	**1.86**	**1.81**	**1.90**

1) "Other" includes coal and propane.
2) "Offices" includes activities related to finance and insurance; real estate and rental and leasing; professional, scientific and technical services; and public administration.

Sources:

a) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, August 2010.
b) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

Commercial/Institutional Sector

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
73.6	**73.8**	**71.3**	**66.5**	**70.8**	**73.3**	**18.6%**
29.6	30.1	29.8	29.0	31.7	34.1	24.5%
35.1	34.4	32.7	29.8	30.6	30.8	6.1%
3.8	4.3	3.8	3.5	3.6	3.3	-6.0%
3.1	2.9	3.2	2.4	2.7	2.7	324.4%
0.0	0.0	0.2	0.2	0.3	0.3	–
2.0	2.1	1.6	1.7	1.9	2.0	74.3%
41.87	42.40	42.78	43.38	44.16	44.97	16.5%
1.76	**1.74**	**1.67**	**1.53**	**1.60**	**1.63**	**1.8%**
188.9	**193.2**	**191.7**	**180.9**	**194.2**	**203.6**	**42.9%**
76.4	79.2	80.6	79.0	87.1	95.0	50.2%
89.7	89.8	87.4	80.7	83.7	85.7	28.0%
9.7	11.2	10.5	9.8	10.2	9.3	14.4%
7.8	7.2	8.5	6.5	7.3	7.5	396.6%
0.1	0.1	0.5	0.4	0.7	0.7	–
5.2	5.6	4.3	4.5	5.2	5.5	110.3%
98.39	101.62	104.12	106.89	109.96	113.74	40.7%
1.92	**1.90**	**1.84**	**1.69**	**1.77**	**1.79**	**1.6%**

table continued on next page ➲

Commercial/Institutional Secondary Energy Use by Activity Type and Energy Source (continued)

	1990	1995	2000	2001	2002
Total Energy Use for Transportation and Warehousing (PJ)[a]	**51.4**	**52.6**	**52.5**	**50.1**	**52.2**
Energy Use by Energy Source (PJ)[a]					
Electricity	21.0	20.7	19.2	18.2	18.7
Natural Gas	25.0	25.6	27.1	25.3	26.7
Light Fuel Oil and Kerosene	3.9	3.6	3.4	3.3	3.6
Heavy Fuel Oil	0.7	0.5	1.2	1.6	1.6
Steam	0.0	0.0	0.0	0.0	0.0
Other[1]	0.8	2.2	1.7	1.7	1.5
Activity					
Floor Space (million m^2)[b]	33.92	34.22	33.72	33.58	33.39
Energy Intensity (GJ/m^2)[a,b]	**1.52**	**1.54**	**1.56**	**1.49**	**1.56**
Total Energy Use for Information and Cultural Industries (PJ)[a]	**16.7**	**19.7**	**23.3**	**23.1**	**24.9**
Energy Use by Energy Source (PJ)[a]					
Electricity	7.6	8.8	10.1	10.0	10.8
Natural Gas	7.0	8.3	10.0	9.8	10.2
Light Fuel Oil and Kerosene	1.5	1.6	2.0	2.0	2.4
Heavy Fuel Oil	0.3	0.2	0.4	0.6	0.6
Steam	0.0	0.0	0.0	0.0	0.0
Other[1]	0.3	0.8	0.7	0.8	0.8
Activity					
Floor Space (million m^2)[b]	8.97	10.49	11.83	12.07	12.34
Energy Intensity (GJ/m^2)[a,b]	**1.86**	**1.88**	**1.97**	**1.92**	**2.01**

1) "Other" includes coal and propane.
2) "Offices" includes activities related to finance and insurance; real estate and rental and leasing; professional, scientific and technical services; and public administration.

Sources:

a) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, August 2010.
b) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

⊂ continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
52.8	**51.8**	**48.6**	**44.4**	**46.6**	**47.2**	**-8.2%**
18.0	17.8	16.9	16.2	17.3	18.4	-12.1%
26.7	25.5	23.9	21.4	21.9	21.9	-12.6%
3.9	4.5	3.9	3.4	3.6	3.1	-21.5%
2.9	2.6	2.8	2.2	2.4	2.5	256.8%
0.0	0.0	0.2	0.2	0.3	0.3	–
1.3	1.3	0.9	0.9	1.1	1.1	31.1%
33.41	33.35	33.26	33.37	33.70	33.88	-0.1%
1.58	**1.55**	**1.46**	**1.33**	**1.38**	**1.39**	**-8.1%**
25.8	**25.9**	**25.2**	**23.5**	**25.0**	**25.9**	**55.1%**
10.8	11.0	11.0	10.6	11.6	12.5	64.1%
10.4	10.0	9.7	9.0	9.1	9.5	34.5%
2.6	3.0	2.6	2.3	2.5	2.0	38.6%
1.3	1.1	1.3	1.0	1.1	1.1	319.4%
0.0	0.0	0.0	0.0	0.1	0.1	–
0.7	0.7	0.6	0.6	0.7	0.7	142.3%
12.55	12.71	12.93	13.19	13.39	13.72	53.0%
2.06	**2.03**	**1.95**	**1.78**	**1.87**	**1.89**	**1.4%**

table continued on next page ⊃

Commercial/Institutional Secondary Energy Use by Activity Type and Energy Source (continued)

	1990	1995	2000	2001	2002
Total Energy Use for Offices[2] (PJ)[a]	**272.5**	**313.4**	**361.5**	**359.1**	**385.0**
Energy Use by Energy Source (PJ)[a]					
Electricity	121.4	136.9	152.5	151.0	162.5
Natural Gas	122.9	139.9	170.2	165.4	178.4
Light Fuel Oil and Kerosene	19.4	20.0	20.2	21.6	23.6
Heavy Fuel Oil	3.6	2.8	6.2	8.8	8.6
Steam	0.1	0.1	0.1	0.1	0.1
Other[1]	5.1	13.7	12.1	12.3	11.8
Activity					
Floor Space (million m^2)[b]	193.95	219.73	243.07	247.63	253.03
Energy Intensity (GJ/m^2)[a,b]	**1.40**	**1.43**	**1.49**	**1.45**	**1.52**
Total Energy Use for Educational Services (PJ)[a]	**112.8**	**124.9**	**138.9**	**137.9**	**147.2**
Energy Use by Energy Source (PJ)[a]					
Electricity	51.1	55.1	59.0	58.2	62.2
Natural Gas	48.8	54.2	63.3	61.6	65.9
Light Fuel Oil and Kerosene	9.1	8.9	8.8	9.3	10.3
Heavy Fuel Oil	1.7	1.3	2.8	3.9	3.9
Steam	0.0	0.1	0.0	0.0	0.0
Other[1]	2.1	5.4	5.0	4.9	4.8
Activity					
Floor Space (million m^2)[b]	68.14	74.28	79.14	80.56	82.00
Energy Intensity (GJ/m^2)[a,b]	**1.66**	**1.68**	**1.75**	**1.71**	**1.79**

1) "Other" includes coal and propane.
2) "Offices" includes activities related to finance and insurance; real estate and rental and leasing; professional, scientific and technical services; and public administration.

Sources:

a) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, August 2010.
b) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

⊂ continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
398.1	**398.2**	**406.1**	**381.1**	**405.4**	**422.4**	**55.0%**
162.4	164.7	167.5	163.6	178.6	195.2	60.8%
181.8	177.7	179.8	168.4	172.9	175.3	42.6%
25.7	29.1	27.6	25.1	26.6	23.1	18.7%
17.2	15.1	18.0	13.6	15.1	15.0	320.9%
0.1	0.2	0.9	0.8	1.2	1.3	–
10.9	11.4	12.2	9.5	10.9	12.4	145.1%
257.92	262.69	267.84	273.72	278.83	286.68	47.8%
1.54	**1.52**	**1.52**	**1.39**	**1.45**	**1.47**	**4.9%**
152.4	**153.2**	**149.0**	**138.5**	**146.2**	**152.5**	**35.1%**
62.3	63.4	63.2	61.0	66.2	71.8	40.5%
67.0	65.2	62.9	57.5	58.5	60.2	23.3%
11.2	12.9	11.3	10.1	10.5	9.1	-0.3%
7.6	7.0	7.7	5.9	6.4	6.5	286.9%
0.0	0.0	0.3	0.3	0.5	0.5	–
4.4	4.6	3.5	3.6	4.1	4.3	105.6%
83.42	84.59	86.06	87.09	87.98	90.45	32.7%
1.83	**1.81**	**1.73**	**1.59**	**1.66**	**1.69**	**1.8%**

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Commercial/Institutional Secondary Energy Use by Activity Type and Energy Source (continued)

	1990	1995	2000	2001	2002
Total Energy Use for Health Care and Social Assistance (PJ)[a]	**97.2**	**107.5**	**118.6**	**117.8**	**125.9**
Energy Use by Energy Source (PJ)[a]					
Electricity	43.6	46.9	50.0	48.8	52.7
Natural Gas	41.7	46.5	52.8	51.9	55.4
Light Fuel Oil and Kerosene	8.5	8.3	9.2	9.1	10.1
Heavy Fuel Oil	1.6	1.2	2.8	3.8	3.7
Steam	0.0	0.0	0.0	0.0	0.0
Other[1]	1.9	4.6	3.9	4.2	3.9
Activity					
Floor Space (million m^2)[b]	38.16	41.58	44.10	44.77	45.63
Energy Intensity (GJ/m^2)[a,b]	**2.55**	**2.58**	**2.69**	**2.63**	**2.76**
Total Energy Use for Arts, Entertainment and Recreation (PJ)[a]	**19.6**	**24.2**	**27.2**	**26.9**	**28.6**
Energy Use by Energy Source (PJ)[a]					
Electricity	9.0	10.9	11.8	11.6	12.3
Natural Gas	8.3	10.2	11.8	11.5	11.5
Light Fuel Oil and Kerosene	1.7	1.9	2.3	2.2	3.1
Heavy Fuel Oil	0.3	0.2	0.5	0.7	0.8
Steam	0.0	0.0	0.0	0.0	0.0
Other[1]	0.3	1.0	0.8	0.9	1.0
Activity					
Floor Space (million m^2)[b]	10.40	12.59	13.73	13.94	14.08
Energy Intensity (GJ/m^2)[a,b]	**1.89**	**1.92**	**1.98**	**1.93**	**2.03**

1) "Other" includes coal and propane.
2) "Offices" includes activities related to finance and insurance; real estate and rental and leasing; professional, scientific and technical services; and public administration.

Sources:

a) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, August 2010.
b) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

⊂ continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
128.5	**129.2**	**126.4**	**118.9**	**125.9**	**131.1**	**34.9%**
52.0	52.7	52.5	51.3	55.9	60.4	38.6%
55.3	53.6	52.6	48.9	49.9	52.0	24.7%
10.7	12.6	11.0	9.9	10.4	8.8	4.1%
7.0	6.6	7.2	5.5	6.0	5.9	278.7%
0.0	0.0	0.3	0.3	0.4	0.4	–
3.5	3.7	2.8	2.9	3.4	3.5	90.0%
45.90	46.48	47.42	48.53	49.47	51.03	33.7%
2.80	**2.78**	**2.67**	**2.45**	**2.55**	**2.57**	**0.9%**
29.5	**29.4**	**29.0**	**27.3**	**29.2**	**30.8**	**56.9%**
12.2	12.4	12.5	12.3	13.4	14.8	63.8%
11.6	11.1	10.9	10.1	10.4	11.1	34.4%
3.3	3.6	3.3	3.0	3.1	2.5	47.8%
1.5	1.3	1.5	1.2	1.3	1.4	384.1%
0.0	0.0	0.1	0.1	0.1	0.1	–
0.9	0.9	0.7	0.7	0.8	0.9	166.4%
14.30	14.47	14.92	15.25	15.70	16.33	57.0%
2.07	**2.03**	**1.94**	**1.79**	**1.86**	**1.88**	**-0.1%**

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Commercial/Institutional Secondary Energy Use by Activity Type and Energy Source (continued)

	1990	1995	2000	2001	2002
Total Energy Use for Accommodation and Food Services (PJ)[a]	**64.0**	**70.9**	**77.9**	**76.6**	**82.4**
Energy Use by Energy Source (PJ)[a]					
Electricity	27.8	30.0	31.8	31.0	33.5
Natural Gas	29.2	32.2	37.5	36.0	36.7
Light Fuel Oil and Kerosene	4.5	4.3	4.1	4.6	6.7
Heavy Fuel Oil	0.8	0.6	1.3	2.0	2.0
Steam	0.0	0.0	0.0	0.0	0.0
Other[1]	1.6	3.7	3.0	3.0	3.5
Activity					
Floor Space (million m^2)[b]	24.40	26.76	28.26	28.51	29.28
Energy Intensity (GJ/m^2)[a,b]	**2.62**	**2.65**	**2.75**	**2.69**	**2.81**
Total Energy Use for Other Services (PJ)[a]	**19.6**	**20.8**	**22.2**	**21.7**	**22.9**
Energy Use by Energy Source (PJ)[a]					
Electricity	9.0	9.3	9.4	9.1	9.7
Natural Gas	8.2	8.8	9.9	9.6	10.1
Light Fuel Oil and Kerosene	1.8	1.6	1.6	1.6	1.7
Heavy Fuel Oil	0.3	0.2	0.5	0.7	0.7
Steam	0.0	0.0	0.0	0.0	0.0
Other[1]	0.4	0.8	0.7	0.7	0.7
Activity					
Floor Space (million m^2)[b]	12.54	13.07	13.25	13.33	13.45
Energy Intensity (GJ/m^2)[a,b]	**1.56**	**1.59**	**1.67**	**1.63**	**1.70**

1) "Other" includes coal and propane.
2) "Offices" includes activities related to finance and insurance; real estate and rental and leasing; professional, scientific and technical services; and public administration.

Sources:

a) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, August 2010.
b) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

⊂ continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
85.6	**87.1**	**84.6**	**80.3**	**85.0**	**88.2**	**37.9%**
33.6	34.7	34.4	33.8	36.8	39.3	41.4%
37.5	37.0	35.8	33.5	34.2	35.9	22.7%
7.3	8.1	7.5	6.9	7.0	5.6	24.9%
3.9	3.8	4.2	3.3	3.7	3.7	357.8%
0.0	0.0	0.1	0.1	0.2	0.2	–
3.3	3.5	2.7	2.8	3.2	3.5	118.1%
29.93	30.80	31.41	32.42	33.02	33.99	39.3%
2.86	**2.83**	**2.69**	**2.48**	**2.57**	**2.60**	**-1.0%**
23.4	**23.3**	**22.2**	**20.4**	**21.3**	**21.9**	**11.3%**
9.5	9.6	9.3	8.9	9.6	10.2	13.3%
10.1	9.7	9.2	8.4	8.4	8.6	5.6%
1.8	2.2	1.8	1.6	1.7	1.5	-18.1%
1.3	1.2	1.2	0.9	1.0	1.0	191.1%
0.0	0.0	0.1	0.0	0.1	0.1	–
0.6	0.6	0.5	0.5	0.5	0.6	53.7%
13.45	13.47	13.47	13.49	13.46	13.55	8.0%
1.74	**1.73**	**1.65**	**1.51**	**1.59**	**1.61**	**3.0%**

3 Commercial/Institutional Sector

Commercial/Institutional Energy Prices and Background Indicators

	1990	1995	2000	2001	2002
Energy Prices by Energy Source (incl. taxes)					
Natural Gas (cents/m^3)[a,d]	15.3	17.7	26.4	37.0	31.2
Light Fuel Oil (cents/litre)[e]	25.8	22.1	40.1	35.6	34.7
Heavy Fuel Oil (cents/litre)[e]	14.1	16.2	28.5	26.9	29.6
Electricity (40 kW/10,000 kWh)[1] (cents/kWh)[b,d]	7.7	9.5	8.7	8.8	9.2
Electricity (500 kW/100,000 kWh)[1] (cents/kWh)[b,d]	8.4	10.3	9.5	10.0	10.3
Background Indicators					
Commercial/Institutional Floor Space (million m^2)[c]	509.9	558.7	601.1	610.2	620.8
Commercial/Institutional Employees (thousands)[c]	9,337	9,828	10,942	11,166	11,432
Employees (per thousand m^2)[c]	18.3	17.6	18.2	18.3	18.4
Commercial/Institutional GDP (million $2002)[c]	477,088	528,086	635,817	659,667	681,987

1) kW refers to power hook-up, whereas kWh refers to monthly electricity consumption.

Sources:

a) Statistics Canada, *Energy Statistics Handbook*, Ottawa, September 2009 (Cat. No. 57-601).
b) Hydro-Québec, *Comparison of Electricity Prices in Major North American Cities*, April 2008.
c) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.
d) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
e) Natural Resources Canada, Oil and Gas Policy and Regulatory Affairs Division, Ottawa, May 2008.

Commercial/Institutional Sector

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
40.0	40.3	43.4	46.0	42.0	44.5	190.4%
38.7	46.5	61.9	64.2	68.6	94.3	266.1%
31.1	30.7	38.2	39.2	44.3	57.6	310.3%
9.4	9.7	10.1	10.3	10.8	10.9	41.7%
11.2	10.9	11.7	11.5	11.6	12.3	45.9%
631.2	642.6	654.2	667.3	679.7	698.3	36.9%
11,746	11,957	12,169	12,498	12,873	13,105	40.3%
18.6	18.6	18.6	18.7	18.9	18.8	2.5%
698,531	722,718	746,158	777,590	806,545	825,904	73.1%

4 Industrial Sector

The Data Situation

The aggregate energy use data presented for the industrial sector are taken from Statistics Canada's *Report on Energy Supply-Demand in Canada* (RESD) (Cat. No. 57-003-X). The RESD contains data derived primarily from Statistics Canada surveys of energy distributors and end-users as well as administrative records received by Statistics Canada. Such data are then supplemented with data from the National Energy Board and various energy-producing provinces. The major energy survey used for the industrial sector is the *Industrial Consumption of Energy* (ICE)[1] survey (Cat. No. 57-505-X).

To provide more detail about the industrial end-use energy trends over time, the Office of Energy Efficiency (OEE) developed the Industrial End-Use Model (IEUM). The detailed energy use data presented in the IEUM are taken from the ICE survey for 1990 and from 1995 and beyond. Data for 1991 to 1994 are from the Canadian Industrial End-Use Energy Data and Analysis Centre's (CIEEDAC's) report *Energy Intensity Indicators for Canadian Industry 1990–2008*. OEE also updates its energy end-use database by including energy consumption data from the Annual Census of Mines and other industry associations.

Informetrica Limited has provided physical units, gross domestic product (GDP) and gross output (GO) data, and prediction in physical units (where applicable). Energy intensities for pulp mills and iron and steel are now reported on a GO basis.

[1] From 1991 to 1994, not all of the 49 industries are available because of the conversion to the North American Industrial Classification System (NAICS) in 2001.

4 Industrial Sector

Industrial oil and natural gas prices are a weighted average of regional prices taken from the Petroleum Resources Branch of Natural Resources Canada and Statistics Canada's *Energy Statistics Handbook* (Cat. No. 57-601-X), respectively. Electricity prices are a weighted average of the data found in Hydro-Québec's *Comparison of Electricity Prices in Major North American Cities*.

Due to rounding, the numbers in the tables may not add up or calculate to their reported totals or growth rates.

4 Industrial Sector

Industrial Secondary Energy Use and GHG Emissions by Energy Source

	1990	1995	2000	2001	2002
Total Energy Use (PJ)[a,d]	**2,710.0**	**2,919.8**	**3,124.5**	**3,010.9**	**3,168.1**
Energy Use by Energy Source (PJ)[a,d]					
Electricity	658.4	738.4	810.8	809.2	822.6
Natural Gas	837.2	898.9	950.2	847.2	929.3
Diesel Fuel Oil, Light Fuel Oil and Kerosene	127.7	129.3	145.4	140.7	134.1
Heavy Fuel Oil	201.1	147.0	144.3	144.2	125.6
Still Gas and Petroleum Coke	309.9	352.6	341.4	378.8	443.1
LPG and NGL	26.0	32.3	39.4	41.2	36.3
Coal	49.4	46.6	55.3	57.5	53.2
Coke and Coke Oven Gas	131.3	135.0	136.5	128.6	125.1
Wood Waste and Pulping Liquor	341.0	407.0	464.4	425.2	458.6
Other[1]	27.9	32.8	36.8	38.4	40.2
Activity					
GDP (million $2002)[b]	221,113	238,232	297,784	295,030	301,126
GO (million $2002)[b]	572,566	622,947	794,437	793,554	817,837
Energy Intensity (MJ/$2002 – GDP)[a,b,d]	**12.3**	**12.3**	**10.5**	**10.2**	**10.5**
Energy Intensity (MJ/$2002 – GO)[a,b,d]	**4.7**	**4.7**	**3.9**	**3.8**	**3.9**

1) "Other" includes steam and waste fuels from the cement industry.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

c) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

d) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
3,257.8	**3,311.6**	**3,244.2**	**3,155.5**	**3,417.6**	**3,237.8**	**19.5%**
831.5	835.5	859.7	835.8	804.2	786.3	19.4%
968.9	980.6	923.6	952.9	1,110.5	1,025.4	22.5%
142.8	153.5	156.9	156.1	168.3	166.9	30.7%
154.0	147.8	159.6	110.5	108.2	85.2	-57.6%
437.2	415.9	402.4	438.0	504.5	451.8	45.8%
32.0	34.3	53.6	52.7	58.0	62.1	138.7%
57.3	62.1	49.4	55.4	60.1	60.4	22.1%
125.8	123.9	122.8	132.9	129.8	108.8	-17.1%
468.0	514.4	468.2	383.9	439.4	458.0	34.3%
40.4	43.5	48.1	37.3	34.6	33.0	18.2%
305,084	315,487	322,120	322,831	322,472	309,520	40.0%
817,114	844,796	863,409	872,315	881,435	826,305	44.3%
10.7	**10.5**	**10.1**	**9.8**	**10.6**	**10.5**	**-14.7%**
4.0	**3.9**	**3.8**	**3.6**	**3.9**	**3.9**	**-17.1%**

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Industrial Secondary Energy Use and GHG Emissions by Energy Source (continued)

	1990	1995	2000	2001	2002
Total GHG Emissions Including Electricity (Mt of CO_2e)[a,c,d]	**136.0**	**138.2**	**155.3**	**153.8**	**155.8**
GHG Emissions by Energy Source (Mt of CO_2e)[a,c,d]					
Electricity	36.7	37.2	50.0	52.3	49.9
Natural Gas	42.2	44.9	47.6	42.3	46.4
Diesel Fuel Oil, Light Fuel Oil and Kerosene	9.2	9.3	10.6	10.2	9.7
Heavy Fuel Oil	15.2	11.1	10.7	10.7	9.3
Still Gas and Petroleum Coke	15.1	17.4	17.1	19.2	22.3
LPG and NGL	1.6	2.0	2.4	2.5	2.2
Coal	4.4	4.2	4.8	5.0	4.7
Coke and Coke Oven Gas	11.3	11.7	11.7	11.0	10.7
Wood Waste and Pulping Liquor	0.2	0.2	0.2	0.2	0.2
Other[1]	0.1	0.3	0.3	0.2	0.4
GHG Intensity (tonnes/TJ)[a,c,d]	**50.2**	**47.3**	**49.7**	**51.1**	**49.2**
Total GHG Emissions Excluding Electricity (Mt of CO_2e)[a,c,d]	**99.2**	**101.0**	**105.3**	**101.4**	**106.0**
GHG Intensity (tonnes/TJ)[a,c,d]	**36.6**	**34.6**	**33.7**	**33.7**	**33.5**

1) "Other" includes steam and waste fuels from the cement industry.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

c) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

d) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

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2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
163.6	**161.0**	**156.2**	**155.7**	**168.3**	**154.0**	**13.2%**
53.1	49.3	47.4	46.7	46.8	42.8	16.4%
48.2	48.8	45.9	47.5	55.4	51.0	20.9%
10.4	11.1	11.4	11.3	12.2	12.1	32.1%
11.4	11.0	11.8	8.2	8.0	6.3	-58.4%
22.1	22.0	21.0	22.1	25.3	22.8	50.9%
2.0	2.1	3.3	3.2	3.5	3.8	141.4%
5.0	5.5	4.3	4.8	5.2	5.3	19.3%
10.8	10.6	10.5	11.4	11.1	9.3	-17.7%
0.2	0.3	0.2	0.2	0.2	0.2	29.4%
0.4	0.4	0.3	0.3	0.4	0.4	233.3%
50.2	**48.6**	**48.1**	**49.4**	**49.2**	**47.6**	**-5.2%**
110.5	**111.7**	**108.8**	**109.0**	**121.5**	**111.2**	**12.1%**
33.9	**33.7**	**33.5**	**34.5**	**35.5**	**34.4**	**-6.2%**

4 Industrial Sector

Industrial Secondary Energy Use by Industry

	1990	1995	2000	2001	2002
Total Energy Use (PJ)[a,c]	**2,710.0**	**2,919.8**	**3,124.5**	**3,010.9**	**3,168.1**
Energy Use by Industry (PJ)[a,c]					
Copper, Nickel, Lead and Zinc Mines	36.6	29.2	23.2	24.6	22.3
Iron Mines	39.8	37.4	35.5	30.7	31.3
Gold and Silver Mines	13.2	12.6	12.8	13.7	14.4
Other Metal Mines	9.1	5.6	5.0	8.3	10.4
Salt Mines	2.9	3.4	2.6	2.6	2.5
Potash Mines	27.4	31.8	29.7	28.5	28.3
Other Non-Metal Mines	8.0	6.3	7.9	7.6	7.5
Upstream Mining	210.9	323.1	404.4	415.0	435.3
Fruit and Vegetable Industries	9.1	9.8	12.1	13.1	12.1
Dairy Products Industry	11.7	10.5	12.1	11.7	11.8
Meat Products Industries	12.5	13.1	18.0	18.1	16.6
Bakery Products Industries	9.2	6.4	6.8	8.2	9.0
Beverage Industries (excluding breweries)	3.3	5.3	6.1	5.4	5.9
Breweries Industries	7.8	6.1	5.7	5.6	5.9
Tobacco Products Industries	1.3	1.0	1.0	1.0	0.9
Textile Mills	13.9	14.7	9.9	8.5	8.1
Textile Products Mills	6.8	6.9	4.0	4.1	4.2
Clothing Industries	6.0	5.3	5.1	5.1	4.9
Leather and Allied Products Industries	1.4	1.0	1.1	1.1	0.9
Wood Products Industries	44.3	46.8	62.0	48.7	52.8
Pulp Mills	297.9	353.3	369.7	329.7	336.0
Paper Mills (except newsprint)	99.3	104.4	113.3	95.9	97.2
Newsprint Mills	244.8	257.2	264.5	232.3	240.0
Paperboard Mills	62.0	64.4	70.3	66.1	67.1
Other Pulp and Paper Manufacturing	22.2	15.6	35.5	30.4	37.1
Converted Paper Products Industry	11.1	11.0	12.3	16.4	16.8
Printing and Related Support Activities	10.9	7.9	9.7	8.6	8.4
Petroleum Refining	323.1	302.1	295.1	311.4	381.1
Petrochemical Industry	32.1	34.1	42.4	44.3	46.7
Industrial Gas Industry	5.9	5.8	8.6	8.9	9.1

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

c) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
3,257.8	**3,311.6**	**3,244.2**	**3,155.5**	**3,417.6**	**3,237.8**	**19.5%**
21.3	21.2	24.4	22.5	24.3	25.5	-30.2%
36.4	28.0	32.2	23.2	21.9	24.2	-39.1%
14.1	13.6	13.0	12.6	12.9	14.2	8.0%
7.5	6.3	6.6	6.7	6.9	7.1	-21.8%
2.5	2.3	2.5	2.4	2.3	2.3	-23.1%
29.9	31.7	28.6	34.0	35.6	33.4	21.7%
9.0	8.7	9.2	9.0	8.7	10.3	29.9%
532.0	524.2	564.2	600.1	728.8	709.6	236.5%
12.3	11.9	14.2	13.8	13.1	11.8	30.0%
11.4	11.4	10.7	10.1	9.5	9.7	-17.5%
16.2	17.6	18.4	18.9	18.2	18.1	44.2%
8.7	8.7	9.6	9.7	10.0	9.9	8.4%
5.8	6.1	6.4	6.1	6.0	5.7	70.8%
5.3	5.2	5.1	4.2	4.1	4.1	-47.7%
0.9	0.7	0.8	0.7	0.5	0.3	-74.6%
8.0	8.0	7.7	7.3	6.3	4.9	-65.0%
3.5	3.4	3.5	3.0	2.8	2.6	-62.5%
5.0	4.0	2.2	1.8	1.5	1.6	-73.6%
0.8	0.6	0.3	0.2	0.3	0.3	-78.6%
45.2	48.3	50.4	51.3	52.2	49.8	12.6%
351.8	356.5	332.3	302.1	290.4	253.2	-15.0%
110.9	114.9	114.2	82.8	79.8	77.1	-22.4%
236.9	231.9	206.4	183.7	178.3	158.8	-35.1%
66.2	68.8	63.8	54.5	46.5	46.2	-25.4%
37.9	54.2	66.5	26.5	46.9	77.0	247.4%
17.0	17.9	19.9	16.5	18.3	13.9	25.1%
8.7	8.5	8.9	8.5	8.3	10.2	-6.5%
358.6	340.3	302.0	315.3	367.8	337.1	4.3%
52.8	58.5	61.9	60.0	60.6	61.1	90.3%
9.2	10.5	8.3	13.7	12.5	11.1	87.9%

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Industrial Secondary Energy Use by Industry (continued)

	1990	1995	2000	2001	2002
Energy Use by Industry (PJ)[a,c] (continued)					
Alkali and chlorine manufacturing	30.4	30.1	29.9	24.9	17.8
All other basic inorganic chemical manufacturing	28.6	30.8	33.0	34.1	29.9
Chemical fertilizer (except potash) manufacturing	31.9	55.9	63.5	62.1	54.1
Other Chemical Manufacturing	94.2	96.4	52.7	33.4	42.7
Resin and Synthetic Rubber Industries	48.1	30.6	39.7	36.8	33.6
Motor Vehicle Plastic Parts Manufacturing	2.8	2.7	4.4	5.2	4.2
Rubber Products Industries	9.5	9.9	11.3	10.9	11.2
Cement Industry	59.3	61.2	63.6	61.9	66.4
Iron and Steel	219.4	247.8	257.6	228.5	239.5
Primary Production of Alumina and Aluminum	109.8	140.7	155.5	164.5	174.7
Other Non-Ferrous Smelting and Refining	73.5	79.5	79.2	84.4	80.4
Fabricated Metal Products Industries	37.3	36.4	32.8	37.3	40.4
Machinery Industries	12.2	13.7	13.8	13.3	13.7
Computer and Electronic Products Industries	4.6	5.9	6.6	3.7	3.9
Electrical Equipment and Components Industries	8.5	7.7	7.0	6.3	6.0
Motor Vehicle Industry	18.5	24.6	27.7	23.7	23.5
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	3.1	2.9	3.7	2.8	3.0
Motor Vehicle Electrical and Electronic Equipment Manufacturing	0.3	0.3	0.5	0.5	0.7
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	2.1	2.1	2.2	1.6	1.8
Motor Vehicle Brake System Manufacturing	1.8	2.1	2.4	2.9	2.8
Motor Vehicle Transmission and Power Train Parts Manufacturing	3.0	2.0	2.7	2.7	2.8
Motor Vehicle Seating and Interior Trim Manufacturing	1.2	1.2	1.8	1.7	2.0
Motor Vehicle Metal Stamping	3.3	3.5	3.8	3.8	4.5
Other Motor Vehicle Parts Manufacturing	3.2	3.2	3.9	4.2	5.9
Furniture and Related Products Industries	6.7	6.7	9.9	10.6	11.0
Miscellaneous Manufacturing	4.7	4.1	5.0	5.5	6.3
Other Manufacturing n.e.c.	233.1	228.9	257.9	271.8	289.6

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

c) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

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2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
16.6	17.5	16.2	14.6	8.5	8.2	-73.1%
33.6	36.0	37.4	33.9	28.2	27.7	-3.1%
58.0	58.2	53.2	54.8	52.7	48.6	52.2%
20.9	33.2	30.4	31.4	53.1	43.8	-53.5%
28.8	27.8	24.8	33.2	32.4	31.3	-35.0%
4.2	5.8	4.7	4.5	3.9	4.1	48.2%
11.2	10.0	10.2	9.5	9.1	8.5	-10.5%
63.4	65.5	63.0	70.5	66.1	60.6	2.1%
233.7	235.2	236.9	233.6	244.3	212.3	-3.2%
186.8	173.6	196.5	197.3	197.4	202.4	84.4%
76.5	76.6	72.0	72.0	66.4	66.3	-9.8%
39.0	41.2	40.7	38.3	39.7	44.5	19.5%
15.1	16.0	18.0	16.7	17.7	17.6	44.2%
4.6	5.1	5.6	5.4	5.8	5.2	11.7%
6.7	7.1	7.3	6.8	6.5	6.4	-25.2%
24.4	22.7	22.6	21.0	20.5	17.3	-6.5%
3.0	3.0	3.5	3.1	3.2	2.8	-11.8%
0.6	0.6	0.6	0.3	0.5	0.4	44.0%
1.2	1.3	1.4	1.3	1.3	1.0	-51.9%
2.1	2.2	1.1	0.9	0.7	0.8	-55.9%
3.1	3.4	3.7	3.5	3.3	2.9	-3.4%
1.9	2.0	1.9	1.8	1.6	1.4	15.7%
3.5	3.8	3.8	3.7	3.6	3.6	11.0%
5.1	5.3	5.0	4.4	4.5	4.3	34.4%
11.2	10.8	11.6	10.0	10.6	12.2	81.5%
6.6	6.2	6.1	4.8	6.0	6.1	30.1%
295.2	335.2	289.7	295.1	372.7	327.6	40.5%

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Industrial Secondary Energy Use by Industry (continued)

	1990	1995	2000	2001	2002
Energy Use by Industry (PJ)[a,c] (continued)					
Construction	66.9	49.0	49.9	48.0	54.2
Forestry	7.7	7.9	16.2	18.3	17.2
Activity					
GDP (million $2002)[b]	221,113	238,232	297,784	295,030	301,126
GO (million $2002)[b]	572,566	622,947	794,437	793,554	817,837
Energy Intensity (MJ/$2002 – GDP)[a,b,c]	**12.3**	**12.3**	**10.5**	**10.2**	**10.5**
Energy Intensity (MJ/$2002 – GO)[a,b,c]	**4.7**	**4.7**	**3.9**	**3.8**	**3.9**

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

c) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
56.7	59.9	60.5	60.7	62.4	60.8	-9.1%
18.8	22.7	21.6	21.5	19.6	18.1	134.1%
305,084	315,487	322,120	322,831	322,472	309,520	40.0%
817,114	844,796	863,409	872,315	881,435	826,305	44.3%
10.7	**10.5**	**10.1**	**9.8**	**10.6**	**10.5**	**-14.7%**
4.0	**3.9**	**3.8**	**3.6**	**3.9**	**3.9**	**-17.1%**

4 Industrial Sector

Industrial GHG Emissions by Industry – Including Electricity-Related Emissions[1]

	1990	1995	2000	2001	2002
Total GHG Emissions Including Electricity (Mt of CO_2e)[a,b,c]	**136.0**	**138.2**	**155.3**	**153.8**	**155.8**
GHG Emissions by Industry (Mt of CO_2e)[a,b,c]					
Copper, Nickel, Lead and Zinc Mines	2.2	1.7	1.5	1.6	1.4
Iron Mines	2.8	2.5	2.5	2.2	2.2
Gold and Silver Mines	0.8	0.7	0.8	0.9	0.9
Other Metal Mines	0.5	0.3	0.3	0.5	0.6
Salt Mines	0.2	0.2	0.2	0.2	0.1
Potash Mines	1.5	1.6	1.6	1.5	1.5
Other Non-Metal Mines	0.5	0.4	0.5	0.5	0.5
Upstream Mining	10.2	15.5	20.9	21.5	21.7
Fruit and Vegetable Industries	0.5	0.5	0.7	0.8	0.7
Dairy Products Industry	0.6	0.5	0.7	0.7	0.6
Meat Products Industries	0.7	0.7	1.0	1.0	0.9
Bakery Products Industries	0.5	0.3	0.4	0.4	0.5
Beverage Industries (excluding breweries)	0.2	0.3	0.3	0.3	0.3
Breweries Industries	0.4	0.3	0.3	0.3	0.3
Tobacco Products Industries	0.1	0.1	0.1	0.1	0.1
Textile Mills	0.7	0.8	0.5	0.5	0.4
Textile Products Mills	0.4	0.4	0.2	0.2	0.2
Clothing Industries	0.3	0.3	0.3	0.3	0.3
Leather and Allied Products Industries	0.1	0.1	0.1	0.1	0.1
Wood Products Industries	1.5	1.5	2.0	1.7	2.0
Pulp Mills	6.5	5.9	7.2	6.7	6.3
Paper Mills (except newsprint)	3.4	3.1	3.7	3.4	3.2
Newsprint Mills	11.1	10.4	11.1	11.0	10.5
Paperboard Mills	2.2	2.0	2.3	2.2	2.1
Other Pulp and Paper Manufacturing	1.2	0.9	0.8	0.4	0.4
Converted Paper Products Industry	0.6	0.6	0.7	0.9	0.8
Printing and Related Support Activities	0.6	0.4	0.5	0.5	0.5
Petroleum Refining	17.9	17.4	17.4	18.4	21.8
Petrochemical Industry	1.7	1.6	2.1	2.2	2.2

1) Includes only end-use energy-related GHG emissions.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

c) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
163.6	**161.0**	**156.2**	**155.7**	**168.3**	**154.0**	**13.2%**
1.4	1.3	1.5	1.4	1.5	1.6	-29.9%
2.7	1.9	2.2	1.6	1.5	1.7	-40.5%
0.9	0.8	0.8	0.8	0.8	0.8	3.7%
0.5	0.4	0.4	0.4	0.4	0.4	-17.0%
0.2	0.1	0.1	0.1	0.1	0.1	-18.8%
1.6	1.7	1.5	1.7	1.8	1.7	17.2%
0.6	0.6	0.6	0.6	0.6	0.7	42.0%
26.8	26.5	27.9	29.4	36.0	35.2	244.8%
0.7	0.7	0.8	0.8	0.7	0.7	30.0%
0.6	0.6	0.6	0.5	0.5	0.5	-21.9%
0.9	0.9	1.0	1.0	1.0	0.9	38.8%
0.5	0.5	0.5	0.5	0.5	0.5	10.6%
0.3	0.3	0.3	0.3	0.3	0.3	61.1%
0.3	0.3	0.3	0.2	0.2	0.2	-46.3%
0.1	0.0	0.0	0.0	0.0	0.0	-71.4%
0.4	0.4	0.4	0.4	0.3	0.3	-65.8%
0.2	0.2	0.2	0.2	0.2	0.1	-63.9%
0.3	0.2	0.1	0.1	0.1	0.1	-75.0%
0.0	0.0	0.0	0.0	0.0	0.0	-71.4%
1.7	1.8	1.8	1.7	1.8	1.5	-2.6%
6.4	6.1	5.5	5.1	5.1	4.1	-36.4%
3.9	3.7	3.4	2.7	2.7	2.4	-27.8%
10.4	9.9	8.1	6.8	7.0	5.4	-51.1%
2.1	2.1	1.8	1.5	1.5	1.4	-35.3%
0.5	1.2	1.1	1.5	0.9	0.8	-32.8%
0.9	0.9	1.0	0.8	0.9	0.7	15.3%
0.5	0.5	0.5	0.5	0.5	0.5	-7.0%
21.0	20.5	18.4	18.5	21.1	19.2	7.2%
2.3	2.5	2.7	2.6	2.8	2.8	64.9%

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Industrial GHG Emissions by Industry – Including Electricity-Related Emissions[1] (continued)

	1990	1995	2000	2001	2002
GHG Emissions by Industry (Mt of CO_2e)[a,b,c] (continued)					
Industrial Gas Industry	0.3	0.3	0.5	0.6	0.5
Alkali and chlorine manufacturing	1.6	1.5	1.7	1.5	1.0
All other basic inorganic chemical manufacturing	1.6	1.4	1.8	2.1	1.7
Chemical fertilizer (except potash) manufacturing	1.6	2.8	3.2	3.2	2.8
Other Chemical Manufacturing	4.0	4.4	2.7	1.5	2.0
Resin and Synthetic Rubber Industries	2.5	1.4	2.0	1.8	1.5
Motor Vehicle Plastic Parts Manufacturing	0.2	0.1	0.2	0.3	0.2
Rubber Products Industries	0.5	0.5	0.7	0.6	0.6
Cement Industry	4.4	4.5	4.8	4.8	5.1
Iron and Steel	15.9	17.2	18.1	16.5	16.8
Primary Production of Alumina and Aluminum	6.2	7.2	9.5	10.6	10.5
Other Non-Ferrous Smelting and Refining	4.6	4.7	5.0	5.5	5.0
Fabricated Metal Products Industries	1.9	1.8	1.8	2.0	2.2
Machinery Industries	0.7	0.7	0.7	0.7	0.7
Computer and Electronic Products Industries	0.3	0.3	0.4	0.2	0.2
Electrical Equipment and Components Industries	0.5	0.4	0.4	0.4	0.3
Motor Vehicle Industry	1.0	1.3	1.5	1.3	1.2
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	0.2	0.1	0.2	0.2	0.2
Motor Vehicle Electrical and Electronic Equipment Manufacturing	0.0	0.0	0.0	0.0	0.0
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	0.1	0.1	0.1	0.1	0.1
Motor Vehicle Brake System Manufacturing	0.1	0.1	0.1	0.2	0.2
Motor Vehicle Transmission and Power Train Parts Manufacturing	0.2	0.1	0.2	0.2	0.2
Motor Vehicle Seating and Interior Trim Manufacturing	0.1	0.1	0.1	0.1	0.1
Motor Vehicle Metal Stamping	0.2	0.2	0.2	0.2	0.3
Other Motor Vehicle Parts Manufacturing	0.2	0.2	0.2	0.3	0.3

1) Includes only end-use energy-related GHG emissions.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

c) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

⊂ continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
0.6	0.6	0.5	0.8	0.7	0.6	81.8%
1.0	1.0	0.9	0.8	0.4	0.3	-79.0%
2.0	2.0	2.0	1.8	1.6	1.5	-5.8%
3.0	2.9	2.7	2.8	2.7	2.4	49.1%
1.2	1.8	1.7	1.8	3.0	2.5	-38.2%
1.3	1.2	1.0	1.5	1.5	1.4	-43.7%
0.2	0.3	0.3	0.2	0.2	0.2	40.0%
0.7	0.6	0.6	0.5	0.5	0.5	-14.8%
5.2	5.3	5.0	5.7	5.3	4.8	10.3%
16.5	16.5	16.4	16.6	17.3	14.7	-7.1%
11.9	10.3	11.0	11.1	11.6	11.1	80.4%
5.0	4.8	4.3	4.4	4.4	4.3	-7.4%
2.1	2.2	2.1	2.0	2.1	2.3	19.1%
0.8	0.9	0.9	0.9	1.0	0.9	43.1%
0.3	0.3	0.3	0.3	0.3	0.3	8.0%
0.4	0.4	0.4	0.4	0.4	0.3	-26.7%
1.3	1.2	1.2	1.1	1.1	0.9	-9.1%
0.2	0.2	0.2	0.2	0.2	0.1	-17.6%
0.0	0.0	0.0	0.0	0.0	0.0	100.0%
0.1	0.1	0.1	0.1	0.1	0.1	-54.5%
0.1	0.1	0.1	0.1	0.0	0.0	-60.0%
0.2	0.2	0.2	0.2	0.2	0.2	-28.6%
0.1	0.1	0.1	0.1	0.1	0.1	16.7%
0.2	0.2	0.2	0.2	0.2	0.2	11.8%
0.3	0.3	0.3	0.2	0.3	0.2	27.8%

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Industrial GHG Emissions by Industry – Including Electricity-Related Emissions[1] (continued)

	1990	1995	2000	2001	2002
GHG Emissions by Industry (Mt of CO_2e)[a,b,c] (continued)					
Furniture and Related Products Industries	0.3	0.3	0.5	0.6	0.6
Miscellaneous Manufacturing	0.3	0.2	0.3	0.3	0.3
Other Manufacturing n.e.c.	12.4	11.9	13.4	13.0	13.2
Construction	4.3	3.2	3.3	3.2	3.5
Forestry	0.6	0.6	1.2	1.3	1.3
GHG Intensity (tonnes/TJ)[a,b,c]	**50.2**	**47.3**	**49.7**	**51.1**	**49.2**

1) Includes only end-use energy-related GHG emissions.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

c) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
0.6	0.6	0.6	0.5	0.6	0.6	69.7%
0.4	0.3	0.3	0.3	0.3	0.3	28.0%
14.6	14.5	14.2	13.9	16.0	13.2	6.9%
3.7	3.9	3.9	4.0	4.1	4.0	-8.1%
1.4	1.7	1.6	1.6	1.4	1.3	135.7%
50.2	**48.6**	**48.1**	**49.4**	**49.2**	**47.6**	**-5.2%**

4 Industrial Sector

Industrial GHG Emissions by Industry – Excluding Electricity-Related Emissions[1]

	1990	1995	2000	2001	2002
Total GHG Emissions Excluding Electricity (Mt of CO_2e)[a,b,c]	**99.2**	**101.0**	**105.3**	**101.4**	**106.0**
GHG Emissions by Industry (Mt of CO_2e)[a,b,c]					
Copper, Nickel, Lead and Zinc Mines	1.0	0.8	0.7	0.7	0.7
Iron Mines	2.1	1.8	1.7	1.5	1.6
Gold and Silver Mines	0.4	0.4	0.4	0.4	0.4
Other Metal Mines	0.3	0.2	0.2	0.3	0.3
Salt Mines	0.1	0.2	0.1	0.1	0.1
Potash Mines	1.1	1.3	1.2	1.2	1.1
Other Non-Metal Mines	0.4	0.3	0.4	0.4	0.4
Upstream Mining	7.5	12.2	16.2	16.2	16.8
Fruit and Vegetable Industries	0.4	0.5	0.6	0.6	0.6
Dairy Products Industry	0.5	0.4	0.5	0.5	0.5
Meat Products Industries	0.5	0.5	0.7	0.7	0.6
Bakery Products Industries	0.4	0.3	0.3	0.3	0.3
Beverage Industries (excluding breweries)	0.1	0.2	0.3	0.2	0.3
Breweries Industries	0.3	0.3	0.2	0.2	0.3
Tobacco Products Industries	0.0	0.0	0.0	0.0	0.0
Textile Mills	0.5	0.5	0.4	0.3	0.3
Textile Products Mills	0.3	0.3	0.1	0.2	0.2
Clothing Industries	0.2	0.2	0.2	0.2	0.1
Leather and Allied Products Industries	0.0	0.0	0.0	0.0	0.0
Wood Products Industries	1.0	0.9	1.2	0.8	0.9
Pulp Mills	4.1	3.7	3.7	3.3	3.3
Paper Mills (except newsprint)	2.2	2.1	2.1	1.8	1.6
Newsprint Mills	5.4	4.5	3.6	3.2	2.9
Paperboard Mills	1.7	1.4	1.6	1.4	1.4
Other Pulp and Paper Manufacturing	1.2	0.4	0.5	0.4	0.4
Converted Paper Products Industry	0.4	0.4	0.4	0.5	0.5
Printing and Related Support Activities	0.3	0.2	0.3	0.3	0.3
Petroleum Refining	16.7	16.5	16.1	17.1	20.6
Petrochemical Industry	1.5	1.4	1.8	1.9	1.9

1) Includes only end-use energy-related GHG emissions.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

c) Canadian Industrial Energy End-Use Data and Analysis Centre, D*evelopment of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
110.5	**111.7**	**108.8**	**109.0**	**121.5**	**111.2**	**12.1%**
0.6	0.6	0.8	0.7	0.8	0.8	-16.3%
1.8	1.2	1.5	1.2	1.1	1.3	-37.6%
0.4	0.4	0.3	0.3	0.3	0.3	-16.7%
0.2	0.2	0.2	0.3	0.3	0.3	-6.7%
0.1	0.1	0.1	0.1	0.1	0.1	-35.7%
1.2	1.3	1.1	1.4	1.4	1.3	18.0%
0.6	0.5	0.6	0.6	0.6	0.7	66.7%
21.6	21.3	22.9	24.0	31.4	31.0	311.1%
0.6	0.5	0.6	0.6	0.5	0.5	9.5%
0.4	0.4	0.4	0.4	0.3	0.3	-28.3%
0.6	0.7	0.7	0.7	0.6	0.6	28.3%
0.3	0.3	0.3	0.3	0.3	0.3	-27.5%
0.2	0.3	0.3	0.3	0.2	0.2	83.3%
0.2	0.2	0.2	0.2	0.2	0.2	-50.0%
0.0	0.0	0.0	0.0	0.0	0.0	-75.0%
0.3	0.2	0.2	0.2	0.2	0.1	-71.4%
0.1	0.1	0.1	0.1	0.1	0.1	-68.0%
0.1	0.1	0.1	0.0	0.0	0.0	-78.9%
0.0	0.0	0.0	0.0	0.0	0.0	-75.0%
0.7	0.8	0.8	0.9	1.0	0.8	-21.4%
3.1	3.1	2.4	2.1	2.2	1.8	-55.6%
1.8	1.9	1.6	1.1	1.1	0.9	-58.6%
2.7	2.8	2.0	1.4	1.5	0.9	-83.1%
1.4	1.4	1.2	1.0	1.0	0.9	-47.6%
0.5	0.5	0.4	0.5	0.4	0.2	-80.2%
0.5	0.5	0.6	0.5	0.6	0.4	4.8%
0.3	0.2	0.2	0.2	0.2	0.2	-26.7%
19.7	19.2	17.1	17.0	19.5	17.6	5.2%
2.0	2.2	2.5	2.3	2.5	2.6	66.2%

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Industrial GHG Emissions by Industry – Excluding Electricity-Related Emissions[1] (continued)

	1990	1995	2000	2001	2002
GHG Emissions by Industry (Mt of CO_2e)[a,b,c] (continued)					
Industrial Gas Industry	0.0	0.0	0.1	0.1	0.1
Alkali and chlorine manufacturing	0.8	0.8	0.8	0.6	0.4
All other basic inorganic chemical manufacturing	0.4	0.3	0.4	0.4	0.3
Chemical fertilizer (except potash) manufacturing	1.4	2.6	2.9	2.8	2.4
Other Chemical Manufacturing	2.9	3.4	2.0	1.1	1.1
Resin and Synthetic Rubber Industries	2.0	0.9	1.3	1.1	1.0
Motor Vehicle Plastic Parts Manufacturing	0.1	0.1	0.1	0.2	0.1
Rubber Products Industries	0.3	0.4	0.4	0.4	0.4
Cement Industry	4.0	4.2	4.4	4.3	4.7
Iron and Steel	14.2	15.6	15.8	13.9	14.3
Primary Production of Alumina and Aluminum	0.5	0.6	0.8	0.9	0.9
Other Non-Ferrous Smelting and Refining	2.8	2.6	2.5	2.6	2.4
Fabricated Metal Products Industries	1.4	1.4	1.2	1.3	1.5
Machinery Industries	0.4	0.4	0.5	0.5	0.4
Computer and Electronic Products Industries	0.1	0.1	0.1	0.1	0.1
Electrical Equipment and Components Industries	0.3	0.3	0.2	0.2	0.2
Motor Vehicle Industry	0.7	1.0	1.0	0.9	0.9
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	0.1	0.1	0.1	0.1	0.1
Motor Vehicle Electrical and Electronic Equipment Manufacturing	0.0	0.0	0.0	0.0	0.0
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	0.1	0.1	0.1	0.1	0.1
Motor Vehicle Brake System Manufacturing	0.1	0.1	0.1	0.1	0.1
Motor Vehicle Transmission and Power Train Parts Manufacturing	0.2	0.1	0.1	0.1	0.1
Motor Vehicle Seating and Interior Trim Manufacturing	0.0	0.0	0.1	0.1	0.1
Motor Vehicle Metal Stamping	0.1	0.1	0.1	0.1	0.1
Other Motor Vehicle Parts Manufacturing	0.1	0.1	0.1	0.2	0.3

1) Includes only end-use energy-related GHG emissions.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

c) Canadian Industrial Energy End-Use Data and Analysis Centre, D*evelopment of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

⊂ continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
0.0	0.0	0.0	0.0	0.0	0.0	-25.0%
0.3	0.4	0.3	0.3	0.1	0.1	-91.5%
0.4	0.4	0.4	0.3	0.3	0.3	-28.6%
2.6	2.6	2.3	2.4	2.4	2.2	53.6%
0.5	1.1	1.0	1.5	2.0	1.6	-45.7%
0.6	0.6	0.5	0.9	0.9	0.9	-55.4%
0.1	0.2	0.1	0.1	0.1	0.1	37.5%
0.4	0.3	0.3	0.3	0.3	0.3	-24.2%
4.7	4.9	4.6	5.3	4.9	4.4	10.3%
14.2	14.4	14.2	14.7	15.3	12.7	-10.8%
1.0	1.0	1.2	1.0	1.0	1.0	94.3%
2.3	2.3	2.2	2.3	3.1	3.0	6.7%
1.4	1.5	1.4	1.3	1.3	1.4	-1.4%
0.5	0.5	0.5	0.5	0.5	0.5	38.9%
0.1	0.1	0.1	0.1	0.1	0.1	0.0%
0.2	0.2	0.2	0.2	0.2	0.2	-54.5%
0.9	0.9	0.8	0.8	0.7	0.6	-13.9%
0.1	0.1	0.1	0.1	0.1	0.1	-16.7%
0.0	0.0	0.0	0.0	0.0	0.0	–
0.0	0.0	0.0	0.0	0.0	0.0	-57.1%
0.1	0.1	0.0	0.0	0.0	0.0	-66.7%
0.1	0.1	0.1	0.1	0.1	0.1	-66.7%
0.1	0.1	0.1	0.1	0.1	0.0	0.0%
0.1	0.1	0.1	0.1	0.1	0.1	0.0%
0.2	0.2	0.2	0.1	0.1	0.1	8.3%

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Industrial GHG Emissions by Industry – Excluding Electricity-Related Emissions[1] (continued)

	1990	1995	2000	2001	2002
GHG Emissions by Industry (Mt of CO_2e)[a,b,c] (continued)					
Furniture and Related Products Industries	0.2	0.2	0.3	0.4	0.4
Miscellaneous Manufacturing	0.2	0.1	0.2	0.2	0.2
Other Manufacturing n.e.c.	10.3	10.1	10.1	9.7	10.7
Construction	4.3	3.2	3.3	3.2	3.5
Forestry	0.6	0.6	1.2	1.3	1.3
GHG Intensity (tonnes/TJ)[a,b,c]	**36.6**	**34.6**	**33.7**	**33.7**	**33.5**

1) Includes only end-use energy-related GHG emissions.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

c) Canadian Industrial Energy End-Use Data and Analysis Centre, D*evelopment of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
0.4	0.4	0.4	0.2	0.2	0.3	25.0%
0.2	0.2	0.2	0.1	0.2	0.2	6.7%
12.1	12.5	12.7	12.6	14.0	11.5	11.3%
3.7	3.9	3.9	4.0	4.1	4.0	-8.1%
1.4	1.7	1.6	1.6	1.4	1.3	135.7%
33.9	**33.7**	**33.5**	**34.5**	**35.5**	**34.4**	**-6.2%**

4 Industrial Sector

Industrial Gross Domestic Product by Industry

	1990	1995	2000	2001	2002
Total Gross Domestic Product (million $2002)[a]	**221,113**	**238,232**	**297,784**	**295,030**	**301,126**
Gross Domestic Product by Industry (million $2002)[a]					
Copper, Nickel, Lead and Zinc Mines	2,373	2,061	2,189	2,167	1,981
Iron Mines	778	668	742	498	497
Gold and Silver Mines	1,344	1,137	1,164	1,249	1,139
Other Metal Mines	276	208	389	343	496
Salt Mines	186	218	219	252	230
Potash Mines	862	1,054	1,184	1,110	1,160
Other Non-Metal Mines	201	229	426	649	839
Upstream Mining	32,840	43,365	44,340	44,967	44,787
Fruit and Vegetable Industries	1,204	1,544	2,033	2,334	2,380
Dairy Products Industry	2,594	2,340	2,300	2,427	2,182
Meat Products Industries	2,854	2,653	3,611	3,768	3,575
Bakery Products Industries	1,725	2,108	2,197	2,417	2,400
Beverage Industries (excluding breweries)	1,110	1,098	1,643	1,691	1,877
Breweries Industries	2,176	2,436	2,273	2,272	2,144
Tobacco Products Industries	2,383	2,454	2,222	1,893	1,857
Textile Mills	1,527	1,546	1,760	1,604	1,692
Textile Products Mills	845	813	1,175	1,151	1,108
Clothing Industries	3,283	3,216	3,999	3,840	3,563
Leather and Allied Products Industries	644	497	489	414	400
Wood Products Industries	4,867	5,105	6,688	6,017	6,673
Pulp Mills	1,202	1,393	1,945	1,750	1,798
Paper Mills (except newsprint)	1,846	1,869	2,194	1,878	2,014
Newsprint Mills	2,925	3,077	3,606	3,098	3,376
Paperboard Mills	995	1,000	1,085	1,004	926
Other Pulp and Paper Manufacturing	2,512	3,180	3,002	3,518	3,350
Converted Paper Products Industry	2,520	3,130	3,302	3,551	3,751
Printing and Related Support Activities	6,866	5,073	6,065	6,670	6,232
Petroleum Refining	2,611	2,724	2,631	2,713	2,770
Petrochemical Industry	1,103	1,151	1,354	1,185	1,070
Industrial Gas Industry	229	244	269	291	295
Alkali and chlorine manufacturing	477	422	486	458	415
All other basic inorganic chemical manufacturing	450	436	539	629	690

Source:

a) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
305,084	**315,487**	**322,120**	**322,831**	**322,472**	**309,520**	**40.0%**
1,848	2,004	2,043	2,151	2,222	2,243	-5.5%
630	530	561	598	574	588	-24.4%
1,103	935	887	703	678	594	-55.8%
462	397	352	304	283	294	6.5%
261	250	245	268	243	285	53.2%
1,330	1,480	1,464	1,158	1,512	1,465	70.0%
1,321	1,392	1,291	1,313	1,571	1,480	636.3%
46,000	47,845	49,034	51,464	51,722	50,400	53.5%
2,270	2,122	2,044	2,049	2,128	2,281	89.5%
2,188	2,227	2,334	2,362	2,386	2,380	-8.2%
3,537	3,712	4,261	4,112	4,121	4,147	45.3%
2,207	2,383	2,414	2,436	2,605	2,710	57.1%
1,911	2,049	2,029	2,020	2,292	2,067	86.2%
2,113	2,338	2,488	2,381	2,243	2,338	7.4%
1,619	1,320	1,197	994	697	726	-69.5%
1,406	1,398	1,201	1,019	894	782	-48.8%
1,100	1,117	1,044	943	965	866	2.5%
3,454	2,919	2,560	2,366	2,150	1,581	-51.8%
318	246	201	182	189	169	-73.8%
6,555	6,757	7,497	7,213	6,349	5,095	4.7%
1,705	1,852	1,810	1,710	1,617	1,471	22.4%
2,577	2,752	2,777	2,384	2,317	2,083	12.8%
2,893	2,804	3,038	2,789	2,597	2,343	-19.9%
862	840	819	787	762	704	-29.2%
3,568	3,512	3,515	3,253	3,151	3,004	19.6%
3,853	3,765	3,665	3,375	3,166	3,026	20.1%
6,064	6,188	6,344	6,149	5,706	5,509	-19.8%
2,876	2,814	2,720	2,547	2,617	2,513	-3.8%
917	889	822	951	853	746	-32.4%
311	295	332	378	353	351	53.3%
425	378	390	426	316	280	-41.3%
788	698	860	967	1,004	910	102.2%

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Industrial Gross Domestic Product by Industry (continued)

	1990	1995	2000	2001	2002
Gross Domestic Product by Industry (million $2002)[a] (continued)					
Chemical fertilizer (except potash) manufacturing	608	702	1,058	813	673
Other Chemical Manufacturing	1,252	1,193	1,201	1,013	1,184
Resin and Synthetic Rubber Industries	1,116	1,803	2,670	2,345	2,716
Motor Vehicle Plastic Parts Manufacturing	514	790	1,314	1,465	1,507
Rubber Products Industries	1,147	1,823	2,089	2,058	2,149
Cement Industry	767	612	775	809	794
Iron and Steel	3,479	4,024	4,170	3,908	4,162
Primary Production of Alumina and Aluminum	1,146	1,522	2,619	2,700	2,808
Other Non-Ferrous Smelting and Refining	1,085	1,179	1,703	2,006	1,832
Fabricated Metal Products Industries	7,840	8,189	14,331	13,729	14,062
Machinery Industries	7,058	9,790	12,639	12,404	12,158
Computer and Electronic Products Industries	3,083	4,824	11,367	6,510	5,820
Electrical Equipment and Components Industries	3,482	2,946	4,600	4,539	3,859
Motor Vehicle Industry	8,093	11,566	15,641	13,570	14,021
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	1,020	1,526	2,211	1,962	2,104
Motor Vehicle Electrical and Electronic Equipment Manufacturing	235	352	478	445	334
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	288	431	449	511	606
Motor Vehicle Brake System Manufacturing	385	577	664	597	549
Motor Vehicle Transmission and Power Train Parts Manufacturing	645	964	1,421	926	987
Motor Vehicle Seating and Interior Trim Manufacturing	489	732	1,117	756	1,169
Motor Vehicle Metal Stamping	686	1,027	1,438	1,348	1,288
Other Motor Vehicle Parts Manufacturing	831	1,243	1,788	2,375	2,287
Furniture and Related Products Industries	3,073	3,282	6,004	6,189	6,097
Miscellaneous Manufacturing	2,095	2,232	3,515	3,484	3,856
Other Manufacturing n.e.c.	25,610	27,879	36,717	39,638	44,342
Construction	50,645	41,300	51,585	55,367	57,776
Forestry	5,058	5,121	5,528	5,619	5,893

Source:

a) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
964	1,067	1,116	1,079	1,015	1,013	66.6%
1,121	1,291	1,464	1,294	1,349	1,382	10.4%
2,605	3,258	3,297	3,071	3,263	2,853	155.6%
1,623	1,512	1,834	1,732	1,587	1,071	108.4%
2,115	2,163	2,055	1,780	1,668	1,496	30.4%
808	906	1,048	1,051	1,096	1,007	31.3%
4,145	4,126	3,951	3,869	3,754	3,944	13.4%
2,733	3,111	3,363	3,539	3,487	3,425	198.9%
1,720	1,863	1,904	1,765	1,714	1,613	48.7%
13,708	13,458	13,778	14,031	14,562	13,307	69.7%
11,790	12,707	12,960	13,346	13,430	13,170	86.6%
6,242	6,636	6,880	6,875	7,438	7,579	145.8%
3,051	3,306	3,348	3,155	3,171	3,143	-9.7%
13,754	13,872	14,470	13,859	13,465	10,334	27.7%
2,208	2,256	2,147	2,049	2,108	1,597	56.6%
427	429	432	441	431	346	47.2%
539	515	535	523	527	408	41.7%
594	655	570	499	517	482	25.2%
973	988	1,042	1,036	935	698	8.2%
1,137	1,257	1,432	1,371	1,213	910	86.1%
1,458	1,645	1,759	1,512	1,484	1,227	78.9%
2,317	2,281	2,217	2,221	1,997	1,506	81.2%
5,577	5,748	5,322	4,986	4,915	4,464	45.3%
3,910	3,967	3,818	3,925	4,131	4,250	102.9%
46,059	46,718	46,064	46,033	44,501	43,260	68.9%
59,709	63,134	66,157	68,974	71,747	73,865	45.8%
5,764	6,168	6,226	5,944	5,322	4,432	-12.4%

4 Industrial Sector

Industrial Energy Intensity by Industry

	Units	1990	1995	2000	2001
Aggregate Energy Intensity[a,b,c]	**MJ/$2002 – GDP**	**12.3**	**12.3**	**10.5**	**10.2**
Energy Intensity by Industry[a,b,c]					
Copper, Nickel, Lead and Zinc Mines	MJ/tonne	251.1	225.2	236.8	260.6
Iron Mines	MJ/tonne	436.7	401.1	377.5	409.5
Gold and Silver Mines	MJ/tonne	557.1	502.1	310.0	332.2
Other Metal Mines	MJ/tonne	409.5	380.4	414.2	596.5
Salt Mines	MJ/tonne	376.1	437.1	287.9	231.9
Potash Mines	MJ/tonne	3,923.7	3,507.6	3,224.7	3,480.6
Other Non-Metal Mines	MJ/$2002 – GO	8.3	5.6	6.7	6.0
Upstream Mining	MJ/$2002 – GDP	6.4	7.5	9.1	9.2
Fruit and Vegetable Industries	MJ/$2002 – GO	1.8	1.7	1.8	1.9
Dairy Products Industry	MJ/kilolitre	1,592.0	1,452.2	1,613.8	1,571.3
Meat Products Industries	MJ/tonne	4,628.9	4,317.5	4,593.5	4,465.8
Bakery Products Industries	MJ/$2002 – GO	1.9	1.2	1.2	1.4
Beverage Industries (excluding breweries)	MJ/$2002 – GO	0.8	1.2	1.2	1.1
Breweries Industries	MJ/$2002 – GDP	1.7	1.4	1.2	1.3
Tobacco Products Industries	MJ/$2002 – GO	0.3	0.3	0.3	0.3
Textile Mills	MJ/$2002 – GO	5.4	5.5	2.5	2.0
Textile Products Mills	MJ/$2002 – GO	3.4	3.5	1.5	1.4
Clothing Industries	MJ/$2002 – GO	0.8	0.8	0.7	0.6
Leather and Allied Products Industries	MJ/$2002 – GO	1.6	1.3	1.4	1.1
Wood Products Industries	MJ/$2002 – GO	3.0	2.7	3.3	2.7
Pulp Mills	MJ/$2002 – GO	52.1	49.4	39.9	44.5
Paper Mills (except newsprint)	MJ/$2002 – GO	21.0	20.2	19.5	16.8
Newsprint Mills	MJ/tonne	26,998.8	27,880.8	28,682.4	27,742.3
Paperboard Mills	MJ/tonne	21,906.2	18,689.1	17,348.3	16,684.6
Other Pulp and Paper Manufacturing	MJ/$2002 – GDP	8.8	4.9	11.8	8.6
Converted Paper Products Industry	MJ/$2002 – GO	1.5	1.3	1.2	1.6
Printing and Related Support Activities	MJ/$2002 – GO	1.3	0.8	0.8	0.7
Petroleum Refining	MJ/$2002 – GO	13.4	11.3	9.4	9.7
Petrochemical Industry	MJ/tonne	4,597.7	4,080.9	4,282.6	4,725.5
Industrial Gas Industry	MJ/$2002 – GO	11.2	10.2	12.2	12.2

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

c) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

2002	2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
10.5	**10.7**	**10.5**	**10.1**	**9.8**	**10.6**	**10.5**	**-14.7%**
254.4	255.6	242.9	240.4	238.3	269.1	273.1	8.8%
418.4	422.7	355.6	372.2	253.2	259.9	254.7	-41.7%
346.2	328.5	324.4	320.5	306.2	324.5	382.6	-31.3%
619.7	375.5	328.1	339.3	342.9	341.7	360.9	-11.9%
237.1	219.9	204.3	228.2	202.4	225.1	181.2	-51.8%
3,319.6	3,290.8	3,138.5	2,699.3	4,063.4	3,264.9	3,137.2	-20.0%
5.5	6.5	5.6	5.9	6.3	4.3	5.6	-32.4%
9.7	11.6	11.0	11.5	11.7	14.1	14.1	119.3%
1.8	1.8	1.7	2.0	2.0	1.8	1.7	-9.2%
1,593.2	1,511.1	1,487.5	1,409.6	1,358.9	1,246.3	1,271.9	-20.1%
3,935.0	3,898.1	3,914.5	4,084.5	4,345.0	4,202.4	4,096.3	-11.5%
1.6	1.5	1.4	1.5	1.5	1.6	1.5	-18.9%
1.1	1.1	1.2	1.3	1.2	1.2	1.1	32.9%
1.4	1.3	1.2	1.1	0.9	0.9	0.8	-51.2%
0.3	0.3	0.2	0.3	0.2	0.2	0.1	-65.6%
1.9	1.9	2.1	2.1	1.9	1.8	1.6	-70.7%
1.4	1.2	1.1	1.2	1.0	0.9	0.9	-74.7%
0.6	0.6	0.6	0.3	0.2	0.2	0.3	-69.0%
0.9	0.8	0.8	0.6	0.4	0.5	0.6	-60.9%
2.9	2.4	2.4	2.5	2.6	2.9	3.4	12.6%
47.9	48.5	45.1	46.4	39.5	35.1	33.1	-36.4%
16.4	18.9	19.5	19.7	14.2	13.8	14.2	-32.6%
28,350.7	27,940.9	28,351.3	26,562.6	25,787.5	26,853.3	26,503.6	-1.8%
16,629.2	17,279.9	17,402.4	17,150.6	14,916.3	13,341.9	14,276.2	-34.8%
11.1	10.6	15.4	18.9	8.1	14.9	25.6	190.3%
1.6	1.6	1.7	1.9	1.6	1.8	1.4	-2.1%
0.7	0.7	0.7	0.7	0.6	0.6	0.7	-42.5%
11.0	10.6	10.1	9.3	9.5	10.7	10.4	-22.8%
4,627.8	5,264.2	5,435.0	6,911.2	40,793.1	5,990.9	12,906.9	180.7%
12.2	12.7	14.6	11.2	18.7	17.2	15.0	33.9%

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Industrial Energy Intensity by Industry (continued)

	Units	1990	1995	2000	2001
Energy Intensity by Industry[a,b,c] (continued)					
Alkali and chlorine manufacturing	MJ/$2002 – GO	20.0	10.2	12.2	12.2
All other basic inorganic chemical manufacturing	MJ/$2002 – GO	20.0	22.4	17.2	15.7
Chemical fertilizer (except potash) manufacturing	MJ/$2002 – GO	11.1	19.9	20.2	21.8
Other Chemical Manufacturing	MJ/$2002 – GDP	75.3	80.8	43.9	32.9
Resin and Synthetic Rubber Industries	MJ/tonne	27,008.4	13,200.3	12,897.6	11,032.5
Motor Vehicle Plastic Parts Manufacturing	MJ/$2002 – GO	1.4	1.1	1.1	1.5
Rubber Products Industries	MJ/tonne	2.5	2.2	1.9	1.8
Cement Industry	MJ/tonne	5,645.5	5,202.8	4,886.5	4,894.2
Iron and Steel	MJ/$2002 – GO	26.1	26.6	21.7	18.8
Primary Production of Alumina and Aluminum	MJ/tonne	70,041.4	64,796.9	65,514.1	63,670.7
Other Non-Ferrous Smelting and Refining	MJ/tonne	47,911.3	43,531.2	42,043.7	48,650.3
Fabricated Metal Products Industries	MJ/$2002 – GO	1.6	1.5	1.0	1.2
Machinery Industries	MJ/$2002 – GO	0.6	0.7	0.5	0.5
Computer and Electronic Products Industries	MJ/$2002 – GO	0.4	0.5	0.2	0.2
Electrical Equipment and Components Industries	MJ/$2002 – GO	1.2	1.1	0.7	0.6
Motor Vehicle Industry	MJ/$2002 – GDP	2.3	2.1	1.8	1.8
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	MJ/$2002 – GDP	3.1	1.9	1.7	1.4
Motor Vehicle Electrical and Electronic Equipment Manufacturing	MJ/$2002 – GDP	1.1	0.7	1.0	1.1
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	MJ/$2002 – GDP	7.4	4.9	4.9	3.0
Motor Vehicle Brake System Manufacturing	MJ/$2002 – GDP	4.7	3.6	3.6	4.9
Motor Vehicle Transmission and Power Train Parts Manufacturing	MJ/$2002 – GDP	4.6	2.0	1.9	2.9

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

c) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

continued from previous table

2002	2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
12.2	12.7	14.6	11.2	18.7	17.2	15.0	-25.3%
12.5	13.5	15.3	14.8	11.7	10.7	10.4	-48.1%
20.1	18.9	18.9	16.8	19.2	19.4	14.3	29.0%
36.1	18.6	25.7	20.8	24.2	39.4	31.7	-57.9%
9,225.0	8,466.4	7,145.9	6,800.3	8,585.5	8,357.6	9,378.7	-65.3%
1.1	1.2	1.5	1.2	1.2	1.1	1.7	20.9%
1.7	1.9	1.6	1.6	1.5	1.5	1.7	-32.7%
5,091.5	4,811.9	5,002.1	4,721.1	5,211.0	4,615.2	4,660.5	-17.4%
19.0	19.1	20.2	19.6	20.9	19.4	19.5	-25.4%
63,310.6	66,894.8	66,960.3	67,887.9	64,671.2	64,020.9	64,868.0	-7.4%
44,196.9	44,198.4	43,177.8	43,556.1	40,595.5	40,076.6	40,423.6	-15.6%
1.2	1.2	1.2	1.2	1.1	1.2	1.4	-10.6%
0.5	0.5	0.6	0.6	0.6	0.6	0.7	3.2%
0.2	0.2	0.2	0.2	0.2	0.2	0.2	-46.3%
0.6	0.7	0.7	0.7	0.7	0.7	0.8	-29.9%
1.7	1.8	1.6	1.6	1.5	1.5	1.7	-26.8%
1.4	1.4	1.4	1.6	1.5	1.5	1.7	-43.6%
2.0	1.4	1.3	1.4	0.6	1.1	1.0	-3.7%
3.0	2.2	2.5	2.5	2.5	2.5	2.5	-65.9%
5.1	3.6	3.4	2.0	1.9	1.3	1.6	-64.9%
2.8	3.2	3.5	3.6	3.4	3.5	4.1	-10.6%

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Industrial Energy Intensity by Industry (continued)

	Units	1990	1995	2000	2001
Energy Intensity by Industry[a,b,c] (continued)					
Motor Vehicle Seating and Interior Trim Manufacturing	MJ/$2002 – GDP	2.5	1.7	1.7	2.3
Motor Vehicle Metal Stamping	MJ/$2002 – GDP	4.8	3.4	2.7	2.9
Other Motor Vehicle Parts Manufacturing	MJ/$2002 – GDP	3.9	2.6	2.2	1.8
Furniture and Related Products Industries	MJ/$2002 – GO	0.9	0.8	0.8	0.8
Miscellaneous Manufacturing	MJ/$2002 – GO	0.7	0.5	0.5	0.6
Other Manufacturing n.e.c.	MJ/$2002 – GDP	9.1	8.2	7.0	6.9
Construction	MJ/$2002 – GO	0.6	0.5	0.4	0.4
Forestry	MJ/$2002 – GO	0.8	0.7	1.3	1.6

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.

c) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2008*, Simon Fraser University, 2010.

continued from previous table

2002	2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
1.7	1.7	1.6	1.4	1.3	1.3	1.5	-37.9%
3.5	2.4	2.3	2.2	2.5	2.4	3.0	-37.9%
2.6	2.2	2.3	2.3	2.0	2.3	2.9	-26.0%
0.8	0.8	0.8	0.8	0.6	0.7	0.8	-17.0%
0.7	0.7	0.7	0.7	0.6	0.9	0.9	34.8%
6.5	6.4	7.2	6.3	6.4	8.4	7.6	-16.8%
0.4	0.4	0.4	0.4	0.3	0.3	0.3	-42.9%
1.4	1.5	1.7	1.7	1.7	1.6	1.8	118.3%

4 Industrial Sector

Industrial Energy Prices and Background Indicators

	1990	1995	2000	2001	2002
Energy Prices by Energy Source (incl. taxes)					
Natural Gas (cents/m^3)[a,e]	10.5	10.7	18.0	24.2	26.3
Light Fuel Oil (cents/litre)[f]	25.8	22.1	40.1	35.6	34.7
Heavy Fuel Oil (cents/litre)[f]	14.1	16.2	28.5	26.9	29.6
Electricity (1,000 kW/400,000 kWh)[1] (cents/kWh)[b,e]	5.6	6.9	6.9	7.6	7.5
Electricity (5,000 kW/3,060,000 kWh)[1] (cents/kWh)[b,e]	4.0	4.9	5.3	6.1	5.7
Background Indicators					
Industrial GDP (million $2002)[d]	221,113	238,232	297,784	295,030	301,126
Industrial GO (million $2002)[d]	572,566	622,947	794,437	793,554	817,837
Capacity Utilization Rate (%)[c]					
Mining	87.5	85.5	89.4	87.7	88.5
Manufacturing	78.2	83.9	86.0	81.7	82.9
Pulp and Paper	*83.7*	*92.0*	*92.1*	*88.6*	*90.6*
Primary Metals[2]	*85.1*	*88.3*	*90.9*	*86.2*	*87.8*
Petroleum Refining	*87.5*	*89.5*	*92.7*	*94.9*	*96.5*
Chemicals	*86.6*	*85.2*	*80.1*	*80.4*	*80.8*
Forestry	82.2	81.3	82.6	81.6	83.9
Construction	91.1	75.8	88.7	90.5	89.8
Industrial Employees (thousands)[d]					
Mining	192	173	160	179	170
Manufacturing	2,050	1,904	2,249	2,229	2,286
Pulp and Paper	*140*	*121*	*116*	*109*	*106*
Primary Metals[2]	*135*	*110*	*109*	*99*	*101*
Petroleum Refining	*25*	*18*	*19*	*17*	*17*
Chemicals	*106*	*99*	*118*	*119*	*125*
Forestry	73	93	86	74	74
Construction	816	726	810	824	865

1) kW refers to power hook-up, whereas kWh refers to monthly electricity consumption.
2) "Primary Metals" includes iron and steel, smelting and refining, and other primary metal activity.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
32.8	33.9	37.1	37.6	32.5	33.0	214.9%
38.7	46.5	61.9	64.2	68.6	94.3	266.1%
31.1	30.7	38.2	39.2	44.3	57.6	310.3%
7.9	7.7	8.1	8.1	8.3	8.9	58.2%
6.1	5.9	6.2	6.2	6.3	6.9	75.4%
305,084	315,487	322,120	322,831	322,472	309,520	40.0%
817,114	844,796	863,409	872,315	881,435	826,305	44.3%
88.9	87.4	84.3	81.4	79.1	75.6	–
81.5	83.5	83.7	82.8	82.9	78.1	–
91.1	*91.1*	*89.4*	*88.3*	*87.4*	*84.8*	–
88.4	*91.8*	*91.5*	*91.9*	*92.1*	*91.5*	–
95.4	*93.9*	*88.3*	*83.2*	*82.5*	*80.8*	–
80.9	*81.5*	*80.2*	*79.8*	*82.0*	*81.0*	–
85.5	89.9	83.3	83.0	81.0	75.2	–
88.0	86.0	83.2	83.1	80.5	77.4	–
178	188	211	241	255	264	37.5%
2,275	2,292	2,207	2,118	2,045	1,970	-3.9%
108	*104*	*101*	*94*	*87*	*91*	*-35.3%*
97	*92*	*91*	*90*	*80*	*77*	*-42.5%*
16	*18*	*18*	*16*	*19*	*19*	*-24.8%*
121	*118*	*116*	*104*	*108*	*110*	*3.3%*
77	72	70	63	61	54	-26.3%
906	952	1,020	1,070	1,134	1,232	51.0%

Sources:

a) Statistics Canada, *Energy Statistics Handbook*, Ottawa, September 2009 (Cat. No. 57-601-X).
b) Hydro-Québec, *Comparison of Electricity Prices in Major North American Cities*, April 2008.
c) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.
d) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
e) Natural Resources Canada, *Oil and Gas Policy and Regulatory Affairs Division*, Ottawa, May 2008.

Transportation Sector 5

The Data Situation

The aggregate data on transportation energy use by energy source are from Statistics Canada's *Report on Energy Supply-Demand in Canada* (RESD) (Cat. No. 57-003-X). Other sources that have more specific data enable the Office of Energy Efficiency to allocate energy use by transportation mode as outlined below.

Using stock, fuel efficiencies and average distances travelled, the Transportation End-Use Model (TEUM) calculates preliminary estimates for road energy use by vehicle type. These preliminary estimates are then calibrated to match the RESD road information to obtain final road energy use estimates.

Aggregate non-road energy use data (rail, air and marine) are obtained directly from the RESD. Rail and air are further disaggregated into passenger and freight transportation based on data from the following Statistics Canada's reports: *Rail in Canada* (Cat. No. 52-216-X), *Canadian Civil Aviation* (Cat. No. 51-206-X) and *Service Bulletin: Aviation* (Cat. No. 51-004-X), as well as CANSIM updates. The *Climate Change Air Sub-Group Report* by Sypher: Mueller International Inc., July 1999, is also used in the allocation of air energy use to passenger and freight modes.

Data for vehicle stock in the TEUM are obtained mainly from R. L. Polk & Co. and DesRosiers Automotive Consultants Inc. Specifically, the data are extracted from two databases: *Canadian Vehicles in Operation Census* (CVIOC) and *Trucking Industry Profile* (TIP). Statistics Canada's *Road Motor Vehicles, Registrations* (Cat. No. 53-219-X), its *Canadian Vehicle Survey* (CVS) (Cat. No. 53-223-X) and the U.S. Department of Energy's *Transportation Energy Data Book, Edition 25* are used to develop historical car and truck stock data for years in which data from the CVIOC and/or the TIP are not available. The bus stock information is further disaggregated by bus industry based on the following Statistics Canada's reports: *Passenger Bus and Urban Transit Statistics* (PBS) (Cat. No. 53-215-X), *Service Bulletin: Surface and Marine Transport* (Cat. No. 50-002-X) and CANSIM updates.

5 Transportation Sector

Car and truck sales are derived from new vehicle registrations from R. L. Polk and from Statistics Canada's *New Motor Vehicle Sales* (Cat. No. 63-007-X).

Laboratory-tested fuel efficiencies for new cars and light trucks are obtained from Transport Canada's *Vehicle Fuel Economy Information System* (VFEIS). Information from the VFEIS is then used in conjunction with provincial sales data obtained from DesRosiers Automotive Consultants Inc. to attain average provincial values for each model year. Medium and heavy truck fuel consumption for the years before 1998 are based on the *Heavy-Duty Truck Fuel Economy and Annual Mileage in Canada* report (Energy and Environmental Analysis, Inc., March 2001) produced for Natural Resources Canada (NRCan). Data for more recent years are obtained from the CVS while historical data is developed to match the previous data source. On-road fuel efficiency for buses is based on data from the PBS.

The *National Private Vehicle Use Survey – October 1994 to September 1996* and the CVS, conducted by Statistics Canada on behalf of NRCan and Transport Canada, provide average distances travelled for cars and trucks. The medium- and heavy-truck average distance travelled from 2000 onward follows the CVS data, while previous years are based on trends from *Trucking in Canada* (Cat. No.53-222-X) for heavy trucks and the TEUM (2004) for medium trucks. Motorcycle estimates are based on information from the U.S. Department of Transportation and the TEUM assumptions.

Occupancy rates are essential for calculating the passenger-kilometres travelled for cars and light trucks. Since 1999, occupancy rates have been obtained from the CVS data. Observed trends in Transport Canada's seatbelt survey (1992–2002), total population and vehicle stock were used to develop historical data from 1976 to 1998. Motorcycle occupancy rates are based on U.S. Department of Transportation data. Finally, bus occupancy rates are taken from the CVS and the PBS. In the non-road portion, passenger-kilometres are taken directly from *Rail in Canada* for rail and from the *Canadian Civil Aviation* report for air.

5 Transportation Sector

Light truck and medium truck tonne-kilometres are calculated using a TEUM assumption on load factor, while heavy truck tonne-kilometres are from the *Trucking in Canada: Trucking Commodity Origin and Destination Survey*. Non-road tonne-kilometres are taken from the *Canadian Civil Aviation, Rail in Canada* report and from Transport Canada's Surface and Marine Statistics Division for air, rail and marine, respectively.

Transportation energy prices are weighted averages of regional prices from Statistics Canada's *Energy Statistics Handbook* (Cat. No. 57-601-X). Other transportation indicators are from Informetrica Limited's *The Informetrica Model and Database*.

In the 2008 edition, the categories of small cars and large cars were merged into one category due to data limitation. The methodology and historical sources were also revised in this edition, which caused a few notable data variations from the previous edition.

Due to rounding, the numbers in the tables may not add up or calculate to their reported totals or growth rates.

Transportation Secondary Energy Use by Energy Source and Transportation Mode

	1990	1995	2000	2001	2002
Total Energy Use (PJ)[a]	**1,877.9**	**2,004.9**	**2,282.1**	**2,277.4**	**2,306.1**
Passenger Transportation[b]	1,184.5	1,191.5	1,288.5	1,291.2	1,323.5
Freight Transportation[b]	640.0	751.3	912.6	895.9	889.8
Off-Road[b]	53.3	62.1	81.0	90.3	92.8
Energy Use by Energy Source (PJ)[a]					
Electricity	3.1	3.0	3.1	3.1	3.3
Natural Gas	1.7	2.4	2.4	2.0	1.7
Motor Gasoline	1,120.4	1,174.6	1,295.1	1,308.7	1,333.4
Diesel Fuel Oil	469.8	548.4	658.4	650.4	662.4
Light Fuel Oil and Kerosene	0.0	0.0	0.0	0.0	0.0
Heavy Fuel Oil	60.1	56.6	67.8	77.5	64.8
Aviation Gasoline	5.5	4.1	3.6	3.5	3.5
Aviation Turbo Fuel	181.9	183.2	235.9	215.1	224.6
Propane	35.4	32.8	15.9	17.0	12.4
Energy Use by Transportation Mode (PJ)[b]					
Cars	730.6	690.8	648.2	664.3	668.4
Passenger Light Trucks	212.1	264.8	354.6	365.2	380.9
Freight Light Trucks	97.1	116.5	144.1	149.8	153.6
Medium Trucks	133.2	159.8	173.9	154.2	144.0
Heavy Trucks	212.2	287.5	392.4	383.2	402.8
Motorcycles	2.4	2.1	2.6	2.6	3.0
School Buses	14.9	16.7	14.3	11.7	11.8
Urban Transit	29.0	26.2	27.6	26.1	29.1
Inter-City Buses	9.6	8.4	6.9	6.5	7.1
Passenger Air	180.9	180.1	231.5	211.9	220.5
Freight Air	6.5	7.3	8.0	6.7	7.5
Passenger Rail	5.1	2.5	2.9	2.9	2.6
Freight Rail	84.4	78.5	80.2	78.8	71.5
Marine	106.5	101.7	114.0	123.2	110.5
Off-Road[1]	53.3	62.1	81.0	90.3	92.8

1) "Off Road" includes vehicles not registered for on-road travel, such as ATVs, snowmobiles, golf carts and some military vehicles.
2) Excludes non-commercial aviation.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
b) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
2,361.3	**2,465.1**	**2,501.3**	**2,492.2**	**2,594.0**	**2,594.1**	**38.1%**
1,330.1	1,366.9	1,373.7	1,361.2	1,412.4	1,396.9	17.9%
936.7	1,001.3	1,028.4	1,030.4	1,079.5	1,094.5	71.0%
94.6	96.9	99.2	100.6	102.1	102.7	92.5%
3.4	3.5	3.5	3.5	2.5	2.3	-27.3%
1.7	1.8	1.9	1.9	1.9	1.9	13.2%
1,354.5	1,384.3	1,377.5	1,379.5	1,429.0	1,413.5	26.2%
697.5	744.7	781.8	783.3	819.4	843.6	79.6%
0.0	0.0	0.0	0.0	0.0	0.0	-
66.8	69.1	67.5	56.9	69.4	65.4	8.7%
3.2	2.9	3.0	3.0	3.1	3.0	-45.6%
222.5	246.2	255.8	252.8	256.6	251.7	38.4%
11.7	12.7	10.3	11.3	12.1	12.8	-63.8%
665.9	666.3	654.9	647.6	664.7	648.5	-11.2%
390.9	405.8	413.4	413.0	438.1	440.1	107.5%
156.6	162.1	163.3	165.3	176.2	177.5	82.8%
159.8	175.1	153.1	163.7	156.2	152.5	14.5%
438.9	469.8	516.5	515.9	548.4	571.3	169.2%
3.2	3.5	3.5	3.7	4.0	4.1	67.1%
13.2	11.3	11.4	12.3	12.4	13.6	-8.3%
29.2	30.1	31.0	27.7	30.3	31.6	8.9%
6.3	5.7	6.1	5.9	6.4	6.6	-31.7%
218.7	241.7	250.9	248.6	253.9	249.6	38.0%
7.0	7.4	7.9	7.1	5.8	5.1	-21.4%
2.5	2.4	2.5	2.5	2.6	2.8	-44.2%
71.3	72.6	76.4	78.9	83.9	87.7	3.9%
103.1	114.2	111.2	99.5	109.0	100.4	-5.8%
94.6	96.9	99.2	100.6	102.1	102.7	92.5%

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Transportation Secondary Energy Use by Energy Source and Transportation Mode (continued)

	1990	1995	2000	2001	2002
Activity					
Total Passenger-kilometres[2] (millions)[b]	485,746	533,965	595,241	598,889	609,508
Total Tonne-kilometres (millions)[b]	542,860	613,918	735,730	731,114	761,870
Passenger Transportation Energy Intensity[2] (MJ/Pkm)[b]	**2.36**	**2.17**	**2.12**	**2.10**	**2.12**
Freight Transportation Energy Intensity (MJ/Tkm)[b]	**1.18**	**1.22**	**1.24**	**1.23**	**1.17**

1) "Off Road" includes vehicles not registered for on-road travel, such as ATVs, snowmobiles, golf carts and some military vehicles.
2) Excludes non-commercial aviation.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
b) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

⊂ continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
618,199	637,691	657,277	660,237	687,899	695,251	43.1%
783,400	845,663	883,381	879,312	880,244	855,672	57.6%
2.11	**2.09**	**2.04**	**2.01**	**1.99**	**1.95**	**-17.3%**
1.20	**1.18**	**1.16**	**1.17**	**1.23**	**1.28**	**8.5%**

Transportation GHG Emissions by Energy Source and Transportation Mode

	1990	1995	2000	2001	2002
Total GHG Emissions (Mt of CO_2e)[a,b,c]	**131.6**	**141.4**	**159.1**	**158.7**	**160.4**
Passenger Transportation[b,c]	82.3	83.8	88.8	88.9	90.9
Freight Transportation[b,c]	45.6	53.4	64.8	63.7	63.2
Off-Road[b,c]	3.6	4.2	5.5	6.1	6.3
GHG Emissions by Energy Source (Mt of CO_2e)[a,b,c]					
Electricity	0.2	0.2	0.2	0.2	0.2
Natural Gas	0.1	0.1	0.1	0.1	0.1
Motor Gasoline	77.4	82.2	88.8	89.6	91.1
Diesel Fuel Oil	33.8	39.2	47.3	46.8	47.5
Light Fuel Oil and Kerosene	0.0	0.0	0.0	0.0	0.0
Heavy Fuel Oil	4.5	4.3	5.0	5.8	4.8
Aviation Gasoline	0.4	0.3	0.3	0.3	0.3
Aviation Turbo Fuel	13.0	13.1	16.4	15.0	15.7
Propane	2.1	2.0	1.0	1.0	0.7
GHG Emissions by Transportation Mode (Mt of CO_2e)[a,b,c]					
Cars	50.4	48.4	44.5	45.5	45.7
Passenger Light Trucks	14.7	18.6	24.4	25.1	26.1
Freight Light Trucks	6.6	8.0	9.9	10.2	10.5
Medium Trucks	9.1	10.9	11.9	10.6	9.9
Heavy Trucks	14.8	20.0	27.6	26.9	28.3
Motorcycles	0.2	0.1	0.2	0.2	0.2
School Buses	1.0	1.1	1.0	0.8	0.8
Urban Transit	2.0	1.8	1.9	1.8	2.0
Inter-City Buses	0.7	0.6	0.5	0.5	0.5

1) "Off Road" includes vehicles not registered for on-road travel, such as ATVs, snowmobiles, golf carts and some military vehicles.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

c) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
163.9	**170.9**	**173.3**	**172.4**	**179.3**	**179.4**	**36.3%**
91.1	93.4	93.7	92.6	96.0	94.9	15.4%
66.4	71.0	72.9	73.0	76.5	77.5	69.8%
6.4	6.5	6.7	6.8	6.9	6.9	90.7%
0.2	0.2	0.2	0.2	0.1	0.1	-29.2%
0.1	0.1	0.1	0.1	0.1	0.1	11.7%
92.2	94.0	93.4	93.3	96.5	95.4	23.3%
49.9	53.3	56.0	56.1	58.6	60.3	78.4%
0.0	0.0	0.0	0.0	0.0	0.0	–
5.0	5.1	5.0	4.2	5.2	4.9	6.7%
0.2	0.2	0.2	0.2	0.2	0.2	-45.6%
15.5	17.2	17.8	17.6	17.9	17.5	34.6%
0.7	0.8	0.6	0.7	0.7	0.8	-63.4%
45.3	45.2	44.3	43.6	44.7	43.6	-13.5%
26.7	27.7	28.2	28.1	29.7	29.9	102.7%
10.7	11.0	11.1	11.2	11.9	12.0	81.5%
11.0	12.1	10.5	11.3	10.8	10.5	15.6%
30.8	33.0	36.3	36.2	38.5	40.1	171.9%
0.2	0.2	0.2	0.2	0.3	0.3	64.2%
0.9	0.8	0.8	0.9	0.9	1.0	-3.8%
2.0	2.1	2.1	1.9	2.1	2.2	10.6%
0.4	0.4	0.4	0.4	0.4	0.5	-31.0%

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Transportation GHG Emissions by Energy Source and Transportation Mode (continued)

	1990	1995	2000	2001	2002
GHG Emissions by Transportation Mode (Mt of CO_2e)[a,b,c] (continued)					
Passenger Air	13.0	12.9	16.1	14.8	15.4
Freight Air	0.5	0.5	0.6	0.5	0.5
Passenger Rail	0.4	0.2	0.2	0.2	0.2
Freight Rail	6.6	6.1	6.3	6.2	5.6
Marine	8.2	7.8	8.7	9.3	8.4
Off-Road[1]	3.6	4.2	5.5	6.1	6.3
GHG Intensity (tonnes/TJ)[a,b,c]	**70.1**	**70.5**	**69.7**	**69.7**	**69.5**
GHG Emissions Related to Electricity (Mt of CO_2e)[a,c]	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**

1) "Off Road" includes vehicles not registered for on-road travel, such as ATVs, snowmobiles, golf carts and some military vehicles.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
b) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.
c) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

⊂ continued from previous table

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
15.3	16.9	17.5	17.3	17.7	17.4	34.2%
0.5	0.5	0.5	0.5	0.4	0.4	-23.5%
0.2	0.2	0.2	0.2	0.2	0.2	-43.6%
5.6	5.7	6.0	6.2	6.6	6.9	4.9%
7.8	8.7	8.4	7.6	8.3	7.6	-6.8%
6.4	6.5	6.7	6.8	6.9	6.9	90.7%
69.4	**69.3**	**69.3**	**69.2**	**69.1**	**69.1**	**-1.3%**
0.2	**0.2**	**0.2**	**0.2**	**0.1**	**0.1**	**-29.2%**

5 Transportation Sector

Transportation Energy Prices and Background Indicators

	1990	1995	2000	2001	2002
Energy Prices by Energy Source (incl. taxes)					
Regular Unleaded Gasoline[1] (cents/litre)[a,d,e]	58.7	55.6	72.6	70.7	70.5
Diesel Fuel Oil[1] (cents/litre)[a,d,e]	51.4	51.1	67.9	68.4	63.1
Propane (cents/litre)[a,d]	26.6	29.3	43.0	45.1	37.4
Excise Tax (cents/litre)[b]					
Unleaded Gasoline	8.5	10.0	10.0	10.0	10.0
Leaded Gasoline	9.5	11.0	11.0	11.0	11.0
Diesel Fuel Oil	4.0	4.0	4.0	4.0	4.0
Background Indicators					
Consumer Price Index (2002 = 100)[c]					
Gasoline and Other Fuels[2]	82.7	80.0	103.5	100.8	100.0
Public Transportation	52.3	68.8	92.8	94.7	100.0
Inter-City Transportation	47.4	63.0	92.1	93.1	100.0
Local and Commuter	60.8	78.8	93.9	97.4	100.0
GDP at Factor Cost (million $2002)[c]					
Business Sector	615,284	678,056	860,280	872,752	896,598
Transportation	35,200	39,102	47,608	48,606	48,528
Real Personal Disposable Income per Household ($2002)[c]	***56,057***	***52,675***	***55,961***	***56,477***	***56,828***

1) Price at full-service stations.
2) "Other Fuels" includes diesel fuel oil, propane, natural gas and any other fuel that would be used for automobile propulsion.

Sources:

a) Statistics Canada, *Energy Statistics Handbook,* Ottawa, September 2009 (Cat. No. 57-601-X).
b) Canada Revenue Agency, *Current Rates of Excise Taxes – Revised*, Ottawa, April 2008; **www.cra-arc.gc.ca/E/pub/et/currate/currate-e.html**.
c) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.
d) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
e) Statistics Canada, Total Population, Census Divisions and Census Metropolitan Areas, Tables 051-0014 and 051-0034, Ottawa, 2009 (CANSIM).

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
75.0	82.8	93.4	98.6	103.1	116.3	98.2%
68.9	75.6	92.9	96.6	99.0	125.2	143.7%
50.2	51.4	57.5	61.9	62.2	72.4	171.9%
10.0	10.0	10.0	10.0	10.0	10.0	17.6%
11.0	11.0	11.0	11.0	11.0	11.0	15.8%
4.0	4.0	4.0	4.0	4.0	4.0	–
106.4	117.6	132.6	139.8	146.1	164.7	–
102.9	105.3	108.6	113.6	114.6	121.4	–
102.3	104.1	107.0	111.7	111.9	119.5	–
103.9	107.5	111.4	116.7	119.4	124.5	–
914,112	945,546	978,197	1,005,471	1,031,004	1,033,556	68.0%
49,057	50,894	54,066	55,400	56,444	56,472	60.4%
57,286	***58,776***	***59,077***	***61,691***	***62,892***	***64,671***	***15.4%***

5 Transportation Sector — Passenger

Passenger Transportation Secondary Energy Use by Energy Source and Transportation Mode

	1990	1995	2000	2001	2002
Passenger Transportation Energy Use (PJ)[a]	**1,184.5**	**1,191.5**	**1,288.5**	**1,291.2**	**1,323.5**
Energy Use by Energy Source (PJ)[a]					
Electricity	3.1	3.0	3.1	3.1	3.3
Natural Gas	1.6	2.3	2.3	1.9	1.7
Motor Gasoline	921.5	935.5	987.6	1,012.4	1,035.7
Diesel Fuel Oil	57.6	53.2	55.6	52.9	55.4
Aviation Gasoline	5.4	4.1	3.5	3.5	3.4
Aviation Turbo Fuel	175.5	176.0	227.9	208.4	217.1
Propane	19.8	17.4	8.4	9.0	6.8
Energy Use by Transportation Mode (PJ)[a]					
Cars	730.6	690.8	648.2	664.3	668.4
Light Trucks	212.1	264.8	354.6	365.2	380.9
Motorcycles	2.4	2.1	2.6	2.6	3.0
School Buses	14.9	16.7	14.3	11.7	11.8
Urban Transit	29.0	26.2	27.6	26.1	29.1
Inter-City Buses	9.6	8.4	6.9	6.5	7.1
Air	180.9	180.1	231.5	211.9	220.5
Rail	5.1	2.5	2.9	2.9	2.6
Activity					
Total Passenger-kilometres[1] (millions)[a,b,c]	485,746	533,965	595,241	598,889	609,508

1) Excludes non-commercial aviation.

Sources:

a) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

b) Statistics Canada, *Canadian Civil Aviation, 1990–2000*, Ottawa, February 2003 (Cat. No. 51-206-X); and Statistics Canada, *Aviation: Service Bulletin* (Cat. No. 51-004-X), Ottawa: Vol. 36 No. 5, December 2004, Vol. 37 No. 6, December 2005, Vol. 38 No. 5, December 2006, Vol. 41, No. 3, June 2009, Vol. 42, No. 1, March 2010.

c) Statistics Canada, *Rail in Canada, 1990–2008*, Ottawa, June 2010 (Cat. No. 52-216-X).

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
1,330.1	**1,366.9**	**1,373.7**	**1,361.2**	**1,412.4**	**1,396.9**	**17.9%**
3.4	3.5	3.5	3.5	2.5	2.3	-27.3%
1.7	1.7	1.8	1.8	1.8	1.8	8.5%
1,045.1	1,060.4	1,057.5	1,051.1	1,093.5	1,078.5	17.0%
54.7	52.4	53.1	50.5	54.5	58.1	0.9%
3.1	2.9	2.9	2.9	3.1	3.0	-45.4%
215.5	238.8	248.0	245.6	250.8	246.6	40.5%
6.5	7.3	6.9	5.8	6.2	6.6	-66.5%
665.9	666.3	654.9	647.6	664.7	648.5	-11.2%
390.9	405.8	413.4	413.0	438.1	440.1	107.5%
3.2	3.5	3.5	3.7	4.0	4.1	67.1%
13.2	11.3	11.4	12.3	12.4	13.6	-8.3%
29.2	30.1	31.0	27.7	30.3	31.6	8.9%
6.3	5.7	6.1	5.9	6.4	6.6	-31.7%
218.7	241.7	250.9	248.6	253.9	249.6	38.0%
2.5	2.4	2.5	2.5	2.6	2.8	-44.2%
618,199	637,691	657,277	660,237	687,899	695,251	43.1%

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Passenger Transportation Secondary Energy Use by Energy Source and Transportation Mode (continued)

	1990	1995	2000	2001	2002
Passenger-kilometres by Transportation Mode (millions)					
Cars[a]	303,161	313,611	305,535	310,253	316,143
Light Trucks[a]	71,109	99,147	135,338	140,021	147,827
Motorcycles[a]	1,650	1,443	1,706	1,964	2,314
School Buses[a]	16,584	22,387	23,247	19,708	21,029
Urban Transit[a]	15,183	12,924	14,272	14,821	16,362
Inter-City Buses[a]	9,502	9,545	8,713	8,034	9,143
Air[1,b]	66,776	73,492	104,882	102,535	95,094
Rail[c]	1,782	1,415	1,549	1,553	1,597
Energy Intensity[1] (MJ/Pkm)[a,b,c]	**2.36**	**2.17**	**2.12**	**2.10**	**2.12**

1) Excludes non-commercial aviation.

Sources:

a) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

b) Statistics Canada, *Canadian Civil Aviation, 1990–2000*, Ottawa, February 2003 (Cat. No. 51-206-X); and Statistics Canada, *Aviation: Service Bulletin* (Cat. No. 51-004-X), Ottawa: Vol. 36 No. 5, December 2004, Vol. 37 No. 6, December 2005, Vol. 38 No. 5, December 2006, Vol. 41, No. 3, June 2009, Vol. 42, No. 1, March 2010.

c) Statistics Canada, *Rail in Canada, 1990–2008*, Ottawa, June 2010 (Cat. No. 52-216-X).

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2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
320,278	321,761	324,668	319,391	323,839	325,303	7.3%
155,254	163,349	168,664	170,849	183,811	183,026	157.4%
2,483	2,720	2,927	3,132	3,422	3,528	113.8%
23,791	21,639	23,059	22,505	24,135	25,450	53.5%
16,458	17,290	18,289	16,202	16,720	17,984	18.5%
8,175	7,546	8,217	7,979	8,194	7,781	-18.1%
90,326	101,965	109,975	118,729	126,334	130,605	95.6%
1,434	1,421	1,478	1,450	1,445	1,574	-11.7%
2.11	**2.09**	**2.04**	**2.01**	**1.99**	**1.95**	**-17.3%**

5 Transportation Sector — Passenger

Passenger Transportation GHG Emissions by Energy Source and Transportation Mode

	1990	1995	2000	2001	2002
Passenger Transportation GHG Emissions (Mt of CO_2e)[b,c]	**82.3**	**83.8**	**88.8**	**88.9**	**90.9**
GHG Emissions by Energy Source (Mt of CO_2e)[b,c]					
Electricity	0.2	0.2	0.2	0.2	0.2
Natural Gas	0.1	0.1	0.1	0.1	0.1
Motor Gasoline	63.8	65.8	67.9	69.5	70.9
Diesel Fuel Oil	4.1	3.7	3.9	3.7	3.9
Aviation Gasoline	0.4	0.3	0.3	0.3	0.3
Aviation Turbo Fuel	12.6	12.6	15.9	14.5	15.1
Propane	1.2	1.0	0.5	0.5	0.4
GHG Emissions by Transportation Mode (Mt of CO_2e)[b,c]					
Cars	50.4	48.4	44.5	45.5	45.7
Light Trucks	14.7	18.6	24.4	25.1	26.1
Motorcycles	0.2	0.1	0.2	0.2	0.2
School Buses	1.0	1.1	1.0	0.8	0.8
Urban Transit	2.0	1.8	1.9	1.8	2.0
Inter-City Buses	0.7	0.6	0.5	0.5	0.5
Air	13.0	12.9	16.1	14.8	15.4
Rail	0.4	0.2	0.2	0.2	0.2
GHG Intensity (tonnes/TJ)[b,c]	**69.5**	**70.3**	**68.9**	**68.8**	**68.7**
GHG Emissions Related to Electricity (Mt of CO_2e)[a,c]	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

c) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

Transportation Sector — Passenger

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
91.1	**93.4**	**93.7**	**92.6**	**96.0**	**94.9**	**15.4%**
0.2	0.2	0.2	0.2	0.1	0.1	-29.2%
0.1	0.1	0.1	0.1	0.1	0.1	7.2%
71.3	72.1	71.7	71.1	73.8	72.8	14.1%
3.9	3.7	3.8	3.6	3.9	4.1	1.3%
0.2	0.2	0.2	0.2	0.2	0.2	-45.4%
15.0	16.6	17.3	17.1	17.5	17.2	36.7%
0.4	0.4	0.4	0.4	0.4	0.4	-66.2%
45.3	45.2	44.3	43.6	44.7	43.6	-13.5%
26.7	27.7	28.2	28.1	29.7	29.9	102.7%
0.2	0.2	0.2	0.2	0.3	0.3	64.2%
0.9	0.8	0.8	0.9	0.9	1.0	-3.8%
2.0	2.1	2.1	1.9	2.1	2.2	10.6%
0.4	0.4	0.4	0.4	0.4	0.5	-31.0%
15.3	16.9	17.5	17.3	17.7	17.4	34.2%
0.2	0.2	0.2	0.2	0.2	0.2	-43.6%
68.5	**68.3**	**68.2**	**68.1**	**68.0**	**68.0**	**-2.2%**
0.2	**0.2**	**0.2**	**0.2**	**0.1**	**0.1**	**-29.2%**

5 Transportation Sector — Passenger

Passenger Road Transportation Secondary Energy Use and GHG Emissions by Energy Source

	1990	1995	2000	2001	2002
Passenger Road Transportation Energy Use (PJ)[a]	**998.5**	**1,009.0**	**1,054.2**	**1,076.4**	**1,100.4**
Energy Use by Energy Source (PJ)[a]					
Electricity	3.1	3.0	3.1	3.1	3.3
Natural Gas	1.6	2.3	2.3	1.9	1.7
Motor Gasoline	921.5	935.5	987.6	1,012.4	1,035.7
Diesel Fuel Oil	52.5	50.8	52.7	50.0	52.8
Propane	19.8	17.4	8.4	9.0	6.8
Activity					
Passenger-kilometres (millions)[a]	417,188	459,057	488,811	494,801	512,817
Energy Intensity (MJ/Pkm)[a]	**2.39**	**2.20**	**2.16**	**2.18**	**2.15**
Passenger Road Transportation GHG Emissions (Mt of CO_2e)[a,b]	**68.9**	**70.7**	**72.5**	**73.9**	**75.3**
GHG Emissions by Energy Source (Mt of CO_2e)[a,b]					
Electricity	0.2	0.2	0.2	0.2	0.2
Natural Gas	0.1	0.1	0.1	0.1	0.1
Motor Gasoline	63.8	65.8	67.9	69.5	70.9
Diesel Fuel Oil	3.7	3.5	3.7	3.5	3.7
Propane	1.2	1.0	0.5	0.5	0.4
GHG Intensity (tonnes/TJ)[a,b]	**69.0**	**70.0**	**68.7**	**68.6**	**68.4**

Sources:

a) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

b) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

Transportation Sector — Passenger

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
1,108.9	**1,122.8**	**1,120.3**	**1,110.2**	**1,155.9**	**1,144.4**	**14.6%**
3.4	3.5	3.5	3.5	2.5	2.3	-27.3%
1.7	1.7	1.8	1.8	1.8	1.8	8.5%
1,045.1	1,060.4	1,057.5	1,051.1	1,093.5	1,078.5	17.0%
52.2	50.0	50.6	48.0	51.9	55.3	5.2%
6.5	7.3	6.9	5.8	6.2	6.6	-66.5%
526,438	534,305	545,824	540,058	560,121	563,072	35.0%
2.11	**2.10**	**2.05**	**2.06**	**2.06**	**2.03**	**-15.1%**
75.7	**76.3**	**76.0**	**75.1**	**78.1**	**77.3**	**12.2%**
0.2	0.2	0.2	0.2	0.1	0.1	-29.2%
0.1	0.1	0.1	0.1	0.1	0.1	7.2%
71.3	72.1	71.7	71.1	73.8	72.8	14.1%
3.7	3.5	3.6	3.4	3.7	3.9	6.2%
0.4	0.4	0.4	0.4	0.4	0.4	-66.2%
68.2	**68.0**	**67.8**	**67.7**	**67.5**	**67.5**	**-2.1%**

Passenger Transportation Explanatory Variables

	1990	1995	2000	2001	2002
Light-Duty Vehicles					
Sales (thousands)					
Cars[a,d]	872	641	848	865	919
Light Trucks[a,d]	303	349	499	499	546
Motorcycles	n.a.	n.a.	n.a.	n.a.	n.a.
Stock (thousands)					
Cars[a,f]	11,100	10,936	10,684	10,966	11,010
Light Trucks[a,f]	2,751	3,360	4,498	4,718	4,856
Motorcycles[a,c]	306	275	311	318	350
Average Distance Travelled per Year (km)					
Cars[a]	17,576	18,201	18,058	17,815	18,112
Light Trucks[a]	17,203	18,287	18,281	17,965	18,264
Motorcycles[a]	4,907	4,777	4,981	5,056	5,205
On-Road Average Fuel Consumption (L/100 km)					
Cars[a,g]					
Motor Gasoline	*10.8*	*10.0*	*9.6*	*9.7*	*9.6*
Diesel Fuel Oil	*8.1*	*7.6*	*6.9*	*7.2*	*7.2*
Light Trucks[a,g]					
Motor Gasoline	*13.0*	*12.4*	*12.3*	*12.3*	*12.2*
Diesel Fuel Oil	*9.8*	*11.0*	*11.9*	*12.3*	*12.7*
Motorcycles[a,e]					
Motor Gasoline	*4.7*	*4.7*	*4.7*	*4.7*	*4.7*

1) These series are representatives of vehicles produced in the model year, not for vehicles sold in that calendar year.

Sources:

a) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

b) Statistics Canada, *Passenger Bus and Urban Transit Statistics, 1990–2000*, Ottawa, July 2002 (Cat. No. 53-215-X); and *The Canadian Passenger Bus and Urban Transit Industries Survey, 2001–2007*, Ottawa, October 2009 (Cat. No. 50-002-X); and tables 408-0008 and 408-0010, May 2010 (CANSIM).

c) Statistics Canada, *Road Motor Vehicle Registrations*, Ottawa, November 1999 (Cat. No. 53-219-X); and Statistics Canada, *Motor Vehicle Registrations, 2000–2008*, Table 405-0004, Ottawa, May 2010 (CANSIM).

d) R.L. Polk & Co., *New Vehicle Registrations*, 1990–2008, Southfield (Detroit), Michigan, December 2009.

e) U.S. Department of Transportation, *National Transportation Statistics*, Table VM-1, December 2009.

f) DesRosiers Automotive Consultants, *Canadian Vehicle in Operation Census, 1990–2008*, Richmond Hill (Toronto), December 2009.

g) Transport Canada, *Vehicle Fuel Economy Information System, 1979–2008*, Ottawa, 2009.

Transportation Sector — Passenger

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
866	826	846	866	881	914	4.8%
526	513	525	549	597	576	90.3%
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
11,046	11,190	11,124	11,263	11,607	12,000	8.1%
5,036	5,274	5,440	5,507	5,853	6,223	126.2%
373	409	444	485	522	567	85.5%
18,321	18,203	18,061	17,756	17,899	17,089	-2.8%
18,337	18,267	18,129	17,987	18,058	17,184	-0.1%
5,237	5,240	5,194	5,085	5,158	4,900	-0.2%
9.4	*9.3*	*9.3*	*9.3*	*9.1*	*9.0*	*-16.2%*
6.6	*6.5*	*6.4*	*6.3*	*6.3*	*6.3*	*-21.7%*
12.1	*12.0*	*12.0*	*11.9*	*11.8*	*11.8*	*-9.5%*
12.3	*12.4*	*12.3*	*12.0*	*11.8*	*11.4*	*15.7%*
4.7	*4.7*	*4.3*	*4.3*	*4.2*	*4.2*	*-10.6%*

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Passenger Transportation Explanatory Variables (continued)

	1990	1995	2000	2001	2002
Lab-Tested New Vehicle Fuel Consumption[1] (L/100 km)[g]					
CAFC Standard Cars	8.6	8.6	8.6	8.6	8.6
CAFC Average Car Fleet	8.2	7.9	7.8	7.8	7.7
CAFC Standard Light Trucks	11.8	11.4	11.4	11.4	11.4
CAFC Average Light Truck Fleet	11.4	11.5	11.1	11.0	11.0
Buses					
Stock (thousands)[a]					
School Buses	44.7	48.8	47.0	43.0	46.3
Urban Transit	25.7	21.7	23.4	23.2	24.8
Inter-City Buses	6.6	6.8	6.9	7.8	8.3
Average Distance Travelled per Year (km)[a,b]					
School Buses	21,566	24,987	25,355	23,195	22,743
Urban Transit	56,265	55,530	54,448	56,542	57,939
Inter-City Buses	85,533	82,571	74,335	60,707	65,335

1) These series are representatives of vehicles produced in the model year, not for vehicles sold in that calendar year.

Sources:

a) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

b) Statistics Canada, *Passenger Bus and Urban Transit Statistics, 1990–2000*, Ottawa, July 2002 (Cat. No. 53-215-X); and *The Canadian Passenger Bus and Urban Transit Industries Survey, 2001–2007*, Ottawa, October 2009 (Cat. No. 50-002-X); and tables 408-0008 and 408-0010, May 2010 (CANSIM).

c) Statistics Canada, *Road Motor Vehicle Registrations*, Ottawa, November 1999 (Cat. No. 53-219-X); and Statistics Canada, *Motor Vehicle Registrations, 2000–2008*, Table 405-0004, Ottawa, May 2010 (CANSIM).

d) R.L. Polk & Co., *New Vehicle Registrations*, 1990–2008, Southfield (Detroit), Michigan, December 2009.

e) U.S. Department of Transportation, *National Transportation Statistics*, Table VM-1, December 2009.

f) DesRosiers Automotive Consultants, *Canadian Vehicle in Operation Census, 1990–2008*, Richmond Hill (Toronto), December 2009.

g) Transport Canada, *Vehicle Fuel Economy Information System, 1979–2008*, Ottawa, 2009.

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2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
8.6	8.6	8.6	8.6	8.6	8.6	–
7.6	7.5	7.4	7.5	7.2	7.1	-13.4%
11.4	11.4	11.2	10.9	10.6	10.5	-11.0%
10.8	10.9	10.6	10.4	10.1	9.5	-16.7%
47.5	46.9	46.9	49.2	48.3	48.4	8.3%
24.1	23.5	24.0	23.0	25.5	26.9	4.8%
8.3	7.4	8.0	8.2	8.8	8.8	33.8%
24,758	22,580	23,774	21,879	23,668	24,613	14.1%
59,472	63,524	65,196	59,829	55,218	55,714	-1.0%
58,434	60,042	60,735	57,373	54,969	52,349	-38.8%

Freight Transportation Secondary Energy Use by Energy Source and Transportation Mode

	1990	1995	2000	2001	2002
Freight Transportation Energy Use (PJ)[a]	**640.0**	**751.3**	**912.6**	**895.9**	**889.8**
Energy Use by Energy Source (PJ)[a]					
Natural Gas	0.0	0.1	0.1	0.1	0.1
Motor Gasoline	145.6	176.9	226.5	206.0	204.9
Diesel Fuel Oil	412.2	495.2	602.8	597.5	607.0
Light Fuel Oil and Kerosene	0.0	0.0	0.0	0.0	0.0
Heavy Fuel Oil	60.1	56.6	67.8	77.5	64.8
Aviation Gasoline	0.1	0.1	0.0	0.0	0.0
Aviation Turbo Fuel	6.4	7.2	8.0	6.7	7.5
Propane	15.5	15.4	7.6	8.0	5.6
Energy Use by Transportation Mode (PJ)[a]					
Light Trucks	97.1	116.5	144.1	149.8	153.6
Medium Trucks	133.2	159.8	173.9	154.2	144.0
Heavy Trucks	212.2	287.5	392.4	383.2	402.8
Air	6.5	7.3	8.0	6.7	7.5
Rail	84.4	78.5	80.2	78.8	71.5
Marine	106.5	101.7	114.0	123.2	110.5
Activity					
Total Tonne-kilometres (millions)[a]	542,860	613,918	735,730	731,114	761,870
Tonne-kilometres by Transportation Mode (millions)					
Light Trucks[a]	10,394	13,556	17,239	18,207	18,743
Medium Trucks[a]	14,672	19,002	22,101	19,505	18,364
Heavy Trucks[b]	77,800	110,000	164,720	170,569	177,012
Air[c]	1,754	2,045	2,327	2,172	2,151
Rail[d]	248,371	280,426	319,769	321,233	318,243
Marine[e]	189,869	188,890	209,574	199,428	227,356
Energy Intensity (MJ/Tkm)[a]	**1.18**	**1.22**	**1.24**	**1.23**	**1.17**

Sources:

a) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

b) Statistics Canada, *Trucking in Canada, 1990–2005*, Ottawa, June 2007 (Cat. No. 53-222-X); and table 403-0004, May 2010 (CANSIM).

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
936.7	**1,001.3**	**1,028.4**	**1,030.4**	**1,079.5**	**1,094.5**	**71.0%**
0.1	0.1	0.1	0.1	0.1	0.1	163.2%
214.9	227.1	220.8	227.9	233.4	232.3	59.6%
642.7	692.4	728.7	732.8	764.9	785.4	90.6%
0.0	0.0	0.0	0.0	0.0	0.0	–
66.8	69.1	67.5	56.9	69.4	65.4	8.7%
0.0	0.0	0.0	0.0	0.0	0.0	-61.8%
6.9	7.4	7.8	7.1	5.8	5.1	-20.9%
5.2	5.4	3.4	5.5	5.8	6.2	-60.3%
156.6	162.1	163.3	165.3	176.2	177.5	82.8%
159.8	175.1	153.1	163.7	156.2	152.5	14.5%
438.9	469.8	516.5	515.9	548.4	571.3	169.2%
7.0	7.4	7.9	7.1	5.8	5.1	-21.4%
71.3	72.6	76.4	78.9	83.9	87.7	3.9%
103.1	114.2	111.2	99.5	109.0	100.4	-5.8%
783,400	845,663	883,381	879,312	880,244	855,672	57.6%
19,460	20,628	20,910	21,250	23,204	23,534	126.4%
20,654	22,884	20,243	24,117	23,419	22,501	53.4%
184,744	224,910	233,583	225,105	224,839	221,731	185.0%
1,855	2,013	2,236	2,227	1,997	1,783	1.6%
317,933	338,898	352,140	352,477	358,472	344,903	38.9%
238,754	236,331	254,270	254,137	248,312	241,221	27.0%
1.20	**1.18**	**1.16**	**1.17**	**1.23**	**1.28**	**8.5%**

c) Statistics Canada, *Canadian Civil Aviation, 1990–2000*, Ottawa, February 2003 (Cat. No. 51-206-X); and Statistics Canada, *Aviation: Service Bulletin*, Ottawa (Cat. No. 51-004-X): Vol. 36 No. 5 December 2004, Vol. 37 No. 6 December 2005, Vol. 38 No. 5 December 2006, Vol. 41, No. 3 June 2009, Vol. 42, No. 1, March 2010.

d) Statistics Canada, *Rail in Canada, 1990–2008*, Ottawa, June 2010 (Cat. No. 52-216-X).

e) Transport Canada, Surface and Marine Statistics and Forecasts Division, Ottawa, April 2010.

5 Transportation Sector — Freight

Freight Transportation GHG Emissions by Energy Source and Transportation Mode

	1990	1995	2000	2001	2002
Freight Transportation GHG Emissions (Mt of CO_2e)[a,b]	**45.6**	**53.4**	**64.8**	**63.7**	**63.2**
GHG Emissions by Energy Source (Mt of CO_2e)[a,b]					
Natural Gas	0.0	0.0	0.0	0.0	0.0
Motor Gasoline	10.0	12.2	15.4	14.0	13.9
Diesel Fuel Oil	29.7	35.5	43.4	43.0	43.6
Light Fuel Oil and Kerosene	0.0	0.0	0.0	0.0	0.0
Heavy Fuel Oil	4.5	4.3	5.0	5.8	4.8
Aviation Gasoline	0.0	0.0	0.0	0.0	0.0
Aviation Turbo Fuel	0.5	0.5	0.6	0.5	0.5
Propane	0.9	0.9	0.5	0.5	0.3
GHG Emissions by Transportation Mode (Mt of CO_2e)[a,b]					
Light Trucks	6.6	8.0	9.9	10.2	10.5
Medium Trucks	9.1	10.9	11.9	10.6	9.9
Heavy Trucks	14.8	20.0	27.6	26.9	28.3
Air	0.5	0.5	0.6	0.5	0.5
Rail	6.6	6.1	6.3	6.2	5.6
Marine	8.2	7.8	8.7	9.3	8.4
GHG Intensity (tonnes/TJ)[a,b]	**71.3**	**71.0**	**71.0**	**71.2**	**71.1**

Sources:

a) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

b) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
66.4	**71.0**	**72.9**	**73.0**	**76.5**	**77.5**	**69.8%**
0.0	0.0	0.0	0.0	0.0	0.0	159.9%
14.6	15.4	15.0	15.4	15.8	15.7	57.8%
46.0	49.6	52.2	52.5	54.8	56.2	88.9%
0.0	0.0	0.0	0.0	0.0	0.0	–
5.0	5.1	5.0	4.2	5.2	4.9	6.7%
0.0	0.0	0.0	0.0	0.0	0.0	-61.7%
0.5	0.5	0.5	0.5	0.4	0.4	-23.1%
0.3	0.3	0.2	0.3	0.4	0.4	-59.9%
10.7	11.0	11.1	11.2	11.9	12.0	81.5%
11.0	12.1	10.5	11.3	10.8	10.5	15.6%
30.8	33.0	36.3	36.2	38.5	40.1	171.9%
0.5	0.5	0.5	0.5	0.4	0.4	-23.5%
5.6	5.7	6.0	6.2	6.6	6.9	4.9%
7.8	8.7	8.4	7.6	8.3	7.6	-6.8%
70.9	**70.9**	**70.9**	**70.8**	**70.8**	**70.8**	**-0.7%**

5 Transportation Sector — Freight

Freight Road Transportation Secondary Energy Use and GHG Emissions by Energy Source

	1990	1995	2000	2001	2002
Freight Road Transportation Energy Use (PJ)[a]	**442.6**	**563.8**	**710.4**	**687.2**	**700.3**
Energy Use by Energy Source (PJ)[a]					
Natural Gas	0.0	0.1	0.1	0.1	0.1
Motor Gasoline	145.6	176.9	226.5	206.0	204.9
Diesel Fuel Oil	281.4	371.5	476.3	473.1	489.8
Propane	15.5	15.4	7.6	8.0	5.6
Activity					
Tonne-kilometres (millions)[a]	102,866	142,557	204,060	208,280	214,120
Energy Intensity (MJ/Tkm)[a]	**4.30**	**3.96**	**3.48**	**3.30**	**3.27**
Freight Road Transportation GHG Emissions (Mt of CO_2e)[a,b]	**30.5**	**38.9**	**49.3**	**47.7**	**48.7**
GHG Emissions by Energy Source (Mt of CO_2e)[a,b]					
Natural Gas	0.0	0.0	0.0	0.0	0.0
Motor Gasoline	10.0	12.2	15.4	14.0	13.9
Diesel Fuel Oil	19.6	25.9	33.5	33.2	34.4
Propane	0.9	0.9	0.5	0.5	0.3
GHG Intensity (tonnes/TJ)[a,b]	**68.8**	**69.1**	**69.4**	**69.5**	**69.5**

Sources:

a) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

b) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
755.3	**807.1**	**833.0**	**844.9**	**880.8**	**901.3**	**103.7%**
0.1	0.1	0.1	0.1	0.1	0.1	163.2%
214.9	227.1	220.8	227.9	233.4	232.3	59.6%
535.2	574.6	608.6	611.4	641.4	662.7	135.5%
5.2	5.4	3.4	5.5	5.8	6.2	-60.3%
224,858	268,421	274,736	270,471	271,462	267,766	160.3%
3.36	**3.01**	**3.03**	**3.12**	**3.24**	**3.37**	**-21.8%**
52.5	**56.1**	**57.9**	**58.7**	**61.2**	**62.7**	**105.7%**
0.0	0.0	0.0	0.0	0.0	0.0	159.9%
14.6	15.4	15.0	15.4	15.8	15.7	57.8%
37.6	40.4	42.8	43.0	45.1	46.6	137.8%
0.3	0.3	0.2	0.3	0.4	0.4	-59.9%
69.5	**69.5**	**69.6**	**69.5**	**69.5**	**69.5**	**1.0%**

Freight Transportation Explanatory Variables

	1990	1995	2000	2001	2002
Trucks					
Sales (thousands)					
Light Trucks[a,b]	110	122	170	170	185
Medium Trucks[a,b]	29	34	44	44	44
Heavy Trucks[a,b]	16	26	29	22	25
Stock (thousands)					
Light Trucks[a,c]	1,005	1,176	1,534	1,606	1,647
Medium Trucks[a,d]	578	615	749	640	667
Heavy Trucks[a,d]	297	293	301	319	325
Average Distance Travelled per Year (km)					
Light Trucks[a]	20,692	22,163	21,209	20,995	21,069
Medium Trucks[a,e]	23,068	26,864	24,578	25,206	22,558
Heavy Trucks[a,e]	72,005	82,161	99,814	90,878	84,755
On-Road Average Fuel Consumption (L/100 km)					
Light Trucks[a,g]					
Motor Gasoline	*13.4*	*12.7*	*12.6*	*12.6*	*12.6*
Diesel Fuel Oil	*10.0*	*11.1*	*12.1*	*12.5*	*12.9*
Medium Trucks[a,e]					
Motor Gasoline	*27.1*	*26.2*	*25.6*	*25.8*	*25.7*
Diesel Fuel Oil	*27.6*	*26.7*	*26.3*	*26.2*	*26.2*
Heavy Trucks[a,e]					
Diesel Fuel Oil	*42.5*	*40.0*	*37.8*	*37.2*	*36.5*
Lab-Tested Light Truck Fuel Consumption[1] (L/100 km)[f]					
CAFC Standard Light Trucks	11.8	11.4	11.4	11.4	11.4
CAFC Average Light Truck Fleet	11.4	11.5	11.1	11.0	11.0

1) These series are representatives of vehicles produced in the model year, not for vehicles sold in that calendar year.

Sources:

a) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, August 2010.

b) R.L. Polk & Co., *New Vehicle Registrations, 1990–2008*, Southfield (Detroit), Michigan, December 2009.

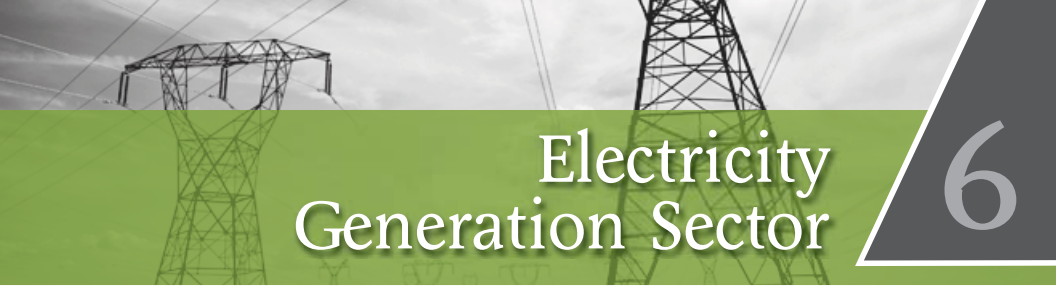
c) DesRosiers Automotive Consultants, *Canadian Vehicles in Operation Census, 1990–2008*, Richmond Hill (Toronto), December 2009.

d) R.L. Polk & Co., *Truck Industry Profile, 1994–2002*, Southfield (Detroit), Michigan, April 2004. Data for 2003 to 2008 estimated by Natural Resources Canada.

e) Statistics Canada, *Canadian Vehicle Survey, 2004–2008*, Ottawa, July 2009 (Cat. No. 53-223-X).

f) Transport Canada, *Vehicle Fuel Economy Information System, 1979–2008,* Ottawa, 2009.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
177	173	176	183	200	195	76.2%
44	47	50	59	62	52	79.3%
24	30	34	38	29	27	64.6%
1,697	1,773	1,826	1,841	1,963	2,104	109.5%
685	693	703	712	721	729	26.1%
332	336	340	344	347	348	17.3%
21,232	21,154	20,825	20,987	21,105	19,972	-3.5%
24,521	26,625	23,038	26,982	25,784	24,493	6.2%
81,368	90,879	89,422	84,743	92,660	84,570	17.4%
12.3	*12.3*	*12.2*	*12.2*	*12.1*	*12.0*	*-10.5%*
12.4	*12.5*	*12.5*	*12.2*	*12.1*	*11.7*	*17.4%*
25.5	*25.4*	*25.2*	*22.9*	*21.8*	*23.0*	*-15.3%*
26.1	*26.1*	*26.0*	*23.3*	*23.6*	*23.3*	*-15.5%*
35.9	*35.3*	*34.7*	*34.7*	*34.9*	*35.3*	*-17.0%*
11.4	11.4	11.2	10.9	10.6	10.5	-11.0%
10.8	10.9	10.6	10.4	10.1	9.5	-16.7%



Electricity Generation Sector

6

The Data Situation

Energy use and production data for the electricity generation sector are reported in Statistics Canada's *Report on Energy Supply-Demand in Canada* (RESD) (Cat. No. 57-003-X). The RESD does not provide energy use data for the electricity generated from wood and other non-specified fuel, hydro and nuclear categories. Electricity production data for these three energy sources are converted to energy use data using energy content values of 10.5, 3.6 and 11.564 megajoules per kilowatt-hour, respectively.

Gross domestic product data are provided by Informetrica Limited.

Due to rounding, the numbers in the tables may not add up or calculate to their reported totals or growth rates.

Electricity Generation Energy Use and Generation by Energy Source

	1990	1995	2000	2001	2002
Total Energy Use (PJ)[a,b]	**3,002.5**	**3,509.5**	**3,783.9**	**3,739.4**	**3,740.1**
Energy Use by Energy Source (PJ)[a,b]					
Natural Gas	80.0	182.1	319.2	339.7	310.7
Diesel Fuel Oil, Light Fuel Oil and Kerosene	11.5	9.5	6.5	6.8	5.7
Heavy Fuel Oil	141.4	84.4	113.2	138.3	110.6
Coal	874.5	909.7	1,187.8	1,167.7	1,143.1
Hydro	1,058.3	1,197.7	1,277.3	1,187.6	1,248.9
Nuclear	795.2	1,067.4	794.1	813.2	824.0
Wood and Other[1]	37.2	53.0	66.9	66.0	75.9
Petroleum Coke, Still Gas, Coke and Coke Oven Gas	4.3	5.6	18.8	20.2	21.3
Total Electricity Generated (GWh)[a]	**467,596**	**542,739**	**585,814**	**566,195**	**581,092**
Electricity Generated by Energy Source (GWh)[a]					
Natural Gas	9,018	19,784	31,678	33,165	31,978
Diesel Fuel Oil, Light Fuel Oil and Kerosene	994	1,056	798	877	862
Heavy Fuel Oil	13,394	8,334	11,540	13,671	11,169
Coal	76,794	81,563	109,895	110,197	109,681
Hydro	293,985	332,705	354,812	329,881	346,917
Nuclear	68,761	92,306	68,674	70,320	71,252
Wood and Other[1]	3,546	5,049	6,372	6,288	7,232
Petroleum Coke, Still Gas, Coke and Coke Oven Gas	1,105	1,941	2,044	1,797	2,000
Activity					
GDP (million $2002)[c]	21,356	23,498	23,301	22,238	23,620
Production (GWh)[a]	467,596	542,739	585,814	566,195	581,092
Energy Intensity (GJ/$2002)[a,b,c]	**0.141**	**0.149**	**0.162**	**0.168**	**0.158**
Energy Intensity (GJ/GWh)[a,b]	**6,421**	**6,466**	**6,459**	**6,605**	**6,436**

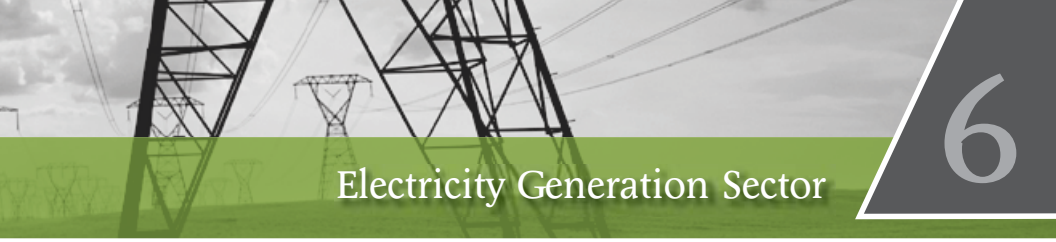
1) "Wood and Other" includes wood waste and spent pulping liquor, manufactured gases, other petroleum products, other fuels and station service.

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.

b) Natural Resources Canada, *Electricity Energy Use Model*, Ottawa, August 2010.

c) Informetrica Limited, *The Informetrica Model and Database*, Ottawa, March 2010.



2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
3,755.4	**3,845.1**	**3,912.0**	**3,920.5**	**4,061.7**	**4,009.2**	**33.5%**
337.4	314.0	329.3	315.5	382.4	335.2	319.0%
5.3	6.3	6.0	6.1	5.6	6.2	-46.3%
134.0	131.8	118.3	52.4	63.5	50.9	-64.0%
1,138.6	1,049.8	1,053.1	1,086.0	1,159.9	1,103.7	26.2%
1,204.4	1,215.4	1,296.1	1,267.0	1,313.6	1,358.5	28.4%
817.0	985.7	1,004.1	1,068.7	1,019.8	1,047.6	31.7%
72.5	76.6	75.2	70.6	68.3	56.8	52.5%
46.1	65.6	29.9	54.2	48.5	50.4	–
569,945	**580,446**	**604,350**	**592,623**	**615,317**	**618,803**	**32.3%**
32,174	31,824	31,816	31,333	36,114	31,363	247.8%
792	832	787	916	782	906	-8.8%
18,754	14,694	13,396	6,106	8,032	6,314	-52.9%
104,698	100,910	102,436	100,828	108,156	104,579	36.2%
334,560	337,606	360,026	351,936	364,877	377,370	28.4%
70,652	85,240	86,830	92,419	88,191	90,588	31.7%
6,905	7,291	7,159	6,726	6,503	5,407	52.5%
1,409	2,048	1,899	2,358	2,662	2,275	105.8%
23,975	24,067	25,593	25,188	26,043	25,765	20.6%
569,945	580,446	604,350	592,623	615,317	618,803	32.3%
0.157	**0.160**	**0.153**	**0.156**	**0.156**	**0.156**	**10.7%**
6,589	**6,624**	**6,473**	**6,616**	**6,601**	**6,479**	**0.9%**

6 Electricity Generation Sector

Electricity Generation GHG Emissions by Energy Source

	1990	1995	2000	2001	2002
Total GHG Emissions (Mt of CO_2e)[a,b,c]	**94.0**	**98.5**	**130.1**	**132.0**	**126.9**
GHG Emissions by Energy Source (Mt of CO_2e)[a,b,c]					
Natural Gas	4.1	9.2	16.1	17.1	15.6
Diesel Fuel Oil, Light Fuel Oil and Kerosene	0.8	0.7	0.5	0.5	0.4
Heavy Fuel Oil	10.7	6.4	8.4	10.2	8.2
Coal	78.1	81.8	103.6	102.5	100.9
Hydro	0.0	0.0	0.0	0.0	0.0
Nuclear	0.0	0.0	0.0	0.0	0.0
Wood and Other[1]	0.0	0.0	0.0	0.0	0.0
Petroleum Coke, Still Gas, Coke and Coke Oven Gas	0.4	0.5	1.5	1.6	1.8
GHG Intensity[2] (tonnes/TJ [electricity generated])[a,b,c]	**55.8**	**50.4**	**61.7**	**64.7**	**60.7**
GHG Intensity[3] (tonnes/TJ [energy used])[a,b,c]	**31.3**	**28.1**	**34.4**	**35.3**	**33.9**

1) "Wood and Other" includes wood waste and spent pulping liquor, manufactured gases, other petroleum products, other fuels and station service.
2) Emissions per unit of electricity generated. This GHG emissions factor is applied to the end-use electricity consumption for the sectoral analysis including electricity-related emissions.
3) Emissions per unit of energy used to produce electricity. The difference between the two emissions factors represents electricity conversion losses (energy used to produce electricity versus the amount of electricity generated).

Sources:

a) Statistics Canada, *Report on Energy Supply-Demand in Canada, 1990–2008*, Ottawa, February 2010.
b) Natural Resources Canada, *Electricity Energy Use Model*, Ottawa, August 2010.
c) Environment Canada, *Canada's Greenhouse Gas Inventory, 1990–2008*, Ottawa, April 2010.

2003	2004	2005	2006	2007	2008	Total Growth 1990–2008
131.4	**123.7**	**120.2**	**119.7**	**129.3**	**121.5**	**29.3%**
16.9	15.7	16.5	15.8	19.2	16.8	313.7%
0.4	0.5	0.4	0.4	0.4	0.4	-45.8%
9.9	9.7	8.8	3.9	4.7	3.8	-64.7%
100.4	92.3	92.0	95.0	101.0	96.3	23.4%
0.0	0.0	0.0	0.0	0.0	0.0	–
0.0	0.0	0.0	0.0	0.0	0.0	–
0.0	0.0	0.0	0.0	0.0	0.0	–
3.8	5.4	2.5	4.5	4.0	4.2	–
64.1	**59.2**	**55.3**	**56.1**	**58.4**	**54.5**	**-2.3%**
35.0	**32.2**	**30.7**	**30.5**	**31.8**	**30.3**	**-3.2%**

Appendix A – Reconciliation of Data

A

Reconciliation of Data on Energy Use Found in This Handbook with Data in Statistics Canada's *Report on Energy Supply-Demand in Canada* (RESD) – 2008

Notes on sources of energy use data for five end-use sectors:

Residential: Base data taken from RESD (Table 2-1) Residential plus residential wood use (estimated from Natural Resources Canada's Residential End-Use Model).

Commercial/Institutional: Base data taken from RESD (Table 2-1) Public administration and Commercial and other institutional less (Table 4-1) Public administration and Commercial and other institutional motor gasoline, diesel, aviation gasoline and aviation turbo fuel columns.

Industrial: Base data taken from RESD (Table 2-1) Total industrial plus (Table 10) solid wood waste and spent pulping liquor less (Table 8) wood waste and spent pulping liquor used for electricity generation multiplied by a conversion factor, plus (Table 4-1) Producer consumption for refining and mining industries of still gas, diesel, heavy fuel oil, light fuel oil, kerosene, petroleum coke and refinery LPG columns, plus (Canadian Industrial Energy End-Use Data and Analysis Centre) waste fuels from the cement industry.

Transportation: Base data taken from RESD (Table 2-1) Total transportation less Pipelines plus (Table 4-1) Public administration and Commercial and other institutional motor gasoline, diesel, aviation gasoline and aviation turbo fuel columns.

Agriculture: Base data taken from RESD (Table 2-1) Agriculture.

Reconciliation of Data

Reconciliation of Data on Energy Use Found in This Handbook with Data in Statistics Canada's *Report on Energy Supply-Demand in Canada* (RESD) – 2008 (petajoules)

	RESD Data	Residential Wood	Commercial & Public Admin. Diesel	Commercial & Public Admin. Aviation Fuels
Sector				
Residential	1,360	105	–	–
Commercial/Institutional	1,531	–	(214)	(41)
Industrial	2,312	–		
Transportation	2,430	–	214	41
Agriculture	217	–	–	–
Final Demand	**7,850**	**105**	**0**	**0**
Non-Energy	1,013	–		
Producer Consumption	1,285	–	–	–
Net Supply	**10,148**	**105**	**0**	**0**
Fuel Conversion				
Electricity, Steam and Coal/Coke Input Fuels[1]	4,161	–	–	–
Electricity, Steam and Coal/Coke Production[2]	(2,366)	–	–	–
Total Primary	**11,943**	**105**	**0**	**0**

1) "Electricity, Steam and Coal/Coke Input Fuels" represents the amount of input energy from source fuels (coal, uranium, etc.) that is transformed to electricity, steam, coke and coke gas.

2) "Electricity, Steam and Coal/Coke Production" represents the amount of electricity, steam, coke and coke gas produced. The difference between these items is referred to as conversion losses.

Reconciliation of Data

Commercial & Public Admin. Motor Gasoline	Pipeline Fuels	Wood Waste & Pulping Liquor	Waste Fuels Used in Cement Industry	Re-allocation of Producer Consumption by Refineries and Mining Industries	Data Presented in This Handbook
–	–	–	–	–	1,465
(70)	–	–	–	–	1,206
		458	5	463	3,238
70	(161)	–	–	–	2,594
–	–	–	–	–	217
0	**(161)**	**458**	**5**	**463**	**8,720**
–	–	–	–	–	1,013
–	161	–	–	(463)	983
0	**0**	**458**	**5**	**0**	**10,716**
–	–	–	–	–	4,161
–	–	–	–	–	(2,366)
0	**0**	**458**	**5**	**0**	**12,510**

Appendix B – Reconciliation of Definitions

B

Reconciliation of Definitions for Estimated Greenhouse Gas Emissions Found in This Handbook with Environment Canada's *Canada's Greenhouse Gas Inventory 1990–2008*

Introduction

In this handbook, *Energy Use Data Handbook 1990 to 2008* (EUDH), the data on greenhouse gas (GHG) emissions are estimated using emissions factors developed by Environment Canada (EC). The emissions estimates provided here mirror the sectoral definitions used to calculate the estimates presented in EC's *Canada's Greenhouse Gas Inventory 1990–2008*[1] (CGGI-2008). Both Natural Resources Canada (NRCan) and EC use the energy demand data from Statistics Canada's *Report on Energy Supply-Demand in Canada* as a base.

However, the two organizations use different sectoral mappings. EC prepares its emissions inventory according to the specifications of the Intergovernmental Panel on Climate Change, while NRCan has developed mapping that is more suited to energy end-use analysis.

The objective of this appendix is to help readers understand the similarities and differences between EUDH and CGGI-2008 emissions estimates for the five sectors covered in this handbook.

Residential Sector

EUDH and CGGI-2008 differ in their definitions of residential emissions.

- EUDH residential emissions include end-use electricity-related emissions, which are reported under power generation in CGGI-2008.
- Wood energy use differs (EC's estimate is larger than NRCan's). Hence, the GHG emissions related to wood energy use presented here are lower than those in CGGI-2008.

[1] Canada's official GHG inventory is available on the Environment Canada Web site at **www.ec.gc.ca/ges-ghg/default.asp?lang=En&n=83A34A7A-1**.

Reconciliation of Definitions

Commercial/Institutional Sector

There is only one difference between EUDH and CGGI-2008 definitions of commercial/institutional emissions.

- EUDH commercial/institutional emissions include end-use electricity-related emissions, which CGGI-2008 includes under power generation.

Industrial Sector

There are many differences between EUDH and CGGI-2008 definitions of the industrial sector.

- CGGI-2008 re-allocates industrial diesel fuel use from the industrial sector to the transportation sector.
- This handbook re-allocates producers' consumption of petroleum products from the producers' consumption category to the petroleum refining and upstream mining industries. CGGI-2008 reports this as consumption of fossil fuels.
- CGGI-2008 re-allocates industrial coke use from energy use in the industrial sector to non-energy use in industrial processes.
- EUDH industrial emissions include end-use electricity-related emissions. CGGI-2008 reports them under power generation.
- CGGI-2008 includes producers' consumption of non-fossil fuels in the fossil fuel categories. EUDH does not report this consumption.
- CGGI-2008 also re-allocates estimates of emissions from upstream oil and gas flaring to fugitive emissions from the fossil fuel sector.

Transportation Sector

EUDH and CGGI-2008 differ in their definitions of transportation emissions.

- CGGI-2008 re-allocates industrial and agriculture diesel and agriculture motor gasoline to the transportation sector.
- CGGI-2008 includes pipeline-related emissions in the transportation sector.
- CGGI-2008 excludes emissions resulting from the use of energy in the foreign aviation and marine subsectors.
- EUDH transportation emissions include end-use electricity-related emissions, which are reported under power generation in CGGI-2008.

Electricity Generation Sector

There is only one difference between EUDH and CGGI-2008 for the electricity generation sector.

- CGGI-2008 reports emissions from electricity and steam generation at the aggregate level, while EUDH reports emissions for electricity generation only. Note that in its Annex 9 "Electricity Intensity Tables," CGGI-2008 reports detailed emissions from electricity generation that are similar to those found in this handbook.

Appendix C – Glossary of Terms

C

Activity: Term used to characterize major drivers of energy use in a sector (e.g. floor space area in the commercial/institutional sector).

AECO-C Hub: A hub is a market centre where several pipelines interconnect and where many buyers and sellers trade gas, thereby creating a liquid pricing point. The AECO-C hub is the main pricing point for Alberta natural gas and represents the major pricing point for Canadian gas. Prices are determined via the spot market, which includes all transactions for sales of 30 days or less, but it typically refers to a 30-day sale.

Agriculture: The agriculture sector includes all types of farms, including livestock, field crops, grain and oilseed farms, as well as activities related to hunting and trapping. Energy used in this sector is for farm production and includes energy use by establishments engaged in agricultural activities and in providing services to agriculture. Agriculture energy use is included in total secondary energy use for Canada.

Apartment: This type of dwelling includes dwelling units in apartment blocks or apartment hotels; flats in duplexes or triplexes (i.e. where the division between dwelling units is horizontal); suites in structurally converted houses; living quarters located above or in the rear of stores, restaurants, garages or other business premises; caretakers' quarters in schools, churches, warehouses, etc.; and private quarters for employees in hospitals or other types of institutions.

Appliance: Energy-consuming equipment used in the home for purposes other than air conditioning, centralized water heating and lighting. Includes cooking appliances (gas stoves and ovens, electric stoves and ovens, microwave ovens, and propane or gas grills); cooling appliances (evaporative coolers, attic fans, window or ceiling fans, and portable or table fans); and refrigerators, freezers, clothes washers and dishwashers. Other appliances include small ones such as televisions, video cassette recorders, digital video disc players, radios, computers and toasters.

Glossary of Terms

Auxiliary Equipment: With the exception of auxiliary motors (see Auxiliary Motors), "auxiliary equipment" includes stand-alone equipment powered directly from an electrical outlet, such as computers, photocopiers, refrigerators and desktop lamps. It also includes equipment that can be powered by natural gas, propane or other fuels, such as clothes dryers and cooking appliances.

Auxiliary Motors: Refers to devices used to transform electric power into mechanical energy in order to provide a service, such as pumps, ventilators, compressors and conveyors.

Biomass: Includes wood waste and pulping liquor. Wood waste is a fuel consisting of bark, shavings, sawdust and low-grade lumber and lumber rejects from the operation of pulp mills, sawmills and plywood mills. Pulping liquor is a substance primarily made up of lignin and other wood constituents and chemicals that are by-products of the manufacture of chemical pulp. It can produce steam for industrial processes when burned in a boiler and/or produce electricity through thermal generation.

Capacity Utilization: The rates of capacity use are measures of the intensity with which industries use their production capacity. It is the ratio of an industry's actual output to its estimated potential output.

Carbon Dioxide (CO_2): A compound of carbon and oxygen formed whenever carbon is burned. Carbon dioxide (CO_2) is a colourless gas that absorbs infrared radiation, mostly at wavelengths between 12 and 18 microns. It behaves as a one-way filter, allowing incoming, visible light to pass through in one direction while preventing outgoing infrared radiation from passing in the opposite direction. The one-way filtering effect of CO_2 causes an excess of the infrared radiation to be trapped in the atmosphere; thus it acts as a "greenhouse" and has the potential to increase the surface temperature of the planet (see Greenhouse Gas).

Company Average Fuel Consumption (CAFC): The Government of Canada encourages improvements in the fuel efficiency of the Canadian new vehicle fleet by setting voluntary annual company average fuel consumption goals for vehicle manufacturers and importers.

Cooling Degree-Day (CDD): A measure of how hot a location was over a period, relative to a base temperature. In this handbook, the base temperature is 18.0°C and the period is one year. If the daily average temperature exceeds the base temperature, the number of cooling degree-days (CDDs) for that day is the difference between the two temperatures. However, if the daily average is equal to or less than the base temperature, the number of CDDs for that day is zero. The number of CDDs for a longer period is the sum of the daily CDDs for the days in that period.

Cooling Degree-Day Index: A measure of how relatively hot (or cold) a year was when compared with the cooling degree-day (CDD) average. When the CDD index is above (below) 1, the observed temperature is warmer (colder) than normal. The CDD normal represents a weighted average of the 1951–1980 CDDs observed in a number of weather stations across Canada. Its value varies from year to year because of population flow.

Dwelling: A dwelling is defined as a structurally separate set of living premises with a private entrance from outside the building or from a common hallway or stairway inside. A private dwelling is one in which one person, a family or other small group of individuals may reside, such as a single house or apartment.

Electricity Conversion Loss: The energy lost during the conversion from primary energy (petroleum, natural gas, coal, hydro, uranium and biomass) into electrical energy. Losses occur during generation, transmission and distribution of electricity and include plant and unaccounted-for uses.

End-Use: Any specific activity that requires energy (e.g. refrigeration, space heating, water heating, manufacturing processes and feedstock).

Energy Intensity: The amount of energy use per unit of activity. Examples of activity measures in this report are households, floor space, passenger-kilometres, tonne-kilometres, physical units of production and constant dollar value of gross domestic product.

Energy Source: Any substance that supplies heat or power (e.g. petroleum, natural gas, coal, renewable energy and electricity), including the use of a fuel as a non-energy feedstock.

Glossary of Terms

Floor Space (area): The area enclosed by exterior walls of a building. In the residential sector, it excludes parking areas, basements or other floors below ground level; these areas are included in the commercial/institutional sector. It is measured in square metres.

Gigajoule (GJ): One gigajoule equals 1×10^9 joules (see Petajoule).

Greenhouse Gas (GHG): A greenhouse gas (GHG) absorbs and radiates heat in the lower atmosphere that otherwise would be lost in space. The greenhouse effect is essential for life on this planet, since it keeps average global temperatures high enough to support plant and animal growth. The main GHGs are carbon dioxide (CO_2), methane (CH_4), chlorofluorocarbons (CFCs) and nitrous oxide (N_2O). By far the most abundant GHG is CO_2, accounting for about 70 percent of total GHG emissions (see Carbon Dioxide).

Greenhouse Gas Intensity of Energy: The amount of greenhouse gases emitted per unit of energy used.

Gross Domestic Product (GDP): The total value of goods and services produced within Canada during a given year. Also referred to as annual economic output or, more simply, output. To avoid counting the same output more than once, gross domestic product (GDP) includes only final goods and services – not those that are used to make another product. GDP figures are reported in constant 2002 dollars.

Gross Output (GO): The total value of goods and services produced by an industry. It is the sum of the industry's shipments plus the change in value due to labour and capital investment. Gross output figures are reported in constant 2002 dollars.

Heat Gain: Heat gained by a building from the operation of appliances. These heat gains reduce the space heating load in the winter and increase the space cooling load in the summer.

Heat Loss: Represents the amount of energy released as heat by an appliance or piece of equipment while it is in operation.

Heating Degree-Day (HDD): A measure of how cold a location was over a period, relative to a base temperature. In this handbook, the base temperature is 18.0°C and the period is one year. If the daily average temperature is below the base temperature, the number of heating degree-days (HDDs) for that day is the difference between the two temperatures. However, if the daily average temperature is equal to or higher than the base temperature, the number of HDDs for that day is zero. The number of HDDs for a longer period is the sum of the daily HDDs for the days in that period.

Heating Degree-Day Index: A measure of how relatively cold (or hot) a year was when compared with the heating degree-day (HDD) average. When the HDD index is above (below) 1, the observed temperature is colder (warmer) than normal. The HDD normal represents a weighted average of the 1951–1980 HDDs observed in a number of weather stations across Canada. Its value varies from year to year because of population flow.

Heavy Truck: A truck with a gross vehicle weight that is more than, or equal to, 14 970 kilograms (kg) (33 001 pounds [lb.]). The gross vehicle weight is the weight of the empty vehicle plus the maximum anticipated load weight.

Household: A person or a group of people occupying one dwelling unit is defined as a household. The number of households will, therefore, be equal to the number of occupied dwellings.

Housing Stock: The physical number of dwellings is referred to as the housing stock. As opposed to the number of households, which refers to the number of occupied dwellings, housing stock includes both occupied and unoccupied dwellings.

Kilowatt-hour (kWh): The commercial unit of electricity energy equivalent to 1000 watt-hours. A kilowatt-hour can best be visualized as the amount of electricity consumed by ten 100-watt bulbs burning for an hour. One kilowatt-hour equals 3.6 million joules (see Watt).

Glossary of Terms

Light Truck: A truck of up to 3855 kg (8500 lb.) of gross vehicle weight. The gross vehicle weight is the weight of the empty vehicle plus the maximum anticipated load weight. This class of vehicles includes pickup trucks, minivans and sport utility vehicles.

Liquefied Petroleum Gases (LPG) and Gas Plant Natural Gas Liquids (NGL): Propane and butane are liquefied gases extracted from natural gas (i.e. gas plant NGL) or from refined petroleum products (i.e. LPG) at the processing plant.

Medium Truck: A truck with a gross vehicle weight ranging from 3856 to 14 969 kg (8501 to 33 000 lb.). The gross vehicle weight is the weight of the empty vehicle plus the maximum anticipated load weight.

Megajoule (MJ): One megajoule equals 1×10^6 joules (see Petajoule).

Mobile Home: A moveable dwelling designed and constructed to be transported by road on its own chassis to a site and placed on a temporary foundation (such as blocks, posts or a prepared pad). If required, it can be moved to a new location.

Model Year: An annual period in which a national automotive industry organizes its operations and within which new models are announced. For example, if the "model year" is 2004, it begins September 1, 2003, and ends August 31, 2004.

Multifactor Productivity: The ratio of output per unit of combined inputs (capital services and labour services).

North American Industry Classification System (NAICS): A classification system that categorizes establishments into groups with similar economic activities. The structure of the Northern American Industry Classification System, adopted by Statistics Canada in 1997 to replace the 1980 Standard Industrial Classification, was developed by the statistical agencies of Canada, Mexico and the United States.

Passenger-kilometre (Pkm): An activity measure in the passenger transportation sub-sector describing the transportation of one passenger over a distance of one kilometre.

Petajoule (PJ): One petajoule equals 1 x 10^{15} joules. A joule is the international unit of measure of energy – the energy produced by the power of one watt flowing for a second. There are 3.6 million joules in one kilowatt-hour (see Kilowatt-hour).

Pulping Liquor: A substance primarily made up of lignin, other wood constituents and chemicals that are by-products of the manufacture of chemical pulp. It can produce steam for industrial processes when burned in a boiler and/or produce electricity through thermal generation.

Sector: The broadest category for which energy consumption and intensity are considered within the Canadian economy (e.g. residential, commercial/institutional, industrial, transportation, agriculture and electricity generation).

Single Attached (dwelling): Each half of a semi-detached (double) house and each section of a row or terrace are defined as single attached dwellings. A single dwelling attached to a non-residential structure also belongs to this category.

Single Detached (dwelling): This type of dwelling is commonly called a single house (i.e. a house containing one dwelling unit and completely separated on all sides from any other building or structure).

Space Cooling: Conditioning of room air for human comfort by a refrigeration unit (e.g. air conditioner or heat pump) or by the circulation of chilled water through a central- or district-cooling system.

Space Heating: The use of mechanical equipment to heat all or part of a building. Includes the principal space heating unit and any supplementary equipment.

Standard Industrial Classification (SIC): A classification system that categorizes establishments into groups with similar economic activities.

Glossary of Terms

Terajoule (TJ): One terajoule equals 1×10^{12} joules (see Petajoule).

Tonne-kilometre (Tkm): An activity measure for the freight transportation subsector describing the transportation of one tonne over a distance of one kilometre.

Vintage: The year of origin or age of a unit of capital stock (e.g. a building or a car).

Waste Fuel: A name applied to any number of energy sources other than conventional fuels used in the cement industry. It includes materials such as tires, municipal waste and landfill off-gases.

Water Heater: An automatically controlled vessel designed for heating water and storing heated water.

Water Heating: The use of energy to heat water for hot running water, as well as the use of energy to heat water on stoves and in auxiliary water heating equipment for bathing, cleaning and other non-cooking applications.

Watt (W): A measure of power. For example, a 40-watt light bulb uses 40 watts of electricity (see Kilowatt-hour).

Wood Waste: Fuel consisting of bark, shavings, sawdust, low-grade lumber and lumber rejects from the operation of pulp mills, sawmills and plywood mills.

Appendix D – List of Abbreviations

D

$2002	Constant 2002 dollars
bbl.	Barrel
CAFC	Company Average Fuel Consumption
CANSIM	Canadian Socio-Economic Information Management System
CEUM	Commercial/Institutional End-Use Model
CIEEDAC	Canadian Industrial Energy End-Use Data and Analysis Centre
EC	Environment Canada
EER	Energy Efficiency Ratio
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GJ	Gigajoule = 1×10^9 joules
GO	Gross Output
GWh	Gigawatt-hour = 1×10^9 Wh
km	Kilometre
kW	Kilowatt
kWh	Kilowatt-hour = 1×10^3 Wh
L	Litre
LPG	Liquefied Petroleum Gases
m^2	Square Metre
m^3	Cubic Metre
MJ	Megajoule = 1×10^6 joules
Mt of CO_2e	Megatonne of Carbon Dioxide Equivalent = 1×10^6 tonnes
NAICS	North American Industry Classification System
n.e.c.	Not Elsewhere Classified
NEUD	National Energy Use Database
NGL	Natural Gas Liquids
NRCan	Natural Resources Canada
OEE	Office of Energy Efficiency
PJ	Petajoule = 1×10^{15} joules
Pkm	Passenger-kilometre
RESD	*Report on Energy Supply-Demand in Canada*
REUM	Residential End-Use Model
SEER	Seasonal Energy Efficiency Ratio
SIC	Standard Industrial Classification
TEUM	Transportation End-Use Model
TJ	Terajoule = 1×10^{12} joules
Tkm	Tonne-kilometre
UEC	Unit Energy Consumption
W	Watt
Wh	Watt-hour

Notes

Notes

Natural Resources Canada's Office of Energy Efficiency

Leading Canadians to Energy Efficiency at Home, at Work and on the Road

Canada