



Natural Resources  
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# Energy Use Data Handbook

1990 to 2015



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**1990 to 2015**

Canada

*Aussi disponible en français sous le titre : Guide de données sur  
la consommation d'énergie, 1990 à 2015*

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# Preface

This is the fifteenth edition of the *Energy Use Data Handbook, 1990 to 2015*, which fulfils part of the mandate of Natural Resources Canada's (NRCan) 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 and Climate Change Canada's publication *National Inventory Report* for the official GHG inventory.

The handbook covers five sectors at an aggregate level: residential, commercial/institutional, industrial, transportation and electricity generation. The year 1990 is the reference year whereas 2015 is the most recent year for which data are available.

# Preface

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 2015*, which assesses factors influencing changes in energy use and related changes in GHGs.

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 website: [oee.nrcan.gc.ca/corporate/statistics/neud/dpa/data\\_e/databases.cfm](http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/data_e/databases.cfm).

For more information on this product or other services, contact  
Office of Energy Efficiency  
Natural Resources Canada  
580 Booth Street, 18th Floor  
Ottawa ON K1A 0E4

Email: [nrcan.statisticsandanalysis-statistiquesetanalyses.nrcan@canada.ca](mailto:nrcan.statisticsandanalysis-statistiquesetanalyses.nrcan@canada.ca)

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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 and 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 and Climate Change Canada.

The Office of Energy Efficiency has developed energy use 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 Petroleum Resources Branch 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.*

# Total End-Use Sector

## Canada's Secondary Energy Use (Final Demand) and GHG Emissions by Energy Source

	1990	1995	2005	2006	2007	2008
<b>Total Energy Use (PJ)<sup>a,b,c</sup></b>	<b>6,957.1</b>	<b>7,547.0</b>	<b>8,458.2</b>	<b>8,334.3</b>	<b>8,736.5</b>	<b>8,598.1</b>
<b>Energy Use by Energy Source (PJ)</b>						
Electricity	1,428.6	1,544.2	1,771.3	1,745.4	1,793.3	1,782.6
Natural Gas	1,777.6	1,992.9	2,077.5	2,005.2	2,228.9	2,248.3
Motor Gasoline <sup>1</sup>	1,176.5	1,219.6	1,428.6	1,431.3	1,474.8	1,459.7
Oil <sup>2</sup>	1,202.2	1,179.9	1,436.3	1,383.2	1,468.2	1,446.1
Aviation Gasoline	5.5	4.2	3.3	3.0	3.1	3.0
Aviation Turbo Fuel	181.9	183.9	253.6	251.7	254.2	239.6
Still Gas and Petroleum Coke	309.9	412.0	469.8	509.0	526.4	473.7
Wood Waste and Pulping Liquor	341.0	457.6	523.2	498.8	477.0	426.9
Other <sup>3</sup>	313.3	341.1	329.8	345.2	348.5	353.1
Residential Wood	220.5	211.6	164.9	161.5	162.2	165.1
<b>Total GHG Emissions Including Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,c,d</sup></b>	<b>401.1</b>	<b>420.3</b>	<b>484.6</b>	<b>476.5</b>	<b>503.3</b>	<b>491.0</b>
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)</b>						
Electricity	80.4	78.0	99.1	94.9	97.7	91.8
Natural Gas	91.2	101.6	108.0	104.9	118.4	119.2
Motor Gasoline <sup>1</sup>	82.2	86.3	99.5	99.1	101.7	100.2
Oil <sup>2</sup>	87.8	85.9	105.0	101.2	107.5	105.9
Aviation Gasoline	0.4	0.3	0.2	0.2	0.2	0.2
Aviation Turbo Fuel	12.9	13.1	17.5	17.4	17.5	16.5
Still Gas and Petroleum Coke	17.6	24.3	27.7	29.5	30.6	27.2
Wood Waste and Pulping Liquor	0.2	0.3	0.4	0.4	0.3	0.3
Other <sup>3</sup>	23.2	25.4	23.4	25.1	25.4	25.7
Residential Wood	5.18	4.97	3.87	3.79	3.81	3.88
<b>Total GHG Emissions Excluding Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,c,d</sup></b>	<b>320.8</b>	<b>342.3</b>	<b>385.5</b>	<b>381.6</b>	<b>405.6</b>	<b>399.1</b>

1) "Motor Gasoline" includes ethanol. See transportation tables for details.

2) "Oil" includes diesel fuel oil, light fuel oil, kerosene and heavy fuel oil.

3) "Other" includes coal, coke, coke oven gas, LPG and Gas Plant NGL, steam and waste fuels from the cement industry.

# Total End-Use Sector

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
<b>Total Energy Use (PJ)</b>	<b>8,324.6</b>	<b>8,509.5</b>	<b>8,756.4</b>	<b>8,770.9</b>	<b>9,042.6</b>	<b>9,148.3</b>	<b>9,012.9</b>	<b>29.5%</b>
<b>Energy Use by Energy Source (PJ)</b>								
Electricity	1,710.4	1,734.8	1,767.6	1,753.5	1,790.4	1,812.9	1,783.8	24.9%
Natural Gas	2,201.7	2,233.2	2,406.2	2,428.4	2,650.4	2,785.9	2,753.8	54.9%
Motor Gasoline <sup>1</sup>	1,478.3	1,518.3	1,503.5	1,506.6	1,548.2	1,521.7	1,539.0	30.8%
Oil <sup>2</sup>	1,339.7	1,424.7	1,457.2	1,413.0	1,418.5	1,391.0	1,353.7	12.6%
Aviation Gasoline	2.9	2.6	2.1	2.6	2.2	1.9	2.2	-60.6%
Aviation Turbo Fuel	216.1	224.6	229.1	260.9	271.8	268.1	270.0	48.4%
Still Gas and Petroleum Coke	512.6	500.9	500.5	498.0	476.7	468.3	470.8	51.9%
Wood Waste and Pulping Liquor	394.0	374.9	363.6	356.3	390.8	423.2	387.5	13.6%
Other <sup>3</sup>	309.0	324.4	353.4	376.2	319.7	318.2	289.9	-7.5%
Residential Wood	160.0	171.1	173.2	175.4	174.0	157.1	162.0	-26.5%
<b>Total GHG Emissions Including Electricity (Mt of CO<sub>2</sub>e)</b>	<b>466.9</b>	<b>485.6</b>	<b>487.8</b>	<b>486.1</b>	<b>498.2</b>	<b>495.0</b>	<b>489.2</b>	<b>21.9%</b>
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)</b>								
Electricity	80.7	84.6	75.2	69.5	71.5	67.2	65.2	-18.9%
Natural Gas	116.9	119.2	128.2	130.1	142.3	149.3	147.7	62.0%
Motor Gasoline <sup>1</sup>	101.1	103.6	102.1	102.0	104.6	102.5	103.9	26.3%
Oil <sup>2</sup>	97.9	104.2	106.6	103.4	103.8	101.7	99.0	12.7%
Aviation Gasoline	0.2	0.2	0.2	0.2	0.2	0.1	0.2	-60.6%
Aviation Turbo Fuel	14.9	15.5	15.8	18.0	18.8	18.5	18.6	44.4%
Still Gas and Petroleum Coke	29.6	29.7	29.5	31.3	30.2	29.4	29.7	68.9%
Wood Waste and Pulping Liquor	0.3	0.3	0.2	0.2	0.3	0.3	0.3	26.4%
Other <sup>3</sup>	21.6	24.4	25.9	27.2	22.6	22.2	20.8	-10.4%
Residential Wood	3.76	4.02	4.07	4.12	4.09	3.69	3.80	-26.5%
<b>Total GHG Emissions Excluding Electricity (Mt of CO<sub>2</sub>e)</b>	<b>386.2</b>	<b>401.0</b>	<b>412.6</b>	<b>416.6</b>	<b>426.7</b>	<b>427.8</b>	<b>424.0</b>	<b>32.2%</b>

### Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.

b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2017.

c) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2015*, Simon Fraser University, 2017.

d) Environment and Climate Change Canada, *National Inventory Report 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

# Total End-Use Sector

## Canada's Secondary Energy Use (Final Demand) by Sector, End Use and Subsector

	1990	1995	2005	2006	2007	2008
<b>Total Energy Use (PJ)<sup>a,b,c</sup></b>	<b>6,957.1</b>	<b>7,547.0</b>	<b>8,458.2</b>	<b>8,334.3</b>	<b>8,736.5</b>	<b>8,598.1</b>
<b>Residential (PJ)<sup>a,b</sup></b>	<b>1,424.5</b>	<b>1,468.3</b>	<b>1,495.2</b>	<b>1,442.4</b>	<b>1,561.5</b>	<b>1,565.8</b>
Space Heating	957.5	989.4	946.5	896.8	995.6	1,004.2
Water Heating	230.8	245.1	277.6	280.2	292.4	289.1
Appliances	176.8	171.0	181.6	183.4	190.1	193.7
Major Appliances	148.5	137.0	124.5	123.5	125.8	125.3
Other Appliances <sup>1</sup>	28.3	34.0	57.1	59.9	64.2	68.4
Lighting	49.5	49.6	57.3	56.8	57.9	58.7
Space Cooling	10.0	13.3	32.2	25.2	25.5	20.1
<b>Commercial/Institutional (PJ)<sup>a,c</sup></b>	<b>745.6</b>	<b>840.4</b>	<b>951.7</b>	<b>897.4</b>	<b>943.8</b>	<b>949.7</b>
Space Heating	449.9	511.7	546.5	497.5	525.1	528.1
Water Heating	57.7	62.0	75.6	75.3	78.9	78.1
Auxiliary Equipment	54.3	63.6	99.7	103.8	107.3	114.8
Auxiliary Motors	60.4	68.7	60.4	59.9	62.0	64.4
Lighting	84.0	94.1	98.6	100.7	105.4	105.3
Space Cooling	30.3	32.5	62.6	52.1	56.2	50.5
Street Lighting <sup>f</sup>	8.9	7.8	8.3	8.1	9.0	8.6
<b>Industrial (PJ)<sup>a,e</sup></b>	<b>2,710.0</b>	<b>3,017.3</b>	<b>3,305.9</b>	<b>3,306.8</b>	<b>3,434.8</b>	<b>3,294.0</b>
Mining	347.6	445.9	666.8	712.1	863.3	872.1
Pulp and Paper	728.2	832.5	827.4	749.7	724.4	632.5
Iron and Steel	219.4	247.0	239.7	252.0	253.9	246.9
Smelting and Refining	183.3	219.3	261.1	262.9	256.1	261.4
Cement	59.3	61.9	71.4	75.6	67.5	65.3
Chemicals	223.2	248.2	236.1	247.9	243.0	241.5
Petroleum Refining	323.2	356.2	356.9	371.3	380.0	346.5
Other Manufacturing	551.1	549.9	546.6	532.0	542.0	521.9
Forestry	7.7	7.9	28.8	31.3	30.0	30.9
Construction	66.9	48.6	71.0	72.1	74.7	74.9

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

# Total End-Use Sector

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
<b>Total Energy Use (PJ)</b>	<b>8,324.6</b>	<b>8,509.5</b>	<b>8,756.4</b>	<b>8,770.9</b>	<b>9,042.6</b>	<b>9,148.3</b>	<b>9,012.9</b>	<b>29.5%</b>
<b>Residential (PJ)</b>	<b>1,528.9</b>	<b>1,487.0</b>	<b>1,574.0</b>	<b>1,508.2</b>	<b>1,572.0</b>	<b>1,608.7</b>	<b>1,544.0</b>	<b>8.4%</b>
Space Heating	977.5	922.2	988.7	922.1	990.7	1,025.9	963.7	0.7%
Water Heating	280.9	278.1	294.3	289.2	288.7	291.4	288.8	25.2%
Appliances	195.1	195.9	199.5	201.2	206.3	207.9	201.3	13.8%
Major Appliances	123.5	120.5	120.1	118.5	119.7	118.0	112.9	-24.0%
Other Appliances <sup>1</sup>	71.6	75.3	79.4	82.6	86.7	89.9	88.4	212.4%
Lighting	58.8	59.2	59.4	58.9	59.7	58.7	58.3	17.7%
Space Cooling	16.6	31.7	32.1	36.8	26.5	24.8	31.8	219.5%
<b>Commercial/Institutional (PJ)</b>	<b>943.4</b>	<b>930.7</b>	<b>977.0</b>	<b>942.5</b>	<b>975.5</b>	<b>1,030.3</b>	<b>1,009.4</b>	<b>35.4%</b>
Space Heating	523.7	494.7	533.3	493.1	533.1	577.9	552.1	22.7%
Water Heating	76.7	77.4	79.9	78.9	79.3	79.4	79.0	36.9%
Auxiliary Equipment	125.1	127.0	126.9	128.5	135.9	140.8	145.1	167.1%
Auxiliary Motors	63.5	60.3	63.6	63.4	64.1	63.6	58.1	-3.8%
Lighting	107.6	109.7	110.3	110.5	111.0	114.3	112.0	33.4%
Space Cooling	39.7	54.2	55.3	60.4	44.7	46.6	55.3	82.2%
Street Lighting <sup>f</sup>	7.1	7.5	7.6	7.5	7.6	7.6	7.7	-14.2%
<b>Industrial (PJ)</b>	<b>3,135.9</b>	<b>3,237.0</b>	<b>3,321.5</b>	<b>3,415.9</b>	<b>3,525.1</b>	<b>3,584.4</b>	<b>3,540.5</b>	<b>30.6%</b>
Mining	942.9	1,011.4	1,048.3	1,156.1	1,244.2	1,275.8	1,336.5	284.5%
Pulp and Paper	579.3	553.2	541.2	524.7	560.1	576.4	557.5	-23.4%
Iron and Steel	187.4	213.2	227.0	231.1	214.8	231.0	202.8	-7.6%
Smelting and Refining	227.9	239.8	248.8	229.6	225.3	229.3	229.9	25.4%
Cement	62.0	59.5	58.0	57.0	54.9	57.1	57.3	-3.5%
Chemicals	231.5	248.6	271.7	272.4	284.5	292.4	295.2	32.3%
Petroleum Refining	338.7	343.8	339.3	342.8	321.0	319.0	305.1	-5.6%
Other Manufacturing	478.8	471.9	488.7	501.3	521.9	508.5	454.4	-17.5%
Forestry	21.4	22.3	19.8	19.0	19.1	18.4	19.7	154.6%
Construction	66.1	73.3	78.8	82.0	79.3	76.5	82.2	22.8%

### Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, 2017.  
c) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, 2017.  
d) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, 2017.  
e) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2015*, Simon Fraser University, 2017.  
f) Statistics Canada, *Electric Power Generation, Transmission and Distribution, 1990–2007* (Cat. No. 57-202-X). Data for reference year 2008 onward were provided on request.

# Total End-Use Sector

## Canada's Secondary Energy Use (Final Demand) by Sector, End Use and Subsector (cont.)

	1990	1995	2005	2006	2007	2008
<b>Total Transportation (PJ)<sup>a</sup></b>	<b>1,877.9</b>	<b>2,011.7</b>	<b>2,477.6</b>	<b>2,457.6</b>	<b>2,557.3</b>	<b>2,545.1</b>
<b>Passenger Transportation (PJ)<sup>a,d</sup></b>	<b>1,154.0</b>	<b>1,176.8</b>	<b>1,339.2</b>	<b>1,313.9</b>	<b>1,360.0</b>	<b>1,328.9</b>
Cars	705.5	669.1	618.0	605.1	620.9	602.3
Trucks	215.5	271.8	410.4	404.9	426.7	424.5
Motorcycles	2.4	2.1	3.3	3.5	3.7	3.8
Buses	46.0	50.7	55.8	50.2	54.5	57.4
Air	180.9	180.8	249.1	247.5	251.4	237.7
Rail	3.8	2.3	2.7	2.7	2.8	3.2
<b>Freight Transportation (PJ)<sup>a,d</sup></b>	<b>670.5</b>	<b>772.7</b>	<b>1,039.0</b>	<b>1,042.9</b>	<b>1,094.9</b>	<b>1,112.7</b>
Light Trucks	97.6	118.2	160.1	159.9	170.2	169.6
Medium Trucks	120.6	147.7	208.9	239.3	247.1	260.9
Heavy Trucks	253.6	319.3	452.4	437.9	454.4	458.1
Air	6.5	7.3	7.8	7.2	5.8	4.9
Rail	85.7	78.6	81.7	85.6	91.8	97.0
Marine	106.5	101.7	128.1	113.0	125.7	122.2
<b>Off-Road (PJ)<sup>d</sup></b>	<b>53.3</b>	<b>62.1</b>	<b>99.5</b>	<b>100.8</b>	<b>102.3</b>	<b>103.5</b>
<b>Agriculture (PJ)<sup>a</sup></b>	<b>199.2</b>	<b>209.3</b>	<b>227.8</b>	<b>230.1</b>	<b>239.0</b>	<b>243.4</b>

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

# Total End-Use Sector

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
2,504.6	2,608.3	2,612.4	2,637.0	2,689.4	2,646.7	2,637.5	40.4%
1,314.8	1,338.6	1,334.5	1,356.4	1,388.3	1,350.8	1,368.1	18.6%
600.8	595.5	577.6	565.0	562.5	533.4	530.9	-24.8%
435.8	453.2	460.1	468.4	489.4	487.8	507.6	135.6%
5.1	5.3	5.4	5.6	5.6	5.4	5.5	130.9%
56.3	60.2	62.8	57.6	61.0	58.1	55.3	20.2%
214.6	221.9	225.7	257.4	267.7	264.0	266.7	47.4%
2.3	2.5	2.8	2.4	2.1	2.0	2.1	-43.7%
1,086.7	1,165.9	1,171.8	1,172.9	1,191.3	1,184.2	1,154.8	72.2%
172.3	178.6	179.7	184.9	193.0	192.7	199.6	104.6%
278.5	312.0	305.4	302.3	317.0	314.8	305.4	153.2%
451.0	466.6	489.7	491.1	495.2	497.2	486.9	92.0%
4.4	5.3	5.4	6.1	6.3	6.0	5.5	-15.0%
62.5	81.2	93.0	94.2	90.9	93.4	92.4	7.8%
118.0	122.3	98.5	94.4	89.0	80.1	65.0	-39.0%
103.1	103.8	106.2	107.7	109.7	111.8	114.6	114.8%
211.8	246.4	271.5	267.3	280.7	278.2	281.6	41.4%

### Sources:

- Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.
- Natural Resources Canada, Residential End-Use Model, Ottawa, 2017.
- Natural Resources Canada, Commercial/Institutional End-Use Model, Ottawa, 2017.
- Natural Resources Canada, Transportation End-Use Model, Ottawa, 2017.
- Canadian Industrial Energy End-Use Data and Analysis Centre, Development of Energy Intensity Indicators for Canadian Industry 1990 to 2015, Simon Fraser University, 2017.
- Statistics Canada, *Electric Power Generation, Transmission and Distribution, 1990–2007* (Cat. No. 57-202-X). Data for reference year 2008 onward were provided on request.

# Total End-Use Sector

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

	1990	1995	2005	2006	2007	2008
<b>Total GHG Emissions Including Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,d,e,f</sup></b>	<b>401.1</b>	<b>420.3</b>	<b>484.6</b>	<b>476.5</b>	<b>503.3</b>	<b>491.0</b>
<b>Residential (Mt of CO<sub>2</sub>e)<sup>a,b,e</sup></b>	<b>72.8</b>	<b>71.2</b>	<b>76.4</b>	<b>72.9</b>	<b>79.4</b>	<b>77.4</b>
Space Heating	47.0	46.8	46.7	43.8	49.1	48.5
Water Heating	12.5	12.6	14.6	14.7	15.4	14.9
Appliances	9.9	8.6	10.1	9.9	10.3	10.0
Major Appliances	8.3	6.9	6.9	6.7	6.8	6.4
Other Appliances <sup>1</sup>	1.6	1.7	3.2	3.3	3.5	3.5
Lighting	2.8	2.5	3.2	3.1	3.2	3.0
Space Cooling	0.6	0.7	1.8	1.4	1.4	1.0
<b>Commercial/Institutional (Mt of CO<sub>2</sub>e)<sup>a,c,e</sup></b>	<b>41.0</b>	<b>44.2</b>	<b>51.3</b>	<b>47.8</b>	<b>50.3</b>	<b>49.1</b>
Space Heating	24.4	27.3	28.8	26.1	27.5	27.2
Water Heating	3.2	3.3	4.1	4.0	4.3	4.2
Auxiliary Equipment	3.1	3.2	5.6	5.7	5.9	6.0
Auxiliary Motors	3.4	3.5	3.4	3.3	3.4	3.3
Lighting	4.7	4.8	5.5	5.5	5.7	5.4
Space Cooling	1.7	1.6	3.5	2.8	3.0	2.6
Street Lighting <sup>g</sup>	0.5	0.4	0.5	0.4	0.5	0.4
<b>Industrial (Mt of CO<sub>2</sub>e)<sup>a,e,f</sup></b>	<b>141.5</b>	<b>148.0</b>	<b>166.6</b>	<b>167.4</b>	<b>177.8</b>	<b>169.6</b>
Mining	22.5	27.7	42.2	45.0	55.1	55.6
Pulp and Paper	24.5	22.5	20.0	17.5	17.3	14.2
Iron and Steel	16.5	18.2	17.4	18.6	18.8	18.1
Smelting and Refining	10.9	11.9	15.1	14.9	14.7	14.3
Cement	4.4	4.7	5.8	6.2	5.5	5.3
Chemicals	10.8	11.9	11.9	12.4	12.2	11.8
Petroleum Refining	18.2	20.7	20.9	21.1	21.7	19.2
Other Manufacturing	28.7	26.6	26.3	24.5	25.4	23.7
Forestry	0.6	0.6	2.1	2.3	2.2	2.3
Construction	4.3	3.2	4.7	4.8	5.0	5.0

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 and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2017.  
c) Natural Resources Canada, Commercial/Institutional End-Use Model, Ottawa, 2017.

# Total End-Use Sector

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
466.9	485.6	487.8	486.1	498.2	495.0	489.2	21.9%
73.0	71.3	71.7	66.3	69.0	69.1	65.4	-10.1%
46.1	43.3	45.0	40.7	43.6	44.7	41.5	-11.8%
14.1	14.0	14.3	13.7	13.6	13.4	13.2	5.5%
9.2	9.6	8.5	8.1	8.3	7.8	7.5	-24.8%
5.8	5.9	5.2	4.8	4.9	4.5	4.2	-49.2%
3.4	3.7	3.4	3.3	3.5	3.3	3.2	103.0%
2.8	2.9	2.5	2.3	2.4	2.2	2.1	-23.5%
0.8	1.5	1.4	1.5	1.1	0.9	1.2	107.6%
46.9	46.9	46.8	43.9	45.4	46.7	45.2	10.3%
26.6	25.3	27.0	25.0	26.7	28.6	27.1	11.1%
4.0	4.0	4.1	4.1	4.0	4.0	4.0	25.1%
6.0	6.3	5.5	5.3	5.6	5.4	5.5	80.5%
3.0	2.9	2.7	2.5	2.6	2.4	2.1	-37.5%
5.1	5.4	4.7	4.4	4.4	4.2	4.1	-13.3%
1.9	2.6	2.4	2.4	1.8	1.8	2.1	21.3%
0.3	0.4	0.3	0.3	0.3	0.3	0.3	-44.3%
158.3	169.0	169.4	175.3	179.0	177.9	177.6	25.5%
59.6	64.5	66.0	73.3	79.2	80.5	84.2	274.8%
12.4	11.9	10.9	9.8	10.4	9.9	9.4	-61.7%
13.6	15.6	16.5	16.6	14.7	15.8	13.9	-15.7%
11.5	12.5	11.7	10.3	10.1	9.5	9.4	-14.2%
5.0	4.8	4.7	4.3	4.1	4.3	4.3	-2.4%
10.9	11.9	12.6	12.4	12.9	13.0	13.0	20.2%
18.8	19.8	19.1	20.3	19.1	18.9	18.1	-0.6%
20.5	21.5	21.2	21.3	21.7	19.5	18.2	-36.5%
1.6	1.6	1.5	1.4	1.4	1.4	1.4	157.2%
4.5	4.9	5.3	5.5	5.3	5.1	5.6	27.8%

d) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2017.

e) Environment and Climate Change Canada, *National Inventory Report, 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

f) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2015*, Simon Fraser University, 2017.

g) Statistics Canada, *Electric Power Generation, Transmission and Distribution, 1990–2007* (Cat. No. 57-202-X). Data for reference year 2008 onward were provided on request.

# Total End-Use Sector

## Canada's GHG Emissions by Sector, End Use and Subsector – Including Electricity-Related Emissions (cont.)

	1990	1995	2005	2006	2007	2008
<b>Total Transportation (Mt of CO<sub>2</sub>e)<sup>a,d,e</sup></b>	<b>132.3</b>	<b>142.7</b>	<b>174.5</b>	<b>172.6</b>	<b>179.2</b>	<b>178.0</b>
<b>Passenger Transportation (Mt of CO<sub>2</sub>e)<sup>a,d,e</sup></b>	<b>80.9</b>	<b>83.5</b>	<b>93.4</b>	<b>91.2</b>	<b>94.0</b>	<b>91.5</b>
Cars	49.3	47.5	43.0	41.9	42.8	41.3
Light Trucks	15.1	19.4	28.8	28.2	29.6	29.3
Motorcycles	0.2	0.1	0.2	0.2	0.2	0.3
Buses	3.1	3.5	3.9	3.5	3.8	4.0
Air	12.9	12.8	17.2	17.1	17.4	16.4
Rail	0.3	0.2	0.2	0.2	0.2	0.2
<b>Freight Transportation (Mt of CO<sub>2</sub>e)<sup>a,d,e</sup></b>	<b>47.7</b>	<b>54.9</b>	<b>74.4</b>	<b>74.5</b>	<b>78.2</b>	<b>79.5</b>
Light Trucks	6.7	8.3	11.2	11.1	11.7	11.6
Medium Trucks	8.2	10.1	14.5	16.6	17.2	18.1
Heavy Trucks	17.8	22.4	32.3	31.3	32.4	32.7
Air	0.5	0.5	0.5	0.5	0.4	0.3
Rail	6.7	6.1	6.4	6.7	7.2	7.6
Marine	7.9	7.5	9.4	8.3	9.3	9.0
<b>Off-Road (Mt of CO<sub>2</sub>e)<sup>d,e</sup></b>	<b>3.7</b>	<b>4.3</b>	<b>6.8</b>	<b>6.9</b>	<b>7.0</b>	<b>7.1</b>
<b>Agriculture (Mt of CO<sub>2</sub>e)<sup>a,e</sup></b>	<b>13.5</b>	<b>14.1</b>	<b>15.7</b>	<b>15.9</b>	<b>16.6</b>	<b>16.8</b>

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 and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2017.  
c) Natural Resources Canada, Commercial/Institutional End-Use Model, Ottawa, 2017.

# Total End-Use Sector

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
<b>174.6</b>	<b>181.7</b>	<b>181.6</b>	<b>182.9</b>	<b>186.2</b>	<b>183.0</b>	<b>182.3</b>	<b>182.3</b>	<b>37.8%</b>
<b>90.2</b>	<b>91.6</b>	<b>91.0</b>	<b>92.2</b>	<b>94.2</b>	<b>91.3</b>	<b>92.6</b>	<b>92.6</b>	<b>14.5%</b>
41.0	40.5	39.1	38.2	37.9	35.8	35.7	35.7	-27.5%
29.9	31.0	31.3	31.7	33.0	32.8	34.2	34.2	125.8%
0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	124.9%
3.9	4.2	4.4	4.0	4.2	4.0	3.8	3.8	19.9%
14.8	15.3	15.6	17.8	18.5	18.2	18.4	18.4	43.2%
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-43.3%
<b>77.3</b>	<b>83.0</b>	<b>83.3</b>	<b>83.4</b>	<b>84.6</b>	<b>84.0</b>	<b>81.8</b>	<b>81.8</b>	<b>71.4%</b>
11.8	12.2	12.2	12.5	13.0	12.9	13.4	13.4	99.9%
19.4	21.7	21.3	21.0	22.1	21.9	21.3	21.3	157.9%
32.2	33.3	35.0	35.1	35.4	35.5	34.8	34.8	95.3%
0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-17.3%
4.9	6.4	7.3	7.4	7.1	7.3	7.2	7.2	8.4%
8.7	9.0	7.2	7.0	6.6	5.9	4.8	4.8	-39.5%
<b>7.1</b>	<b>7.1</b>	<b>7.3</b>	<b>7.4</b>	<b>7.5</b>	<b>7.7</b>	<b>7.9</b>	<b>7.9</b>	<b>112.7%</b>
<b>14.2</b>	<b>16.8</b>	<b>18.3</b>	<b>17.8</b>	<b>18.7</b>	<b>18.4</b>	<b>18.6</b>	<b>18.6</b>	<b>37.8%</b>

d) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2017.

e) Environment and Climate Change Canada, *National Inventory Report, 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

f) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2015*, Simon Fraser University, 2017.

g) Statistics Canada, *Electric Power Generation, Transmission and Distribution, 1990–2007* (Cat. No. 57-202-X). Data for reference year 2008 onward were provided on request.

# Total End-Use Sector

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

	1990	1995	2005	2006	2007	2008
<b>Total GHG Emissions Excluding Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,d,e,f</sup></b>	<b>320.8</b>	<b>342.3</b>	<b>385.5</b>	<b>381.6</b>	<b>405.6</b>	<b>399.1</b>
<b>Residential (Mt of CO<sub>2</sub>e)<sup>a,b,e</sup></b>	<b>46.5</b>	<b>47.3</b>	<b>46.0</b>	<b>44.0</b>	<b>48.4</b>	<b>47.7</b>
Space Heating	38.1	38.1	35.4	33.3	37.0	36.6
Water Heating	8.2	9.0	10.3	10.5	11.0	10.8
Appliances	0.2	0.2	0.3	0.3	0.3	0.3
Major Appliances	0.2	0.2	0.3	0.3	0.3	0.3
Other Appliances <sup>d</sup>	0.0	0.0	0.0	0.0	0.0	0.0
Lighting	0.0	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.0	0.0	0.0	0.0	0.0	0.0
<b>Commercial/Institutional (Mt of CO<sub>2</sub>e)<sup>a,c,e</sup></b>	<b>25.8</b>	<b>29.0</b>	<b>32.0</b>	<b>29.2</b>	<b>30.1</b>	<b>29.8</b>
Space Heating	22.6	25.5	27.5	24.7	25.5	25.2
Water Heating	3.0	3.2	3.9	3.9	4.0	4.0
Auxiliary Equipment	0.2	0.3	0.5	0.5	0.5	0.5
Auxiliary Motors	0.0	0.0	0.0	0.0	0.0	0.0
Lighting	0.0	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.1	0.1	0.2	0.2	0.2	0.2
Street Lighting <sup>g</sup>	0.0	0.0	0.0	0.0	0.0	0.0
<b>Industrial (Mt of CO<sub>2</sub>e)<sup>a,e,f</sup></b>	<b>104.5</b>	<b>111.0</b>	<b>119.5</b>	<b>122.0</b>	<b>133.2</b>	<b>128.7</b>
Mining	16.7	22.1	35.8	38.9	48.7	49.6
Pulp and Paper	14.6	12.2	8.1	6.9	7.0	5.5
Iron and Steel	14.8	16.7	15.4	16.5	16.9	16.4
Smelting and Refining	3.4	3.5	3.7	3.5	3.9	3.8
Cement	4.1	4.4	5.4	5.8	5.1	4.9
Chemicals	7.2	8.3	7.6	7.9	7.9	8.0
Petroleum Refining	17.1	19.8	19.9	20.1	20.6	18.2
Other Manufacturing	21.8	20.2	16.8	15.4	16.0	15.0
Forestry	0.6	0.6	2.1	2.3	2.2	2.3
Construction	4.3	3.2	4.7	4.8	5.0	5.0

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 and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2017.  
c) Natural Resources Canada, Commercial/Institutional End-Use Model, Ottawa, 2017.

# Total End-Use Sector

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
386.2	401.0	412.6	416.6	426.7	427.8	424.0	32.2%
45.6	43.1	46.2	42.7	44.2	45.6	43.2	-7.1%
35.0	32.7	35.1	32.0	33.6	35.0	32.6	-14.4%
10.3	10.1	10.8	10.4	10.2	10.2	10.2	23.6%
0.3	0.3	0.4	0.4	0.4	0.4	0.4	113.8%
0.3	0.3	0.4	0.4	0.4	0.4	0.4	113.8%
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	0.0	0.0	0.0	–
29.4	27.9	29.8	28.0	29.1	31.0	29.6	14.6%
24.9	23.3	25.0	23.4	24.6	26.4	25.0	11.0%
3.9	3.8	4.0	3.9	3.8	3.8	3.8	26.2%
0.6	0.6	0.6	0.6	0.6	0.6	0.6	175.3%
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	–
0.1	0.2	0.2	0.2	0.1	0.1	0.2	203.6%
0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
124.3	133.4	138.4	146.7	150.1	151.1	151.6	45.2%
54.4	59.3	61.4	68.6	74.6	76.2	80.1	380.9%
5.4	4.8	5.2	5.0	5.0	4.8	4.5	-69.3%
12.3	14.0	15.1	15.3	13.5	14.6	12.7	-13.7%
2.7	3.3	3.5	3.1	2.9	2.6	2.7	-22.9%
4.7	4.5	4.4	4.0	3.8	4.0	4.1	0.0%
7.8	8.6	9.6	9.8	10.5	10.5	10.4	44.8%
17.9	18.8	18.3	19.6	18.4	18.3	17.5	2.2%
13.0	13.5	14.1	14.5	14.6	13.8	12.8	-41.4%
1.6	1.6	1.5	1.4	1.4	1.4	1.4	157.2%
4.5	4.9	5.3	5.5	5.3	5.1	5.6	27.8%

d) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2017.

e) Environment and Climate Change Canada, *National Inventory Report, 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

f) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2015*, Simon Fraser University, 2017.

# Total End-Use Sector

## Canada's GHG Emissions by Sector, End Use and Subsector – Excluding Electricity-Related Emissions (cont.)

	1990	1995	2005	2006	2007	2008
<b>Total Transportation (Mt of CO<sub>2</sub>e)<sup>a,d,e</sup></b>	<b>132.2</b>	<b>142.6</b>	<b>174.3</b>	<b>172.4</b>	<b>179.0</b>	<b>177.8</b>
<b>Passenger Transportation (Mt of CO<sub>2</sub>e)<sup>a,d,e</sup></b>	<b>80.7</b>	<b>83.3</b>	<b>93.2</b>	<b>91.0</b>	<b>93.8</b>	<b>91.3</b>
Cars	49.3	47.5	43.0	41.9	42.8	41.3
Light Trucks	15.1	19.4	28.8	28.2	29.6	29.3
Motorcycles	0.2	0.1	0.2	0.2	0.2	0.3
Buses	3.0	3.3	3.7	3.3	3.6	3.8
Air	12.9	12.8	17.2	17.1	17.4	16.4
Rail	0.3	0.2	0.2	0.2	0.2	0.2
<b>Freight Transportation (Mt of CO<sub>2</sub>e)<sup>a,d,e</sup></b>	<b>47.7</b>	<b>54.9</b>	<b>74.4</b>	<b>74.5</b>	<b>78.2</b>	<b>79.5</b>
Light Trucks	6.7	8.3	11.2	11.1	11.7	11.6
Medium Trucks	8.2	10.1	14.5	16.6	17.2	18.1
Heavy Trucks	17.8	22.4	32.3	31.3	32.4	32.7
Air	0.5	0.5	0.5	0.5	0.4	0.3
Rail	6.7	6.1	6.4	6.7	7.2	7.6
Marine	7.9	7.5	9.4	8.3	9.3	9.0
<b>Off-Road (Mt of CO<sub>2</sub>e)<sup>d,e</sup></b>	<b>3.7</b>	<b>4.3</b>	<b>6.8</b>	<b>6.9</b>	<b>7.0</b>	<b>7.1</b>
<b>Agriculture (Mt of CO<sub>2</sub>e)<sup>a,e</sup></b>	<b>11.8</b>	<b>12.4</b>	<b>13.7</b>	<b>14.0</b>	<b>14.8</b>	<b>15.1</b>

### Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
d) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, 2017.  
e) Environment and Climate Change Canada, *National Inventory Report, 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

# Total End-Use Sector

							Total Growth 1990–2015
2009	2010	2011	2012	2013	2014	2015	
174.4	181.5	181.4	182.7	186.1	182.8	182.2	37.8%
90.0	91.4	90.8	92.0	94.0	91.2	92.5	14.6%
41.0	40.5	39.1	38.2	37.9	35.8	35.7	-27.5%
29.9	31.0	31.3	31.7	33.0	32.8	34.2	125.8%
0.3	0.4	0.4	0.4	0.4	0.4	0.4	124.9%
3.8	4.0	4.2	3.8	4.0	3.8	3.6	22.3%
14.8	15.3	15.6	17.8	18.5	18.2	18.4	43.2%
0.2	0.2	0.2	0.2	0.2	0.2	0.2	-43.3%
77.3	83.0	83.3	83.4	84.6	84.0	81.8	71.4%
11.8	12.2	12.2	12.5	13.0	12.9	13.4	99.9%
19.4	21.7	21.3	21.0	22.1	21.9	21.3	157.9%
32.2	33.3	35.0	35.1	35.4	35.5	34.8	95.3%
0.3	0.4	0.4	0.4	0.4	0.4	0.4	-17.3%
4.9	6.4	7.3	7.4	7.1	7.3	7.2	8.4%
8.7	9.0	7.2	7.0	6.6	5.9	4.8	-39.5%
7.1	7.1	7.3	7.4	7.5	7.7	7.9	112.7%
12.6	15.1	16.8	16.4	17.2	17.2	17.4	47.4%

# Total End-Use Sector

## Commodity Prices and Background Indicators

	1990	1995	2005	2006	2007	2008
<b>Commodity Prices</b>						
<b>Crude Oil Prices</b>						
Wellhead U.S. Average (\$US/bbl.) <sup>a</sup>	20.03	14.62	50.28	59.69	66.52	94.04
Edmonton Par <sup>1</sup> (\$/m <sup>3</sup> ) <sup>b</sup>	173.95	151.36	432.01	457.54	479.23	642.77
Brent Montreal <sup>2</sup> (\$/m <sup>3</sup> ) <sup>b</sup>	187.35	160.31	433.55	484.56	504.51	665.16
<b>Natural Gas Price at AECO-C Hub (intra-Alberta)<sup>3</sup> (\$/GJ)<sup>b</sup></b>	<b>1.34</b>	<b>1.09</b>	<b>8.14</b>	<b>6.79</b>	<b>6.27</b>	<b>7.73</b>
<b>Background Indicators</b>						
<b>Total GDP (million \$2007)<sup>c</sup></b>	<b>922,858</b>	<b>1,007,854</b>	<b>1,399,384</b>	<b>1,437,474</b>	<b>1,468,928</b>	<b>1,478,592</b>
Industrial	291,400	311,745	414,589	418,352	418,169	407,172
Commercial/Institutional	553,450	613,500	872,436	907,354	937,792	955,434
Agriculture <sup>d</sup>	12,609	13,003	15,072	15,155	15,421	17,004
Electricity Generation	24,044	26,475	28,539	28,058	29,122	30,433
<b>Multifactor Measure of Productivity (2007 = 100)<sup>e</sup></b>	<b>94.7</b>	<b>96.5</b>	<b>102.0</b>	<b>101.2</b>	<b>100.0</b>	<b>97.7</b>

- 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*, [http://www.eia.gov/petroleum/marketing/monthly/archive/2015/2015\\_03/pdf/pmmtab1.pdf](http://www.eia.gov/petroleum/marketing/monthly/archive/2015/2015_03/pdf/pmmtab1.pdf)
- b) Natural Resources Canada, Petroleum Resources Branch, Canadian Oil, Refining and Energy Security Division, Ottawa, 2017.
- c) Statistics Canada, *Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS)* CANSIM (Table 379-0031), Ottawa, 2017. Data prior to 1997 were estimated by Canadian Industrial Energy-Use Data and Analysis Centre, 1990 to 2015, Simon Fraser University, 2017 and Natural Resources Canada.
- d) The agriculture sector GDP includes crop production (NAICS code 111), animal production (112) and their support activities (1151, 1152).
- e) Statistics Canada, *Multifactor productivity, Canada, Business sector*, Table 383-0021, Ottawa, 2017 (CANSIM).

# Total End-Use Sector

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
56.35	74.71	95.73	94.52	95.99	87.39	44.39	121.6%
414.33	487.69	597.81	541.92	583.90	591.50	330.00	89.7%
454.65	532.13	707.18	721.42	720.49	713.61	393.00	109.8%
<b>3.97</b>	<b>3.95</b>	<b>3.53</b>	<b>2.31</b>	<b>3.02</b>	<b>4.17</b>	<b>2.57</b>	<b>91.8%</b>
<b>1,429,913</b>	<b>1,476,176</b>	<b>1,524,397</b>	<b>1,552,003</b>	<b>1,584,075</b>	<b>1,623,166</b>	<b>1,649,263</b>	<b>78.7%</b>
362,958	384,636	402,490	410,780	417,281	431,486	424,825	45.8%
956,078	978,056	1,004,582	1,023,114	1,046,637	1,070,748	1,092,747	97.4%
16,508	16,168	16,455	16,661	18,881	17,608	19,184	52.2%
28,027	28,509	29,079	28,265	29,310	29,094	28,178	17.2%
<b>95.2</b>	<b>96.9</b>	<b>98.3</b>	<b>97.7</b>	<b>98.6</b>	<b>99.9</b>	<b>98.9</b>	<b>4.5%</b>

## Chapter 2

# Residential Sector

## The Data Situation

Aggregate data on residential energy use are reported in Statistics Canada's *Report on Energy Supply and Demand in Canada* (RES-D) (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 RES-D 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, nine vintage categories (house age categories) and six fuel types. Some end uses are further disaggregated by equipment type.

Household characteristics are derived from the *Survey of Household Spending*, the *National Household Survey 2011* and the Census (particularly 2011 and 2016). Certain datasets can be found in the following Statistics Canada catalogues or CANSIM tables:

- CANSIM Table 203-0027: Dwelling characteristics and household equipment
- Cat. No. 98-400-X2016221: Dwelling condition, tenure, period of construction, structural type of dwelling
- Cat. No. 98-400-X2016227: Age of primary household maintainer, tenure, structural type of dwelling, and household type including census family structure for private households of Canada
- CANSIM Table 153-0162: Household energy consumption by type of dwelling
- CANSIM Table 027-0009: CMHC housing starts, under construction and completions
- Publication 64-001-XWF: Units demolished by type of dwellings

Since the annually published *Survey of Household Spending* does not cover the three territories, the Census plays a major role in estimating the household characteristics of the territories. Floor space information is acquired by combining housing stock estimates with data from two other Statistics Canada surveys: the *Building Permits Survey* and the *Survey of Household Energy Use* (SHEU).

Energy consumption information was drawn from the data collected by various industry associations and external studies. Specifically, the Association of Home Appliance Manufacturers Canada, 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 2015 edition incorporates the latest findings from the SHEU, including the total stock of water heaters by fuel type, the total stock and penetration of major and minor appliances, and the growth of LED lighting.

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* (both reports from Environment and Climate Change Canada).

The residential prices of heating oil and natural gas are weighted averages of regional prices from Statistics Canada's CANSIM Table 326-0009 for heating oil prices and Table 129-0003 for natural gas prices. 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.*

## Residential Secondary Energy Use (Final Demand) by Energy Source and End Use

	1990	1995	2005	2006	2007	2008
<b>Total Energy Use (PJ)<sup>a,b</sup></b>	<b>1,424.5</b>	<b>1,468.3</b>	<b>1,495.2</b>	<b>1,442.4</b>	<b>1,561.5</b>	<b>1,565.8</b>
<b>Energy Use by Energy Source (PJ)<sup>a,b</sup></b>						
Electricity	467.4	473.8	543.6	530.4	568.2	576.2
Natural Gas	528.4	630.5	646.6	618.7	686.1	691.7
Heating Oil	186.4	137.5	125.8	116.8	128.1	114.7
Other <sup>1</sup>	21.9	14.9	14.4	15.0	16.9	18.1
Wood	220.5	211.6	164.9	161.5	162.2	165.1
<b>Energy Use by End Use (PJ)<sup>b</sup></b>						
Space Heating	957.5	989.4	946.5	896.8	995.6	1,004.2
Water Heating	230.8	245.1	277.6	280.2	292.4	289.1
Appliances	176.8	171.0	181.6	183.4	190.1	193.7
Major Appliances	148.5	137.0	124.5	123.5	125.8	125.3
Other Appliances <sup>2</sup>	28.3	34.0	57.1	59.9	64.2	68.4
Lighting	49.5	49.6	57.3	56.8	57.9	58.7
Space Cooling	10.0	13.3	32.2	25.2	25.5	20.1
<b>Activity</b>						
Total Floor Space (million m <sup>2</sup> ) <sup>b</sup>	1,208	1,379	1,669	1,708	1,745	1,782
Total Households (thousands) <sup>b,c</sup>	9,895	10,900	12,587	12,756	12,985	13,164
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a,b</sup></b>	<b>1.18</b>	<b>1.06</b>	<b>0.90</b>	<b>0.84</b>	<b>0.89</b>	<b>0.88</b>
<b>Energy Intensity (GJ/household)<sup>a,b,c</sup></b>	<b>144.0</b>	<b>134.7</b>	<b>118.8</b>	<b>113.1</b>	<b>120.3</b>	<b>118.9</b>
<b>Heating Degree-Day Index<sup>b,d</sup></b>	<b>0.92</b>	<b>0.98</b>	<b>0.92</b>	<b>0.85</b>	<b>0.93</b>	<b>0.95</b>
<b>Cooling Degree-Day Index<sup>b,e</sup></b>	<b>1.05</b>	<b>1.18</b>	<b>1.79</b>	<b>1.38</b>	<b>1.45</b>	<b>1.08</b>

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 and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, 2017.c) Statistics Canada, *Survey of Household Spending, 1997–2015*, Ottawa, 2017.d) Environment and Climate Change Canada, *Climate Summaries, Monthly Values of Degree-Days Below 18.0°C, 1990–2015*, Ottawa.e) Environment and Climate Change Canada, *Climate Summaries, Monthly Values of Degree-Days Above 18.0°C, 1990–2015*, Ottawa.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	<b>1,528.9</b>	<b>1,487.0</b>	<b>1,574.0</b>	<b>1,508.2</b>	<b>1,572.0</b>	<b>1,608.7</b>	<b>1,544.0</b>	<b>8.4%</b>
Electricity	580.7	578.4	598.7	593.9	620.0	632.1	608.5	30.2%
Natural Gas	660.4	615.2	682.2	632.1	685.6	732.3	689.8	30.5%
Heating Oil	111.4	104.9	101.2	86.0	76.0	72.5	69.4	-62.7%
Other <sup>1</sup>	16.3	17.5	18.7	20.8	16.4	14.7	14.3	-34.6%
Wood	160.0	171.1	173.2	175.4	174.0	157.1	162.0	-26.5%
Space Heating	977.5	922.2	988.7	922.1	990.7	1,025.9	963.7	0.7%
Water Heating	280.9	278.1	294.3	289.2	288.7	291.4	288.8	25.2%
Appliances	195.1	195.9	199.5	201.2	206.3	207.9	201.3	13.8%
Major Appliances	123.5	120.5	120.1	118.5	119.7	118.0	112.9	-24.0%
Other Appliances <sup>2</sup>	71.6	75.3	79.4	82.6	86.7	89.9	88.4	212.4%
Lighting	58.8	59.2	59.4	58.9	59.7	58.7	58.3	17.7%
Space Cooling	16.6	31.7	32.1	36.8	26.5	24.8	31.8	219.5%
Total Floor Space (million m <sup>2</sup> ) <sup>b</sup>	1,816	1,848	1,881	1,910	1,967	1,997	2,026	67.7%
Total Households (thousands) <sup>b,c</sup>	13,417	13,378	13,551	13,706	13,858	13,989	14,137	42.9%
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a,b</sup></b>	<b>0.84</b>	<b>0.80</b>	<b>0.84</b>	<b>0.79</b>	<b>0.80</b>	<b>0.81</b>	<b>0.76</b>	<b>-35.4%</b>
<b>Energy Intensity (GJ/household)<sup>a,b,c</sup></b>	<b>113.9</b>	<b>111.2</b>	<b>116.2</b>	<b>110.0</b>	<b>113.4</b>	<b>115.0</b>	<b>109.2</b>	<b>-24.1%</b>
<b>Heating Degree-Day Index<sup>b,d</sup></b>	<b>0.96</b>	<b>0.87</b>	<b>0.90</b>	<b>0.84</b>	<b>0.93</b>	<b>0.98</b>	<b>0.92</b>	<b>–</b>
<b>Cooling Degree-Day Index<sup>b,e</sup></b>	<b>0.93</b>	<b>1.59</b>	<b>1.51</b>	<b>1.70</b>	<b>1.18</b>	<b>1.11</b>	<b>1.37</b>	<b>–</b>

### Residential Single Detached Secondary Energy Use (Final Demand) by Energy Source and End Use

	1990	1995	2005	2006	2007	2008
<b>Total Single Detached Energy Use (PJ)<sup>a,b</sup></b>	<b>1,023.8</b>	<b>1,050.6</b>	<b>1,055.0</b>	<b>1,015.3</b>	<b>1,100.0</b>	<b>1,102.6</b>
<b>Energy Use by Energy Source (PJ)<sup>a,b</sup></b>						
Electricity	304.6	310.9	354.9	344.2	369.1	374.2
Natural Gas	387.0	461.2	463.8	442.7	491.6	495.3
Heating Oil	131.6	95.4	91.8	85.8	95.1	85.9
Other <sup>1</sup>	16.0	11.2	10.7	11.2	12.6	13.4
Wood	184.6	172.0	133.8	131.4	131.6	133.9
<b>Energy Use by End Use (PJ)<sup>b</sup></b>						
Space Heating	722.9	742.6	703.4	667.6	739.3	744.7
Water Heating	145.0	153.8	173.4	175.1	183.5	181.8
Appliances	110.8	106.5	110.5	111.1	115.3	117.3
Lighting	37.4	37.3	43.2	42.8	43.7	44.5
Space Cooling	7.6	10.4	24.5	18.6	18.2	14.4
<b>Activity</b>						
Total Floor Space (million m <sup>2</sup> ) <sup>b</sup>	804	923	1,118	1,142	1,165	1,186
Total Households (thousands) <sup>b,c</sup>	5,558	6,107	7,037	7,131	7,260	7,362
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a,b</sup></b>	<b>1.27</b>	<b>1.14</b>	<b>0.94</b>	<b>0.89</b>	<b>0.94</b>	<b>0.93</b>
<b>Energy Intensity (GJ/household)<sup>a,b,c</sup></b>	<b>184.2</b>	<b>172.0</b>	<b>149.9</b>	<b>142.4</b>	<b>151.5</b>	<b>149.8</b>
<b>Heating Degree-Day Index<sup>b,d</sup></b>	<b>0.92</b>	<b>0.98</b>	<b>0.92</b>	<b>0.85</b>	<b>0.93</b>	<b>0.95</b>
<b>Cooling Degree-Day Index<sup>b,e</sup></b>	<b>1.05</b>	<b>1.18</b>	<b>1.79</b>	<b>1.38</b>	<b>1.45</b>	<b>1.08</b>

1) "Other" includes coal and propane.

#### Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, 2017.  
c) Statistics Canada, *Survey of Household Spending, 1997–2015*, Ottawa, 2017.  
d) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Below 18.0°C, 1990–2015*, Ottawa.  
e) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Above 18.0°C, 1990–2015*, Ottawa.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	<b>1,074.3</b>	<b>1,046.8</b>	<b>1,109.6</b>	<b>1,060.9</b>	<b>1,100.6</b>	<b>1,123.0</b>	<b>1,075.8</b>	<b>5.1%</b>
	376.4	375.8	391.2	387.2	402.3	408.4	392.7	28.9%
	472.4	439.9	486.8	450.5	487.6	521.0	488.4	26.2%
	83.7	79.3	77.5	65.9	58.1	55.6	53.4	-59.4%
	12.1	12.9	13.7	15.1	11.9	10.6	10.2	-36.1%
	129.6	138.8	140.5	142.2	140.8	127.4	131.1	-29.0%
	723.0	684.6	732.0	682.4	727.3	749.7	703.4	-2.7%
	176.9	176.2	186.6	183.5	182.7	184.2	182.5	25.8%
	117.9	118.2	120.2	120.9	123.9	124.5	120.3	8.6%
	44.7	45.1	45.4	45.1	45.9	45.2	44.6	19.3%
	11.9	22.7	25.5	29.0	20.8	19.4	24.9	227.9%
	1,205	1,224	1,242	1,257	1,286	1,300	1,312	63.1%
	7,504	7,491	7,590	7,674	7,757	7,828	7,911	42.3%
	<b>0.89</b>	<b>0.86</b>	<b>0.89</b>	<b>0.84</b>	<b>0.86</b>	<b>0.86</b>	<b>0.82</b>	<b>-35.6%</b>
	<b>143.2</b>	<b>139.7</b>	<b>146.2</b>	<b>138.2</b>	<b>141.9</b>	<b>143.5</b>	<b>136.0</b>	<b>-26.2%</b>
	<b>0.96</b>	<b>0.87</b>	<b>0.90</b>	<b>0.84</b>	<b>0.93</b>	<b>0.98</b>	<b>0.92</b>	<b>–</b>
	<b>0.93</b>	<b>1.59</b>	<b>1.51</b>	<b>1.70</b>	<b>1.18</b>	<b>1.11</b>	<b>1.37</b>	<b>–</b>

### Residential Single Attached Secondary Energy Use (Final Demand) by Energy Source and End Use

	1990	1995	2005	2006	2007	2008
<b>Total Single Attached Energy Use (PJ)<sup>a,b</sup></b>	<b>117.4</b>	<b>127.9</b>	<b>142.3</b>	<b>137.0</b>	<b>148.6</b>	<b>150.3</b>
<b>Energy Use by Energy Source (PJ)<sup>a,b</sup></b>						
Electricity	42.0	43.7	54.4	53.1	56.6	57.8
Natural Gas	48.4	59.9	67.3	64.3	71.6	72.7
Heating Oil	14.2	10.7	10.0	9.0	9.5	8.5
Other <sup>1</sup>	1.7	1.3	1.3	1.4	1.7	1.8
Wood	11.0	12.3	9.4	9.1	9.3	9.6
<b>Energy Use by End Use (PJ)<sup>b</sup></b>						
Space Heating	71.9	78.6	81.0	76.2	85.6	87.6
Water Heating	22.9	25.9	31.4	31.6	32.9	32.7
Appliances	16.4	16.5	19.2	19.5	20.2	20.9
Lighting	4.6	4.8	5.9	5.8	5.9	6.0
Space Cooling	1.6	2.1	4.8	3.8	3.9	3.1
<b>Activity</b>						
Total Floor Space (million m <sup>2</sup> ) <sup>b</sup>	112	133	173	179	185	190
Total Households (thousands) <sup>b,c</sup>	922	1,072	1,341	1,368	1,402	1,429
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a,b</sup></b>	<b>1.0</b>	<b>1.0</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>
<b>Energy Intensity (GJ/household)<sup>a,b,c</sup></b>	<b>127.3</b>	<b>119.3</b>	<b>106.1</b>	<b>100.1</b>	<b>106.0</b>	<b>105.2</b>
<b>Heating Degree-Day Index<sup>b,d</sup></b>	<b>0.92</b>	<b>0.98</b>	<b>0.92</b>	<b>0.85</b>	<b>0.93</b>	<b>0.95</b>
<b>Cooling Degree-Day Index<sup>b,e</sup></b>	<b>1.05</b>	<b>1.18</b>	<b>1.79</b>	<b>1.38</b>	<b>1.45</b>	<b>1.08</b>

1) "Other" includes coal and propane.

#### Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, 2017.  
c) Statistics Canada, *Survey of Household Spending, 1997–2015*, Ottawa, 2017.  
d) Environment and Climate Change Canada, *Climate Summaries, Monthly Values of Degree-Days Below 18.0°C, 1990–2015*, Ottawa.  
e) Environment and Climate Change Canada, *Climate Summaries, Monthly Values of Degree-Days Above 18.0°C, 1990–2015*, Ottawa.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
146.5	143.6	151.9	145.8	154.8	160.3	154.9	32.0%
58.2	59.4	59.9	60.1	63.0	64.2	62.6	49.0%
69.1	64.9	72.8	67.2	74.3	80.1	76.2	57.6%
8.3	7.7	7.2	6.1	5.6	5.3	5.1	-64.4%
1.6	1.8	2.0	2.2	1.7	1.6	1.6	-9.9%
9.3	9.9	10.0	10.2	10.2	9.0	9.5	-14.1%
85.1	79.9	87.0	80.6	89.7	94.9	89.3	24.2%
31.7	31.4	33.6	33.0	33.2	33.7	33.7	47.4%
21.1	21.4	21.8	22.1	22.8	23.0	22.4	37.0%
6.0	6.1	6.1	6.0	6.1	6.0	6.1	32.3%
2.6	4.9	3.5	4.1	2.9	2.7	3.5	111.1%
195	200	205	210	220	226	232	106.3%
1,465	1,470	1,498	1,523	1,548	1,569	1,593	72.8%
0.7	0.7	0.7	0.7	0.7	0.7	0.7	-36.0%
100.0	97.7	101.4	95.7	100.0	102.1	97.3	-23.6%
0.96	0.87	0.90	0.84	0.93	0.98	0.92	–
0.93	1.59	1.51	1.70	1.18	1.11	1.37	–

### Residential Apartments Secondary Energy Use (Final Demand) by Energy Source and End Use

	1990	1995	2005	2006	2007	2008
<b>Total Apartments Energy Use (PJ)<sup>a,b</sup></b>	<b>248.7</b>	<b>255.8</b>	<b>266.6</b>	<b>259.4</b>	<b>279.1</b>	<b>279.4</b>
<b>Energy Use by Energy Source (PJ)<sup>a,b</sup></b>						
Electricity	111.4	109.9	124.4	123.5	131.9	133.8
Natural Gas	79.8	94.6	101.9	98.2	107.8	108.9
Heating Oil	35.5	28.0	21.2	19.3	20.4	17.6
Other <sup>1</sup>	3.4	2.1	2.0	2.1	2.4	2.5
Wood	18.6	21.3	17.1	16.4	16.5	16.6
<b>Energy Use by End Use (PJ)<sup>b</sup></b>						
Space Heating	137.2	143.4	140.7	132.1	147.3	148.5
Water Heating	58.0	60.4	67.5	68.1	70.2	69.2
Appliances	46.0	44.5	48.4	49.2	50.8	51.8
Lighting	6.8	6.7	7.4	7.3	7.4	7.4
Space Cooling	0.7	0.8	2.7	2.7	3.3	2.5
<b>Activity</b>						
Total Floor Space (million m <sup>2</sup> ) <sup>b</sup>	272	303	355	363	372	381
Total Households (thousands) <sup>b,c</sup>	3,208	3,504	3,978	4,024	4,087	4,136
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a,b</sup></b>	<b>0.92</b>	<b>0.84</b>	<b>0.75</b>	<b>0.71</b>	<b>0.75</b>	<b>0.73</b>
<b>Energy Intensity (GJ/household)<sup>a,b,c</sup></b>	<b>77.5</b>	<b>73.0</b>	<b>67.0</b>	<b>64.5</b>	<b>68.3</b>	<b>67.6</b>
<b>Heating Degree-Day Index<sup>b,d</sup></b>	<b>0.92</b>	<b>0.98</b>	<b>0.92</b>	<b>0.85</b>	<b>0.93</b>	<b>0.95</b>
<b>Cooling Degree-Day Index<sup>b,e</sup></b>	<b>1.05</b>	<b>1.18</b>	<b>1.79</b>	<b>1.38</b>	<b>1.45</b>	<b>1.08</b>

1) "Other" includes coal and propane.

#### Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, 2017.  
c) Statistics Canada, *Survey of Household Spending, 1997–2015*, Ottawa, 2017.  
d) Environment and Climate Change Canada, *Climate Summaries, Monthly Values of Degree-Days Below 18.0°C, 1990–2015*, Ottawa.  
e) Environment and Climate Change Canada, *Climate Summaries, Monthly Values of Degree-Days Above 18.0°C, 1990–2015*, Ottawa.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
<b>275.1</b>	<b>265.0</b>	<b>279.0</b>	<b>269.2</b>	<b>283.9</b>	<b>293.1</b>	<b>282.6</b>		<b>13.6%</b>
135.6	133.1	137.1	136.5	144.2	148.8	143.1		28.6%
104.5	97.2	108.2	100.7	109.5	116.5	111.7		39.9%
16.7	15.2	13.8	11.7	10.4	9.8	9.2		-74.1%
2.3	2.5	2.7	3.1	2.5	2.3	2.3		-33.2%
16.0	17.0	17.1	17.2	17.3	15.8	16.3		-12.5%
146.0	135.5	145.8	136.1	150.2	158.1	149.2		8.7%
67.2	65.7	69.2	67.9	68.2	68.9	68.2		17.6%
52.5	52.6	53.7	54.4	55.9	56.6	55.0		19.4%
7.3	7.3	7.2	7.1	7.1	7.0	7.1		4.0%
2.1	3.9	3.0	3.5	2.6	2.5	3.2		347.7%
390	399	408	416	434	444	456		67.6%
4,207	4,176	4,222	4,267	4,310	4,348	4,388		36.8%
<b>0.71</b>	<b>0.66</b>	<b>0.68</b>	<b>0.65</b>	<b>0.65</b>	<b>0.66</b>	<b>0.62</b>		<b>-32.2%</b>
<b>65.4</b>	<b>63.5</b>	<b>66.1</b>	<b>63.1</b>	<b>65.9</b>	<b>67.4</b>	<b>64.4</b>		<b>-16.9%</b>
<b>0.96</b>	<b>0.87</b>	<b>0.90</b>	<b>0.84</b>	<b>0.93</b>	<b>0.98</b>	<b>0.92</b>		<b>–</b>
<b>0.93</b>	<b>1.59</b>	<b>1.51</b>	<b>1.70</b>	<b>1.18</b>	<b>1.11</b>	<b>1.37</b>		<b>–</b>

### Residential Mobile Homes Secondary Energy Use (Final Demand) by Energy Source and End Use

	1990	1995	2005	2006	2007	2008
<b>Total Mobile Homes Energy Use (PJ)<sup>a,b</sup></b>	<b>34.7</b>	<b>34.0</b>	<b>31.3</b>	<b>30.7</b>	<b>33.9</b>	<b>33.5</b>
<b>Energy Use by Energy Source (PJ)<sup>a,b</sup></b>						
Electricity	9.4	9.3	9.8	9.6	10.7	10.4
Natural Gas	13.3	14.9	13.6	13.5	15.1	14.9
Heating Oil	5.0	3.5	2.9	2.7	3.1	2.8
Other <sup>1</sup>	0.7	0.4	0.3	0.3	0.3	0.3
Wood	6.3	6.1	4.7	4.6	4.8	5.1
<b>Energy Use by End Use (PJ)<sup>b</sup></b>						
Space Heating	25.4	24.8	21.5	20.9	23.4	23.5
Water Heating	4.9	5.0	5.3	5.3	5.8	5.4
Appliances	3.6	3.5	3.5	3.5	3.8	3.7
Lighting	0.8	0.8	0.8	0.8	0.8	0.8
Space Cooling	0.0	0.0	0.2	0.2	0.1	0.1
<b>Activity</b>						
Total Floor Space (million m <sup>2</sup> ) <sup>b</sup>	20	21	23	24	24	25
Total Households (thousands) <sup>b,c</sup>	207	217	231	233	236	238
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a,b</sup></b>	<b>1.78</b>	<b>1.62</b>	<b>1.34</b>	<b>1.29</b>	<b>1.40</b>	<b>1.37</b>
<b>Energy Intensity (GJ/household)<sup>a,b,c</sup></b>	<b>167.3</b>	<b>157.0</b>	<b>135.3</b>	<b>131.9</b>	<b>143.4</b>	<b>141.0</b>
<b>Heating Degree-Day Index<sup>b,d</sup></b>	<b>0.92</b>	<b>0.98</b>	<b>0.92</b>	<b>0.85</b>	<b>0.93</b>	<b>0.95</b>
<b>Cooling Degree-Day Index<sup>b,e</sup></b>	<b>1.05</b>	<b>1.18</b>	<b>1.79</b>	<b>1.38</b>	<b>1.45</b>	<b>1.08</b>

1) "Other" includes coal and propane.

#### Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2017.  
c) Statistics Canada, *Survey of Household Spending, 1997–2015*, Ottawa, 2017.  
d) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Below 18.0°C, 1990–2015*, Ottawa.  
e) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Above 18.0°C, 1990–2015*, Ottawa.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	<b>33.0</b>	<b>31.6</b>	<b>33.5</b>	<b>32.3</b>	<b>32.7</b>	<b>32.3</b>	<b>30.7</b>	<b>-11.7%</b>
	10.4	10.0	10.4	10.1	10.6	10.7	10.0	5.8%
	14.4	13.2	14.4	13.8	14.2	14.7	13.5	1.7%
	2.7	2.6	2.7	2.3	1.9	1.8	1.8	-64.1%
	0.3	0.3	0.3	0.3	0.3	0.3	0.2	-66.5%
	5.1	5.4	5.6	5.8	5.7	4.9	5.2	-17.8%
	23.4	22.2	23.9	23.0	23.5	23.2	21.9	-14.0%
	5.1	4.8	4.9	4.8	4.6	4.6	4.5	-9.2%
	3.7	3.7	3.8	3.7	3.8	3.8	3.5	-2.0%
	0.8	0.7	0.7	0.7	0.7	0.6	0.6	-26.1%
	0.1	0.2	0.2	0.2	0.2	0.2	0.2	8741.0%
	25	25	26	26	26	27	27	37.5%
	242	240	242	242	243	244	245	18.1%
	<b>1.33</b>	<b>1.25</b>	<b>1.31</b>	<b>1.25</b>	<b>1.24</b>	<b>1.21</b>	<b>1.14</b>	<b>-35.8%</b>
	<b>136.8</b>	<b>131.8</b>	<b>138.4</b>	<b>133.2</b>	<b>134.5</b>	<b>132.6</b>	<b>125.2</b>	<b>-25.2%</b>
	<b>0.96</b>	<b>0.87</b>	<b>0.90</b>	<b>0.84</b>	<b>0.93</b>	<b>0.98</b>	<b>0.92</b>	<b>–</b>
	<b>0.93</b>	<b>1.59</b>	<b>1.51</b>	<b>1.70</b>	<b>1.18</b>	<b>1.11</b>	<b>1.37</b>	<b>–</b>

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

	1990	1995	2005	2006	2007	2008
<b>Total GHG Emissions Including Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>72.8</b>	<b>71.2</b>	<b>76.4</b>	<b>72.9</b>	<b>79.4</b>	<b>77.4</b>
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>						
Electricity	26.3	23.9	30.4	28.8	31.0	29.7
Natural Gas	26.7	31.6	32.3	31.0	34.4	34.6
Heating Oil	13.2	9.8	8.9	8.3	9.1	8.1
Other <sup>1</sup>	1.4	0.9	0.9	1.0	1.1	1.2
Wood	5.2	5.0	3.9	3.8	3.8	3.9
<b>GHG Emissions by End Use (Mt of CO<sub>2</sub>e)<sup>b,c</sup></b>						
Space Heating	47.0	46.8	46.7	43.8	49.1	48.5
Water Heating	12.5	12.6	14.6	14.7	15.4	14.9
Appliances	9.9	8.6	10.1	9.9	10.3	10.0
Major Appliances	8.3	6.9	6.9	6.7	6.8	6.4
Other Appliances <sup>2</sup>	1.6	1.7	3.2	3.3	3.5	3.5
Lighting	2.8	2.5	3.2	3.1	3.2	3.0
Space Cooling	0.6	0.7	1.8	1.4	1.4	1.0
<b>GHG Intensity (tonne/TJ)<sup>a,b,c</sup></b>	<b>51.1</b>	<b>48.5</b>	<b>51.1</b>	<b>50.5</b>	<b>50.8</b>	<b>49.4</b>
<b>Total GHG Emissions Excluding Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>46.5</b>	<b>47.3</b>	<b>46.0</b>	<b>44.0</b>	<b>48.4</b>	<b>47.7</b>
<b>GHG Emissions by End Use (Mt of CO<sub>2</sub>e)<sup>b,c</sup></b>						
Space Heating	38.1	38.1	35.4	33.3	37.0	36.6
Water Heating	8.2	9.0	10.3	10.5	11.0	10.8
Appliances	0.2	0.2	0.3	0.3	0.3	0.3
Major Appliances	0.2	0.2	0.3	0.3	0.3	0.3
Other Appliances <sup>2</sup>	0.0	0.0	0.0	0.0	0.0	0.0
Lighting	0.0	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.0	0.0	0.0	0.0	0.0	0.0
<b>GHG Intensity (tonne/TJ)<sup>a,b,c</sup></b>	<b>32.6</b>	<b>32.2</b>	<b>30.8</b>	<b>30.5</b>	<b>31.0</b>	<b>30.5</b>

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.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
<b>Total GHG Emissions Including Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>73.0</b>	<b>71.3</b>	<b>71.7</b>	<b>66.3</b>	<b>69.0</b>	<b>69.1</b>	<b>65.4</b>	<b>-10.1%</b>
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>								
Electricity	27.4	28.2	25.5	23.5	24.8	23.4	22.2	-15.4%
Natural Gas	32.8	30.5	33.8	31.2	33.7	35.9	33.6	25.7%
Heating Oil	7.9	7.4	7.2	6.1	5.4	5.1	4.9	-62.8%
Other <sup>1</sup>	1.1	1.1	1.2	1.3	1.0	0.9	0.9	-36.2%
Wood	3.8	4.0	4.1	4.1	4.1	3.7	3.8	-26.5%
<b>GHG Emissions by End Use (Mt of CO<sub>2</sub>e)<sup>b,c</sup></b>								
Space Heating	46.1	43.3	45.0	40.7	43.6	44.7	41.5	-11.8%
Water Heating	14.1	14.0	14.3	13.7	13.6	13.4	13.2	5.5%
Appliances	9.2	9.6	8.5	8.1	8.3	7.8	7.5	-24.8%
Major Appliances	5.8	5.9	5.2	4.8	4.9	4.5	4.2	-49.2%
Other Appliances <sup>2</sup>	3.4	3.7	3.4	3.3	3.5	3.3	3.2	103.0%
Lighting	2.8	2.9	2.5	2.3	2.4	2.2	2.1	-23.5%
Space Cooling	0.8	1.5	1.4	1.5	1.1	0.9	1.2	107.6%
<b>GHG Intensity (tonne/TJ)<sup>a,b,c</sup></b>	<b>47.7</b>	<b>48.0</b>	<b>45.6</b>	<b>43.9</b>	<b>43.9</b>	<b>42.9</b>	<b>42.4</b>	<b>-17.1%</b>
<b>Total GHG Emissions Excluding Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>45.6</b>	<b>43.1</b>	<b>46.2</b>	<b>42.7</b>	<b>44.2</b>	<b>45.6</b>	<b>43.2</b>	<b>-7.1%</b>
<b>GHG Emissions by End Use (Mt of CO<sub>2</sub>e)<sup>b,c</sup></b>								
Space Heating	35.0	32.7	35.1	32.0	33.6	35.0	32.6	-14.4%
Water Heating	10.3	10.1	10.8	10.4	10.2	10.2	10.2	23.6%
Appliances	0.3	0.3	0.4	0.4	0.4	0.4	0.4	113.8%
Major Appliances	0.3	0.3	0.4	0.4	0.4	0.4	0.4	113.8%
Other Appliances <sup>2</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
Lighting	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
Space Cooling	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
<b>GHG Intensity (tonne/TJ)<sup>a,b,c</sup></b>	<b>29.8</b>	<b>29.0</b>	<b>29.4</b>	<b>28.3</b>	<b>28.1</b>	<b>28.4</b>	<b>28.0</b>	<b>-14.3%</b>

**Sources:**

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.

b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, 2017.

c) Environment and Climate Change Canada, *National Inventory Report 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

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

	1990	1995	2005	2006	2007	2008
<b>Total Single Detached GHG Emissions Including Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>51.4</b>	<b>50.4</b>	<b>53.4</b>	<b>50.8</b>	<b>55.4</b>	<b>54.1</b>
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>						
Electricity	17.1	15.7	19.9	18.7	20.1	19.3
Natural Gas	19.6	23.1	23.2	22.2	24.7	24.7
Heating Oil	9.3	6.8	6.5	6.1	6.7	6.1
Other <sup>1</sup>	1.0	0.7	0.7	0.7	0.8	0.9
Wood	4.3	4.0	3.1	3.1	3.1	3.1
<b>GHG Emissions by End Use (Mt of CO<sub>2</sub>e)<sup>b,c</sup></b>						
Space Heating	34.8	34.7	34.3	32.2	36.2	35.7
Water Heating	7.8	7.9	9.1	9.2	9.6	9.3
Appliances	6.2	5.4	6.2	6.0	6.3	6.0
Lighting	2.1	1.9	2.4	2.3	2.4	2.3
Space Cooling	0.4	0.5	1.4	1.0	1.0	0.7
<b>GHG Intensity (tonne/TJ)<sup>a,b,c</sup></b>	<b>50.2</b>	<b>47.9</b>	<b>50.6</b>	<b>50.0</b>	<b>50.4</b>	<b>49.1</b>
<b>Total Single Detached GHG Emissions Excluding Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>34.3</b>	<b>34.6</b>	<b>33.5</b>	<b>32.1</b>	<b>35.3</b>	<b>34.8</b>
<b>GHG Emissions by End Use (Mt of CO<sub>2</sub>e)<sup>b,c</sup></b>						
Space Heating	28.9	28.8	26.8	25.3	28.1	27.8
Water Heating	5.3	5.7	6.6	6.6	7.0	6.9
Appliances	0.1	0.1	0.2	0.2	0.2	0.2
Lighting	0.0	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.0	0.0	0.0	0.0	0.0	0.0
<b>GHG Intensity (tonnes/TJ)<sup>a,b,c</sup></b>	<b>33.5</b>	<b>33.0</b>	<b>31.8</b>	<b>31.6</b>	<b>32.1</b>	<b>31.6</b>

1) "Other" includes coal and propane

#### Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2017.  
c) Environment and Climate Change Canada, *National Inventory Report 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
<b>51.0</b>	<b>49.9</b>	<b>50.4</b>	<b>46.5</b>	<b>48.2</b>	<b>48.3</b>	<b>45.6</b>		<b>-11.2%</b>
17.8	18.3	16.7	15.3	16.1	15.1	14.4		-16.2%
23.5	21.8	24.1	22.2	24.0	25.5	23.8		21.5%
5.9	5.6	5.5	4.7	4.1	3.9	3.8		-59.5%
0.8	0.8	0.9	0.9	0.7	0.7	0.6		-37.8%
3.0	3.3	3.3	3.3	3.3	3.0	3.1		-29.0%
33.9	31.9	33.2	30.1	31.9	32.7	30.3		-13.0%
8.9	8.9	9.1	8.7	8.6	8.5	8.4		6.6%
5.6	5.8	5.1	4.8	5.0	4.7	4.5		-28.3%
2.1	2.2	1.9	1.8	1.8	1.7	1.6		-22.5%
0.6	1.1	1.1	1.1	0.8	0.7	0.9		113.0%
<b>47.5</b>	<b>47.7</b>	<b>45.5</b>	<b>43.9</b>	<b>43.8</b>	<b>43.0</b>	<b>42.4</b>		<b>-15.5%</b>
<b>33.3</b>	<b>31.5</b>	<b>33.8</b>	<b>31.2</b>	<b>32.1</b>	<b>33.1</b>	<b>31.3</b>		<b>-8.7%</b>
26.5	24.9	26.6	24.3	25.4	26.3	24.5		-15.0%
6.5	6.5	6.9	6.7	6.5	6.5	6.5		23.0%
0.2	0.2	0.2	0.2	0.2	0.2	0.2		101.8%
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		–
<b>31.0</b>	<b>30.1</b>	<b>30.5</b>	<b>29.4</b>	<b>29.2</b>	<b>29.5</b>	<b>29.1</b>		<b>-13.1%</b>

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

	1990	1995	2005	2006	2007	2008
<b>Total Single Attached GHG Emissions Including Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>6.2</b>	<b>6.3</b>	<b>7.4</b>	<b>7.0</b>	<b>7.7</b>	<b>7.5</b>
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>						
Electricity	2.4	2.2	3.0	2.9	3.1	3.0
Natural Gas	2.4	3.0	3.4	3.2	3.6	3.6
Heating Oil	1.0	0.8	0.7	0.6	0.7	0.6
Other <sup>1</sup>	0.1	0.1	0.1	0.1	0.1	0.1
Wood	0.3	0.3	0.2	0.2	0.2	0.2
<b>GHG Emissions by End Use (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>						
Space Heating	3.7	3.8	4.1	3.8	4.3	4.3
Water Heating	1.2	1.3	1.6	1.6	1.7	1.7
Appliances	0.9	0.8	1.1	1.1	1.1	1.1
Lighting	0.3	0.2	0.3	0.3	0.3	0.3
Space Cooling	0.1	0.1	0.3	0.2	0.2	0.2
<b>GHG Intensity (tonne/TJ)<sup>a,b,c</sup></b>	<b>52.7</b>	<b>49.6</b>	<b>52.1</b>	<b>51.5</b>	<b>51.6</b>	<b>50.2</b>
<b>Total Single Attached GHG Emissions Excluding Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>3.8</b>	<b>4.1</b>	<b>4.4</b>	<b>4.2</b>	<b>4.6</b>	<b>4.6</b>
<b>GHG Emissions by End Use (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>						
Space Heating	3.0	3.1	3.1	2.9	3.2	3.2
Water Heating	0.8	1.0	1.2	1.2	1.3	1.3
Appliances	0.0	0.0	0.0	0.0	0.0	0.0
Lighting	0.0	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.0	0.0	0.0	0.0	0.0	0.0
<b>GHG Intensity (tonne/TJ)<sup>a,b,c</sup></b>	<b>32.6</b>	<b>32.3</b>	<b>30.7</b>	<b>30.4</b>	<b>30.8</b>	<b>30.4</b>

1) "Other" includes coal and propane

#### Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, 2017.  
c) Environment and Climate Change Canada, *National Inventory Report 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	7.1	7.0	7.0	6.5	6.9	7.0	6.7	7.9%
	2.7	2.9	2.6	2.4	2.5	2.4	2.3	-3.2%
	3.4	3.2	3.6	3.3	3.6	3.9	3.7	51.7%
	0.6	0.5	0.5	0.4	0.4	0.4	0.4	-64.4%
	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-11.8%
	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-14.1%
	4.1	3.8	4.1	3.7	4.1	4.2	3.9	6.7%
	1.6	1.6	1.6	1.6	1.6	1.6	1.6	26.9%
	1.0	1.0	0.9	0.9	0.9	0.9	0.8	-9.4%
	0.3	0.3	0.3	0.2	0.2	0.2	0.2	-14.0%
	0.1	0.2	0.1	0.2	0.1	0.1	0.1	37.1%
	48.4	48.8	46.2	44.6	44.6	43.6	43.1	-18.3%
	4.3	4.1	4.5	4.1	4.4	4.6	4.4	14.8%
	3.1	2.9	3.1	2.8	3.1	3.3	3.1	4.6%
	1.2	1.2	1.3	1.2	1.2	1.2	1.2	47.4%
	0.0	0.0	0.0	0.0	0.0	0.1	0.1	126.4%
	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	–
	29.6	28.6	29.5	28.3	28.4	28.8	28.3	-13.1%

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

	1990	1995	2005	2006	2007	2008
<b>Total Apartments GHG Emissions Including Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>13.5</b>	<b>12.9</b>	<b>14.1</b>	<b>13.5</b>	<b>14.6</b>	<b>14.1</b>
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>						
Electricity	6.3	5.6	7.0	6.7	7.2	6.9
Natural Gas	4.0	4.7	5.1	4.9	5.4	5.4
Heating Oil	2.5	2.0	1.5	1.4	1.4	1.2
Other <sup>1</sup>	0.2	0.1	0.1	0.1	0.2	0.2
Wood	0.4	0.5	0.4	0.4	0.4	0.4
<b>GHG Emissions by End Use (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>						
Space Heating	7.3	7.2	7.2	6.7	7.5	7.4
Water Heating	3.2	3.1	3.6	3.6	3.7	3.6
Appliances	2.6	2.2	2.7	2.7	2.8	2.7
Lighting	0.4	0.3	0.4	0.4	0.4	0.4
Space Cooling	0.0	0.0	0.1	0.1	0.2	0.1
<b>GHG Intensity (tonne/TJ)<sup>a,b,c</sup></b>	<b>54.2</b>	<b>50.5</b>	<b>52.8</b>	<b>52.1</b>	<b>52.3</b>	<b>50.6</b>
<b>Total Apartments GHG Emissions Excluding Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>7.2</b>	<b>7.4</b>	<b>7.1</b>	<b>6.8</b>	<b>7.4</b>	<b>7.2</b>
<b>GHG Emissions by End Use (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>						
Space Heating	5.3	5.3	4.7	4.3	4.8	4.7
Water Heating	1.9	2.1	2.4	2.4	2.5	2.4
Appliances	0.0	0.1	0.1	0.1	0.1	0.1
Lighting	0.0	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.0	0.0	0.0	0.0	0.0	0.0
<b>GHG Intensity (tonne/TJ)<sup>a,b,c</sup></b>	<b>29.0</b>	<b>28.8</b>	<b>26.7</b>	<b>26.2</b>	<b>26.5</b>	<b>25.9</b>

1) "Other" includes coal and propane.

#### Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
 b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, 2017.  
 c) Environment and Climate Change Canada, *National Inventory Report 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
<b>13.3</b>	<b>12.9</b>	<b>12.7</b>	<b>11.8</b>	<b>12.4</b>	<b>12.4</b>	<b>11.8</b>		<b>-12.1%</b>
6.4	6.5	5.8	5.4	5.8	5.5	5.2		-16.5%
5.2	4.8	5.4	5.0	5.4	5.7	5.4		34.7%
1.2	1.1	1.0	0.8	0.7	0.7	0.7		-74.1%
0.1	0.2	0.2	0.2	0.2	0.1	0.1		-34.3%
0.4	0.4	0.4	0.4	0.4	0.4	0.4		-12.5%
7.0	6.5	6.7	6.0	6.6	6.8	6.4		-12.9%
3.4	3.3	3.3	3.2	3.2	3.1	3.1		-2.9%
2.5	2.6	2.3	2.2	2.3	2.1	2.0		-21.2%
0.3	0.4	0.3	0.3	0.3	0.3	0.3		-32.4%
0.1	0.2	0.1	0.1	0.1	0.1	0.1		190.9%
<b>48.3</b>	<b>48.9</b>	<b>45.7</b>	<b>43.8</b>	<b>43.8</b>	<b>42.4</b>	<b>41.9</b>		<b>-22.6%</b>
<b>6.9</b>	<b>6.5</b>	<b>6.9</b>	<b>6.4</b>	<b>6.7</b>	<b>6.9</b>	<b>6.6</b>		<b>-8.3%</b>
4.5	4.1	4.4	4.0	4.3	4.5	4.2		-19.2%
2.3	2.2	2.4	2.3	2.3	2.3	2.3		18.1%
0.1	0.1	0.1	0.1	0.1	0.1	0.1		143.7%
0.0	0.0	0.0	0.0	0.0	0.0	0.0		–
0.0	0.0	0.0	0.0	0.0	0.0	0.0		–
<b>25.1</b>	<b>24.4</b>	<b>24.8</b>	<b>23.7</b>	<b>23.5</b>	<b>23.6</b>	<b>23.4</b>		<b>-19.3%</b>

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

	1990	1995	2005	2006	2007	2008
<b>Total Mobile Homes GHG Emissions Including Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>1.8</b>	<b>1.6</b>	<b>1.6</b>	<b>1.5</b>	<b>1.7</b>	<b>1.6</b>
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>						
Electricity	0.5	0.5	0.5	0.5	0.6	0.5
Natural Gas	0.7	0.8	0.7	0.7	0.8	0.7
Heating Oil	0.4	0.2	0.2	0.2	0.2	0.2
Other <sup>1</sup>	0.0	0.0	0.0	0.0	0.0	0.0
Wood	0.1	0.1	0.1	0.1	0.1	0.1
<b>GHG Emissions by End Use (Mt of CO<sub>2</sub>e)<sup>b,c</sup></b>						
Space Heating	1.2	1.2	1.0	1.0	1.1	1.1
Water Heating	0.3	0.3	0.3	0.3	0.3	0.3
Appliances	0.2	0.2	0.2	0.2	0.2	0.2
Lighting	0.0	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.0	0.0	0.0	0.0	0.0	0.0
<b>GHG Intensity (tonne/TJ)<sup>a,b,c</sup></b>	<b>50.6</b>	<b>47.9</b>	<b>50.1</b>	<b>49.6</b>	<b>50.0</b>	<b>48.5</b>
<b>Total Mobile Homes GHG Emissions Excluding Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>1.2</b>	<b>1.2</b>	<b>1.0</b>	<b>1.0</b>	<b>1.1</b>	<b>1.1</b>
<b>GHG Emissions by End Use (Mt of CO<sub>2</sub>e)<sup>b,c</sup></b>						
Space Heating	1.0	1.0	0.8	0.8	0.9	0.9
Water Heating	0.2	0.2	0.2	0.2	0.2	0.2
Appliances	0.0	0.0	0.0	0.0	0.0	0.0
Lighting	0.0	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.0	0.0	0.0	0.0	0.0	0.0
<b>GHG Intensity (tonne/TJ)<sup>a,b,c</sup></b>	<b>35.3</b>	<b>34.1</b>	<b>32.6</b>	<b>32.6</b>	<b>32.8</b>	<b>32.6</b>

1) "Other" includes coal and propane.

**Sources:**

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
 b) Natural Resources Canada, *Residential End-Use Model*, Ottawa, 2017.  
 c) Environment and Climate Change Canada, *National Inventory Report 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	<b>1.6</b>	<b>1.5</b>	<b>1.5</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>	<b>1.3</b>	<b>-26.5%</b>
Electricity	0.5	0.5	0.4	0.4	0.4	0.4	0.4	-31.2%
Natural Gas	0.7	0.7	0.7	0.7	0.7	0.7	0.7	-1.9%
Heating Oil	0.2	0.2	0.2	0.2	0.1	0.1	0.1	-64.2%
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-67.6%
Wood	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-17.8%
Space Heating	1.1	1.0	1.1	1.0	1.0	1.0	0.9	-25.9%
Water Heating	0.3	0.2	0.2	0.2	0.2	0.2	0.2	-21.8%
Appliances	0.2	0.2	0.2	0.1	0.2	0.1	0.1	-35.2%
Lighting	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-52.0%
Space Cooling	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5660.3%
<b>GHG Intensity (tonne/TJ)</b>	<b>47.0</b>	<b>47.0</b>	<b>45.1</b>	<b>43.5</b>	<b>43.3</b>	<b>42.7</b>	<b>42.1</b>	<b>-16.8%</b>
<b>Total Mobile Homes GHG Emissions Excluding Electricity</b>	<b>1.1</b>	<b>1.0</b>	<b>1.1</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>	<b>0.9</b>	<b>-24.5%</b>
Space Heating	0.8	0.8	0.9	0.8	0.8	0.8	0.7	-27.5%
Water Heating	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-10.2%
Appliances	0.0	0.0	0.0	0.0	0.0	0.0	0.0	71.2%
Lighting	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
Space Cooling	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
<b>GHG Intensity (tonne/TJ)</b>	<b>32.0</b>	<b>31.5</b>	<b>31.8</b>	<b>31.2</b>	<b>30.4</b>	<b>30.4</b>	<b>30.2</b>	<b>-14.5%</b>

## Residential Housing Stock and Floor Space

	1990	1995	2005	2006	2007	2008
<b>Total Housing Stock (thousands)<sup>a</sup></b>	<b>10,425</b>	<b>11,507</b>	<b>13,149</b>	<b>13,358</b>	<b>13,567</b>	<b>13,776</b>
<b>Housing Stock by Building Type (thousands)</b>						
Single Detached	5,854	6,461	7,398	7,502	7,605	7,698
Single Attached	969	1,134	1,423	1,460	1,497	1,533
Apartments	3,381	3,679	4,076	4,141	4,205	4,282
Mobile Homes	222	232	252	256	260	263
<b>Housing Stock by Vintage (thousands)</b>						
Before 1946	2,148	2,037	1,818	1,798	1,778	1,759
1946–1960	1,475	1,415	1,295	1,284	1,272	1,261
1961–1977	3,091	2,997	2,809	2,791	2,774	2,756
1978–1983	1,766	1,720	1,628	1,619	1,611	1,602
1984–1995	1,944	3,339	3,227	3,216	3,205	3,194
1996–2000 <sup>1</sup>	0	0	1,070	1,069	1,067	1,066
2001–2005 <sup>2</sup>	0	0	1,302	1,301	1,301	1,301
2006–2010 <sup>3</sup>	0	0	0	280	559	838
2011–2015 <sup>4</sup>	0	0	0	0	0	0
<b>Total Floor Space (million m<sup>2</sup>)<sup>a</sup></b>	<b>1,208</b>	<b>1,379</b>	<b>1,669</b>	<b>1,708</b>	<b>1,745</b>	<b>1,782</b>
<b>Floor Space by Building Type (million m<sup>2</sup>)</b>						
Single Detached	804	923	1,118	1,142	1,165	1,186
Single Attached	112	133	173	179	185	190
Apartments	272	303	355	363	372	381
Mobile Homes	20	21	23	24	24	25

1) Growth rate shown in the final column entitled "Total Growth 1990–2015" is for 1996 to 2015.

2) Growth rate shown in the final column entitled "Total Growth 1990–2015" is for 2001 to 2015.

3) Growth rate shown in the final column entitled "Total Growth 1990–2015" is for 2006 to 2015.

4) Growth rate shown in the final column entitled "Total Growth 1990–2015" is for 2011 to 2015.

## Source:

a) Natural Resources Canada, Residential End-Use Model, Ottawa, 2017.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	<b>13,964</b>	<b>14,140</b>	<b>14,307</b>	<b>14,476</b>	<b>14,841</b>	<b>15,020</b>	<b>15,199</b>	<b>45.8%</b>
	7,778	7,856	7,926	7,994	8,133	8,194	8,244	40.8%
	1,566	1,597	1,628	1,659	1,724	1,761	1,794	85.1%
	4,354	4,418	4,482	4,549	4,705	4,783	4,878	44.3%
	266	269	272	274	279	281	283	27.7%
	1,740	1,721	1,702	1,683	1,669	1,650	1,632	-24.0%
	1,251	1,240	1,229	1,218	1,209	1,199	1,188	-19.4%
	2,739	2,722	2,705	2,688	2,674	2,657	2,640	-14.6%
	1,594	1,585	1,576	1,568	1,561	1,553	1,544	-12.6%
	3,183	3,172	3,161	3,150	3,142	3,131	3,120	60.5%
	1,064	1,063	1,061	1,060	1,059	1,057	1,055	349.0%
	1,300	1,300	1,299	1,299	1,298	1,298	1,298	504.4%
	1,093	1,338	1,338	1,338	1,338	1,338	1,338	377.2%
	0	0	235	472	891	1,137	1,383	487.7%
	<b>1,816</b>	<b>1,848</b>	<b>1,881</b>	<b>1,910</b>	<b>1,967</b>	<b>1,997</b>	<b>2,026</b>	<b>67.7%</b>
	1,205	1,224	1,242	1,257	1,286	1,300	1,312	63.1%
	195	200	205	210	220	226	232	106.3%
	390	399	408	416	434	444	456	67.6%
	25	25	26	26	26	27	27	37.5%

## Residential Housing Stock and Floor Space (cont.)

	1990	1995	2005	2006	2007	2008
<b>Floor Space by Vintage (million m<sup>2</sup>)</b>						
Before 1946	235	229	220	219	218	217
1946–1960	145	142	138	138	138	137
1961–1977	334	329	321	320	319	318
1978–1983	231	225	214	213	212	211
1984–1995	264	454	439	438	437	435
1996–2000 <sup>1</sup>	0	0	147	147	147	147
2001–2005 <sup>2</sup>	0	0	190	190	190	190
2006–2010 <sup>3</sup>	0	0	0	43	85	127
2011–2015 <sup>4</sup>	0	0	0	0	0	0
<b>Average Size of Housing Unit (m<sup>2</sup>/house)<sup>a</sup></b>	<b>116</b>	<b>120</b>	<b>127</b>	<b>128</b>	<b>129</b>	<b>129</b>
<b>Average Size by Building Type (m<sup>2</sup>/house)</b>						
Single Detached	137	143	151	152	153	154
Single Attached	116	117	122	123	123	124
Apartments	80	82	87	88	88	89
Mobile Homes	88	91	92	93	93	93
<b>Average Size by Vintage (m<sup>2</sup>/house)</b>						
Before 1946	109	112	121	122	122	123
1946–1960	98	101	107	107	108	109
1961–1977	108	110	114	115	115	116
1978–1983	131	131	131	131	132	132
1984–1995	136	136	136	136	136	136
1996–2000 <sup>1</sup>	0	0	138	138	138	138
2001–2005 <sup>2</sup>	0	0	146	146	146	146
2006–2010 <sup>3</sup>	0	0	0	153	153	151
2011–2015 <sup>4</sup>	0	0	0	0	0	0

- 1) Growth rate shown in the final column entitled "Total Growth 1990–2015" is for 1996 to 2015.  
 2) Growth rate shown in the final column entitled "Total Growth 1990–2015" is for 2001 to 2015.  
 3) Growth rate shown in the final column entitled "Total Growth 1990–2015" is for 2006 to 2015.  
 4) Growth rate shown in the final column entitled "Total Growth 1990–2015" is for 2011 to 2015.

## Source:

a) Natural Resources Canada, Residential End-Use Model, Ottawa, 2017.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
216	215	214	212	210	208	205	-12.5%
137	136	136	135	134	133	131	-9.5%
318	317	316	314	312	310	308	-7.6%
211	210	209	208	207	206	205	-11.1%
434	432	431	429	428	427	425	61.2%
146	146	146	146	146	145	145	362.6%
190	190	190	190	189	189	189	490.5%
165	202	202	202	202	202	202	370.3%
0	0	37	75	139	177	215	475.4%
130	131	131	132	133	133	133	15.0%
155	156	157	157	158	159	159	15.8%
125	125	126	127	128	129	129	11.5%
90	90	91	91	92	93	93	16.1%
94	94	94	94	95	95	95	7.6%
124	125	126	126	126	126	126	15.2%
109	110	111	111	111	111	111	12.3%
116	116	117	117	117	117	117	8.1%
132	132	133	133	133	133	133	1.7%
136	136	136	136	136	136	136	0.4%
138	138	138	138	138	138	138	3.0%
146	146	146	146	146	146	146	-2.3%
151	151	151	151	151	151	151	-1.4%
0	0	159	158	156	156	155	-2.1%

## Residential Space Heating Energy Use by Energy Source and Building Type

	1990	1995	2005	2006	2007	2008
<b>Total Space Heating Energy Use (PJ)<sup>a</sup></b>	<b>957.5</b>	<b>989.4</b>	<b>946.5</b>	<b>896.8</b>	<b>995.6</b>	<b>1,004.2</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	158.6	171.8	201.3	193.0	222.0	231.1
Natural Gas	395.6	473.5	460.1	431.2	487.9	494.4
Heating Oil	166.4	121.8	109.5	100.0	110.6	99.7
Other <sup>1</sup>	18.2	13.1	12.9	13.3	15.1	16.1
Wood	218.6	209.1	162.6	159.3	160.1	163.0
<b>Energy Use by Building Type (PJ)<sup>a</sup></b>						
Single Detached	722.9	742.6	703.4	667.6	739.3	744.7
Single Attached	71.9	78.6	81.0	76.2	85.6	87.6
Apartments	137.2	143.4	140.7	132.1	147.3	148.5
Mobile Homes	25.4	24.8	21.5	20.9	23.4	23.5
<b>Activity</b>						
Total Floor Space (million m <sup>2</sup> ) <sup>a</sup>	1,208	1,379	1,669	1,708	1,745	1,782
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a</sup></b>	<b>0.79</b>	<b>0.72</b>	<b>0.57</b>	<b>0.53</b>	<b>0.57</b>	<b>0.56</b>
<b>Heat Gains (PJ)<sup>a</sup></b>	<b>89.8</b>	<b>94.0</b>	<b>95.0</b>	<b>89.1</b>	<b>100.5</b>	<b>104.9</b>
<b>Heating Degree-Day Index<sup>a,b</sup></b>	<b>0.92</b>	<b>0.98</b>	<b>0.92</b>	<b>0.85</b>	<b>0.93</b>	<b>0.95</b>

1) "Other" includes coal and propane.

## Sources:

a) Natural Resources Canada, Residential End-Use Model, Ottawa, 2017.

b) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Below 18.0°C, 1990–2015*, Ottawa.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
<b>977.5</b>	<b>922.2</b>	<b>988.7</b>	<b>922.1</b>	<b>990.7</b>	<b>1,025.9</b>	<b>963.7</b>		<b>0.7%</b>
236.7	218.2	233.8	221.1	250.1	262.9	242.3		52.8%
471.4	429.4	479.3	435.4	487.4	529.5	486.0		22.9%
97.0	90.6	88.1	74.6	66.9	64.9	62.5		-62.4%
14.4	15.1	16.2	17.6	14.1	12.7	12.2		-33.0%
158.0	168.9	171.3	173.4	172.3	155.8	160.7		-26.5%
723.0	684.6	732.0	682.4	727.3	749.7	703.4		-2.7%
85.1	79.9	87.0	80.6	89.7	94.9	89.3		24.2%
146.0	135.5	145.8	136.1	150.2	158.1	149.2		8.7%
23.4	22.2	23.9	23.0	23.5	23.2	21.9		-14.0%
1,816	1,848	1,881	1,910	1,967	1,997	2,026		67.7%
<b>0.54</b>	<b>0.50</b>	<b>0.53</b>	<b>0.48</b>	<b>0.50</b>	<b>0.51</b>	<b>0.48</b>		<b>-40.0%</b>
<b>106.9</b>	<b>96.9</b>	<b>103.7</b>	<b>96.7</b>	<b>108.9</b>	<b>116.0</b>	<b>106.2</b>		<b>18.3%</b>
<b>0.96</b>	<b>0.87</b>	<b>0.90</b>	<b>0.84</b>	<b>0.93</b>	<b>0.98</b>	<b>0.92</b>		<b>–</b>

## Residential Space Heating System Stock Share

	1990	1995	2005	2006	2007
<b>Heating System Stock Share by System Type (%)<sup>a</sup></b>					
Heating Oil – Normal Efficiency	14.0	8.7	1.1	0.8	0.6
Heating Oil – Medium Efficiency	0.3	3.0	7.3	7.3	7.3
Heating Oil – High Efficiency	0.0	0.0	0.0	0.0	0.0
Natural Gas – Normal Efficiency	39.0	30.6	13.1	11.1	9.3
Natural Gas – Medium Efficiency	2.1	9.6	19.9	20.5	20.9
Natural Gas – High Efficiency	2.9	5.4	14.8	16.1	17.3
Electric	28.1	29.0	27.9	28.3	28.6
Heat Pump	2.3	2.7	4.0	4.1	4.2
Other <sup>1</sup>	0.8	1.0	1.0	1.0	1.0
Wood	1.7	1.9	2.1	2.0	2.0
<b>Dual Systems</b>					
Wood/Electric	5.1	4.6	4.9	4.8	4.8
Wood/Heating Oil	2.4	2.1	2.3	2.3	2.3
Natural Gas/Electric	0.3	0.4	0.5	0.5	0.5
Heating Oil/Electric	0.8	0.9	1.2	1.2	1.2

1) "Other" includes coal and propane.

**Source:**

a) Natural Resources Canada, Residential End-Use Model, Ottawa, 2017.

	2008	2009	2010	2011	2012	2013	2014	2015
0.5	0.4	0.3	0.3	0.2	0.2	0.1	0.1	
7.2	7.2	7.2	7.3	7.4	7.4	7.4	7.4	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7.6	6.0	4.6	3.4	2.2	1.2	0.7	0.4	
21.1	21.1	20.8	20.4	19.9	19.1	18.3	17.4	
18.7	20.0	21.5	22.9	24.3	26.2	27.7	29.1	
28.9	29.1	29.3	29.5	29.6	29.5	29.3	29.1	
4.3	4.4	4.5	4.6	4.8	4.8	4.9	5.0	
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	
4.8	4.8	4.8	4.7	4.7	4.7	4.7	4.7	
2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	
0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	

## Residential Lighting and Space Cooling Details

	1990	1995	2005	2006	2007	2008
<b>Total Lighting Energy Use<sup>1</sup> (PJ)<sup>a</sup></b>	<b>49.5</b>	<b>49.6</b>	<b>57.3</b>	<b>56.8</b>	<b>57.9</b>	<b>58.7</b>
<b>Activity</b>						
Total Households (thousands) <sup>a</sup>	9,895	10,900	12,587	12,756	12,985	13,164
<b>Energy Intensity (GJ/Household)<sup>a</sup></b>	<b>5.0</b>	<b>4.5</b>	<b>4.6</b>	<b>4.5</b>	<b>4.5</b>	<b>4.5</b>
<b>Heat Loss (PJ)<sup>a</sup></b>	<b>20.8</b>	<b>22.2</b>	<b>24.0</b>	<b>22.2</b>	<b>24.6</b>	<b>25.6</b>
<b>Total Space Cooling Energy Use<sup>1</sup> (PJ)<sup>a</sup></b>	<b>10.0</b>	<b>13.3</b>	<b>32.2</b>	<b>25.2</b>	<b>25.5</b>	<b>20.1</b>
<b>Energy Use by Cooling System Type (PJ)<sup>a</sup></b>						
Room	2.6	2.7	5.1	4.2	4.3	3.3
Central	7.4	10.6	27.2	21.0	21.2	16.8
<b>Activity</b>						
Cooled Floor Space (million m <sup>2</sup> ) <sup>a</sup>	268	354	671	725	717	762
<b>Energy Intensity (MJ/m<sup>2</sup>)<sup>a</sup></b>	<b>37.2</b>	<b>37.6</b>	<b>48.0</b>	<b>34.8</b>	<b>35.6</b>	<b>26.4</b>
<b>Cooling Degree-Day Index<sup>a,b</sup></b>	<b>1.05</b>	<b>1.18</b>	<b>1.79</b>	<b>1.38</b>	<b>1.45</b>	<b>1.08</b>
<b>Total Cooling System Stock (thousands)<sup>a</sup></b>	<b>2,438</b>	<b>3,045</b>	<b>5,536</b>	<b>6,112</b>	<b>6,242</b>	<b>6,524</b>
<b>System Stock by Type (thousands)<sup>a</sup></b>						
Room	1,067	1,142	1,956	2,257	2,406	2,363
Central	1,371	1,903	3,580	3,855	3,836	4,161
<b>New Unit Efficiency<sup>a</sup></b>						
Room (EER)	7.1	9.2	9.4	10.9	10.9	10.9
Central (SEER)	9.1	10.2	10.3	13.0	13.0	13.0
<b>Stock Efficiency<sup>a</sup></b>						
Room (EER)	6.8	7.4	9.1	9.5	9.8	10.0
Central (SEER)	8.6	9.2	10.0	10.3	10.5	10.7

1) Lighting and space cooling consume only electricity.

## Sources:

a) Natural Resources Canada, Residential End-Use Model, Ottawa, 2017.

b) Environment and Climate Change Canada, Climate Summaries, *Monthly Values of Degree-Days Below 18.0°C, 1990–2015*, Ottawa.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
<b>58.8</b>	<b>59.2</b>	<b>59.4</b>	<b>58.9</b>	<b>59.7</b>	<b>58.7</b>	<b>58.3</b>	<b>58.3</b>	<b>17.7%</b>
13,417	13,378	13,551	13,706	13,858	13,989	14,137	14,137	42.9%
4.4	4.4	4.4	4.3	4.3	4.2	4.1	4.1	-17.6%
26.0	23.6	24.9	23.0	25.6	26.7	24.8	24.8	18.9%
16.6	31.7	32.1	36.8	26.5	24.8	31.8	31.8	219.5%
2.9	4.8	4.8	6.0	4.5	4.6	5.8	5.8	123.4%
13.7	26.9	27.3	30.8	21.9	20.2	26.1	26.1	253.0%
783	818	898	952	1,016	1,078	1,157	1,157	331.6%
21.2	38.7	35.8	38.6	26.0	23.0	27.5	27.5	-26.0%
0.93	1.59	1.51	1.70	1.18	1.11	1.37	1.37	–
6,661	6,885	7,306	7,694	8,129	8,570	9,123	9,123	274.2%
2,355	2,400	2,606	2,825	3,053	3,297	3,554	3,554	233.1%
4,306	4,484	4,700	4,869	5,076	5,273	5,569	5,569	306.1%
10.9	12.0	12.0	12.0	12.0	12.0	12.0	12.0	68.8%
13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	42.2%
10.1	10.4	10.6	10.8	11.0	11.2	11.3	11.3	65.0%
10.9	11.1	11.2	11.4	11.6	11.7	11.9	11.9	38.2%

## Residential Appliance Details

	1990	1995	2005	2006	2007	2008
<b>Total Appliance Energy Use (PJ)<sup>a</sup></b>	<b>176.8</b>	<b>171.0</b>	<b>181.6</b>	<b>183.4</b>	<b>190.1</b>	<b>193.7</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	173.0	166.9	176.1	177.6	183.6	186.8
Natural Gas	3.8	4.1	5.5	5.8	6.5	6.9
<b>Energy Use by Appliance Type (PJ)<sup>a</sup></b>						
Refrigerator	58.2	50.2	36.1	35.3	35.4	35.0
Freezer	23.5	20.1	12.0	11.6	11.5	11.2
Dishwasher <sup>1</sup>	4.7	4.5	4.2	4.1	4.0	3.8
Clothes Washer <sup>1</sup>	3.5	3.9	4.4	4.3	4.3	3.9
Clothes Dryer	31.2	30.5	34.6	35.0	36.3	36.8
Range	27.3	27.7	33.1	33.3	34.5	34.7
Other Appliances <sup>2</sup>	28.3	34.0	57.1	59.9	64.2	68.4
<b>Activity</b>						
Total Households (thousands) <sup>a,b</sup>	9,895	10,900	12,587	12,756	12,985	13,164
<b>Energy Intensity (GJ/household)<sup>a,b</sup></b>	<b>17.9</b>	<b>15.7</b>	<b>14.4</b>	<b>14.4</b>	<b>14.6</b>	<b>14.7</b>
<b>Heat Loss by Appliance Type (PJ)<sup>a</sup></b>						
Refrigerator	24.6	22.7	15.2	13.9	15.1	15.3
Freezer	10.0	9.2	5.1	4.6	5.0	5.0
Dishwasher <sup>1</sup>	0.7	0.7	0.6	0.5	0.6	0.6
Clothes Washer <sup>1</sup>	0.8	1.0	1.0	0.9	1.0	1.0
Clothes Dryer	3.7	3.9	4.1	3.8	4.3	4.5
Range	9.6	10.4	11.6	10.9	12.3	12.7
Other Appliances <sup>2</sup>	12.0	15.4	24.1	23.5	27.5	30.0
<b>Appliances per Household by Appliance Type<sup>a,b</sup></b>						
Refrigerator	1.18	1.20	1.26	1.27	1.27	1.27
Freezer	0.57	0.58	0.55	0.55	0.55	0.54
Dishwasher	0.42	0.47	0.57	0.58	0.59	0.59
Clothes Washer	0.74	0.78	0.82	0.82	0.82	0.81
Clothes Dryer	0.72	0.76	0.83	0.84	0.84	0.84
Range	0.98	0.99	0.99	0.99	0.99	1.00
Other Appliances <sup>2</sup>	10.12	11.11	15.26	15.54	15.77	15.89

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.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
195.1	195.9	199.5	201.2	206.3	207.9	201.3	13.8%
188.2	188.9	191.6	193.2	198.2	199.5	192.7	11.4%
6.9	7.0	7.9	7.9	8.1	8.4	8.5	122.8%
34.1	32.6	31.8	31.1	31.1	30.2	28.5	-51.0%
10.8	10.2	10.1	10.0	10.1	10.1	9.7	-59.0%
3.7	3.5	3.3	3.1	3.0	2.8	2.6	-45.1%
3.6	3.4	3.2	3.0	2.8	2.6	2.3	-35.3%
36.8	36.6	37.1	37.2	38.2	38.3	37.1	19.0%
34.6	34.2	34.7	34.2	34.5	34.1	32.7	19.7%
71.6	75.3	79.4	82.6	86.7	89.9	88.4	212.4%
13,417	13,378	13,551	13,706	13,858	13,989	14,137	42.9%
14.5	14.6	14.7	14.7	14.9	14.9	14.2	-20.3%
15.1	13.1	13.3	12.1	13.3	13.7	12.2	-50.6%
4.9	4.2	4.3	3.9	4.4	4.7	4.2	-58.2%
0.5	0.5	0.5	0.4	0.4	0.4	0.4	-44.6%
0.9	0.8	0.7	0.6	0.7	0.7	0.5	-34.4%
4.6	4.1	4.4	4.1	4.6	4.9	4.5	20.6%
12.8	11.4	12.1	11.1	12.3	12.8	11.6	20.0%
31.8	30.0	33.2	32.0	37.1	40.8	37.8	215.2%
1.27	1.26	1.27	1.27	1.27	1.27	1.27	7.5%
0.54	0.54	0.54	0.54	0.54	0.54	0.54	-4.9%
0.60	0.60	0.60	0.60	0.60	0.60	0.60	43.4%
0.82	0.81	0.81	0.81	0.81	0.81	0.81	10.4%
0.84	0.84	0.84	0.84	0.84	0.84	0.84	16.5%
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.9%
16.07	16.18	16.33	16.43	16.48	16.82	17.66	74.4%

## Sources:

a) Natural Resources Canada, Residential End-Use Model, Ottawa, 2017.

b) Statistics Canada, *Survey of Household Spending, 1997–2015*, Ottawa, 2017.

## Residential Appliance Unit Energy Consumption (UEC)

	1990	1995	2005	2006	2007	2008
<b>UEC<sup>1</sup> for New Electric Appliances (kWh/year)<sup>a</sup></b>						
Refrigerator	956	642	469	481	483	467
Freezer	714	382	386	380	384	375
Dishwasher <sup>2</sup>	277	181	107	101	96	93
Clothes Washer <sup>2</sup>	134	118	65	58	44	41
Clothes Dryer	1,103	909	904	905	912	916
Range	772	771	573	537	524	522
<b>UEC<sup>1</sup> for New Natural Gas Appliances (kWh/year)<sup>b</sup></b>						
Clothes Dryer	925	889	880	880	880	880
Range	1,357	1,236	1,226	1,226	1,226	1,226
<b>UEC<sup>1</sup> for Stock of Electric Appliances (kWh/year)<sup>b</sup></b>						
Refrigerator	1,504	1,262	689	657	629	604
Freezer	1,272	1,052	522	495	471	449
Dishwasher <sup>2</sup>	338	291	178	168	151	141
Clothes Washer <sup>2</sup>	145	150	128	123	117	105
Clothes Dryer	1,294	1,186	992	978	964	951
Range	803	793	747	732	716	697
<b>UEC<sup>1</sup> for Stock of Natural Gas Appliances (kWh/year)<sup>b</sup></b>						
Clothes Dryer	1,480	1,122	880	880	880	880
Range	1,519	1,388	1,251	1,246	1,241	1,237

1) Unit energy consumption (UEC) is based on rated efficiency.

2) Excludes hot water requirements.

## Sources:

a) Special tabulations from the Canadian Appliance Manufacturers Association, 1990–2011.

Data for 2012 onward were provided by the Association of Home Appliance Manufacturers, Canada, 2017.

b) Natural Resources Canada, Residential End-Use Model, Ottawa, 2017.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
430	425	421	416	416	407	432	-54.8%
356	365	390	362	362	340	331	-53.7%
88	84	80	75	75	75	73	-73.6%
37	35	34	36	37	34	35	-74.1%
921	928	933	929	929	924	922	-16.4%
518	522	526	525	525	523	535	-30.7%
880	880	880	880	880	880	880	-4.9%
1,226	1,226	1,226	1,226	1,226	1,226	1,226	-9.7%
580	549	527	511	498	484	474	-68.5%
428	400	387	381	378	375	373	-70.7%
133	122	113	105	99	94	89	-73.6%
95	89	82	76	70	64	59	-59.6%
940	925	918	915	915	916	917	-29.2%
682	664	648	632	617	604	592	-26.3%
880	880	880	880	880	880	880	-40.5%
1,234	1,230	1,228	1,227	1,226	1,226	1,226	-19.3%

## Residential Water Heating Energy Use and Water Heater Stock Share

	1990	1995	2005	2006	2007	2008
<b>Total Water Heating Energy Use (PJ)<sup>a</sup></b>	<b>230.8</b>	<b>245.1</b>	<b>277.6</b>	<b>280.2</b>	<b>292.4</b>	<b>289.1</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	76.3	72.2	76.6	77.7	79.3	79.5
Natural Gas	128.9	152.9	180.9	181.8	191.7	190.4
Heating Oil	20.0	15.7	16.3	16.8	17.5	15.1
Other <sup>1</sup>	3.7	1.8	1.4	1.7	1.9	2.0
Wood	1.9	2.5	2.3	2.2	2.1	2.1
<b>Activity</b>						
Total Households (thousands) <sup>a,b</sup>	9,895	10,900	12,587	12,756	12,985	13,164
<b>Energy Intensity (GJ/household)<sup>a,b</sup></b>	<b>23.3</b>	<b>22.5</b>	<b>22.1</b>	<b>22.0</b>	<b>22.5</b>	<b>22.0</b>
<b>Water Heater Stock Market Shares (%)<sup>a</sup></b>						
Electricity	52.5	49.8	45.8	45.7	45.7	46.1
Natural Gas	41.5	44.7	48.9	49.0	49.0	48.7
Heating Oil	5.1	4.7	4.6	4.6	4.5	4.5
Other <sup>1</sup>	0.6	0.6	0.4	0.5	0.5	0.5
Wood	0.2	0.3	0.3	0.3	0.3	0.2
<b>Heat Loss (PJ)<sup>a</sup></b>	<b>7.5</b>	<b>8.5</b>	<b>9.2</b>	<b>8.8</b>	<b>10.1</b>	<b>10.4</b>

1) "Other" includes coal and propane.

**Sources:**

a) Natural Resources Canada, Residential End-Use Model, Ottawa, 2017.

b) Statistics Canada, *Survey of Household Spending, 1997–2015*, Ottawa, 2017.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	<b>280.9</b>	<b>278.1</b>	<b>294.3</b>	<b>289.2</b>	<b>288.7</b>	<b>291.4</b>	<b>288.8</b>	<b>25.2%</b>
	80.4	80.4	81.7	83.9	85.5	86.2	83.3	9.1%
	182.0	178.8	195.0	188.9	190.1	194.3	195.2	51.4%
	14.4	14.4	13.1	11.4	9.1	7.6	6.9	-65.3%
	2.0	2.3	2.5	3.1	2.3	2.0	2.1	-42.6%
	2.0	2.2	1.9	2.0	1.7	1.3	1.3	-28.7%
	13,417	13,378	13,551	13,706	13,858	13,989	14,137	42.9%
	<b>20.9</b>	<b>20.8</b>	<b>21.7</b>	<b>21.1</b>	<b>20.8</b>	<b>20.8</b>	<b>20.4</b>	<b>-12.4%</b>
	46.5	47.0	47.8	48.6	48.9	49.2	49.6	–
	48.3	47.9	47.3	46.7	46.6	46.4	46.2	–
	4.4	4.3	4.1	3.9	3.7	3.5	3.3	–
	0.6	0.6	0.6	0.7	0.7	0.7	0.7	–
	0.2	0.2	0.2	0.2	0.2	0.1	0.1	–
	<b>10.3</b>	<b>9.3</b>	<b>10.3</b>	<b>9.5</b>	<b>10.5</b>	<b>11.2</b>	<b>10.4</b>	<b>38.8%</b>

## Residential Energy Prices and Background Indicators

	1990	1995	2005	2006	2007	2008
<b>Energy Prices by Energy Source (incl. taxes)</b>						
Natural Gas (cents/m <sup>3</sup> ) <sup>a,d</sup>	19.1	22.4	51.3	53.0	50.5	52.2
Heating Oil (cents/litre) <sup>d,e</sup>	35.6	35.6	78.2	82.0	85.0	111.1
Electricity (cents/kWh) <sup>b,d</sup>	6.2	7.8	9.2	9.4	9.5	9.6
<b>Background Indicators</b>						
<b>Consumer Price Index (2007 = 100)<sup>c</sup></b>						
Natural Gas	39.7	47.7	103.8	107.0	100.0	111.8
Fuel Oil and Other Fuels	42.2	43.5	92.0	96.2	100.0	130.7
Electricity	60.9	77.3	92.9	98.1	100.0	100.3
<b>Real Personal Disposable Income per Household (\$2007)<sup>c,g</sup></b>	<b>57,605</b>	<b>54,073</b>	<b>59,357</b>	<b>61,694</b>	<b>62,548</b>	<b>63,712</b>
<b>Total Population (thousands)<sup>f</sup></b>	<b>27,691</b>	<b>29,302</b>	<b>32,242</b>	<b>32,571</b>	<b>32,888</b>	<b>33,246</b>

## Sources:

- a) Statistics Canada, *Sales of natural gas*, Table 129-0003, Ottawa, 2017 (CANSIM).  
b) Hydro-Québec, *Comparison of Electricity Prices in Major North American Cities*, 2015.  
c) Statistics Canada, *Consumer Price Index*, Table 326-0021, Ottawa, 2017 (CANSIM).  
d) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
e) Statistics Canada, *Estimates of Population, by Age Group and Sex for July 1, Canada, Provinces and Territories*, Table 051-0001, Ottawa, 2017 (CANSIM).  
f) Statistics Canada, *Average retail prices for gasoline and fuel oil by urban centre*, Table 326-0009, Ottawa, 2017 (CANSIM).  
g) Statistics Canada, *Current and Capital Accounts – Households, quarterly*, Table 380-0072, Ottawa, 2017 (CANSIM).

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
44.0	44.9	43.7	40.6	41.5	46.3	42.3	121.2%
77.6	90.3	112.7	118.1	118.6	124.8	101.1	184.0%
9.7	9.8	10.6	10.7	11.0	11.3	11.8	90.5%
89.3	87.7	84.8	76.1	81.3	95.0	88.9	–
91.6	106.3	133.1	139.1	139.4	146.4	118.2	–
102.0	106.9	110.1	114.6	117.2	122.6	126.6	–
<b>63,985</b>	<b>66,119</b>	<b>65,738</b>	<b>66,635</b>	<b>68,278</b>	<b>68,461</b>	<b>69,938</b>	<b>21.4%</b>
<b>33,629</b>	<b>34,005</b>	<b>34,343</b>	<b>34,751</b>	<b>35,155</b>	<b>35,544</b>	<b>35,849</b>	<b>29.5%</b>

## Chapter 3

# Commercial/Institutional Sector

## The Data Situation

Aggregate data on commercial/institutional energy use are reported in Statistics Canada's *Report on Energy Supply and Demand in Canada* (RES-D) (Cat. No. 57-003-X) under the "public administration" and "commercial and other institutional" categories.

To provide more detail on how the energy is used and assess Canadian energy use trends in this sector, the Office of Energy Efficiency (OEE) developed the Commercial/Institutional End-Use Model (CEUM). This model is used to allocate the energy use reported in the RES-D to 10 activity types and six end uses. To do so, other information is required, mainly, data on floor space and energy intensity.

Thus, floor space estimates are provided by Environment and Climate Change Canada (ECCC). The data are developed 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 (NAICS). Also, CEUM used as source data for energy intensities the surveys of commercial and institutional energy use, undertaken by Statistics Canada on behalf of the OEE.

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 are from ECCC).

## Commercial/Institutional Sector

The commercial/institutional price of heating oil and natural gas are weighted averages of regional prices. Heating oil prices are provided by the Petroleum Resources Branch of Natural Resources Canada. Natural gas prices are from Statistics Canada's CANSIM Table 129-0003. Electricity prices are a weighted average of the data found in Hydro-Québec's *Comparison of Electricity Prices in Major North American Cities*.

*In recent years, Statistics Canada adjusted the data in each cycle of RESD production. However, not all of the adjustments are reflected in this edition because of the production and publication delay. As a result, the 2015 edition of this handbook does not include the adjustment resulting from the revision of the latest RESD production cycle. The reader should be cautious when comparing data in this edition of the handbook with CANSIM data.*

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

## Commercial/Institutional Sector

## Commercial/Institutional Secondary Energy Use (Final Demand) by Energy Source, End Use and Activity Type

	1990	1995	2005	2006	2007	2008
<b>Total Energy Use (PJ)<sup>a</sup></b>	<b>745.6</b>	<b>840.4</b>	<b>951.7</b>	<b>897.4</b>	<b>943.8</b>	<b>949.7</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	268.6	300.8	345.5	342.5	370.1	374.2
Natural Gas	387.1	427.6	504.9	468.5	482.3	495.2
Light Fuel Oil and Kerosene	62.0	61.2	44.1	33.8	33.8	24.6
Heavy Fuel Oil	11.4	8.6	24.7	20.3	19.9	15.2
Steam	0.2	0.4	2.6	2.6	3.8	3.8
Other <sup>1</sup>	16.3	41.8	29.9	29.7	34.0	36.7
<b>Energy Use by End Use (PJ)<sup>b</sup></b>						
Space Heating	449.9	511.7	546.5	497.5	525.1	528.1
Water Heating	57.7	62.0	75.6	75.3	78.9	78.1
Auxiliary Equipment	54.3	63.6	99.7	103.8	107.3	114.8
Auxiliary Motors	60.4	68.7	60.4	59.9	62.0	64.4
Lighting	84.0	94.1	98.6	100.7	105.4	105.3
Space Cooling	30.3	32.5	62.6	52.1	56.2	50.5
Street Lighting <sup>f</sup>	8.9	7.8	8.3	8.1	9.0	8.6

1) "Other" includes coal and propane.

## Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, 2017.  
f) Statistics Canada, *Electric Power Generation, Transmission and Distribution 1990–2007* (Cat. No. 57-202-X). Data for reference year 2008 onward were provided on request.

## Commercial/Institutional Sector

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
<b>943.4</b>	<b>930.7</b>	<b>977.0</b>	<b>942.5</b>	<b>975.5</b>	<b>1,030.3</b>	<b>1,009.4</b>		<b>35.4%</b>
370.8	388.6	400.1	400.5	406.9	421.6	425.2		58.3%
508.7	478.4	503.6	464.4	496.7	534.9	512.9		32.5%
17.9	19.1	22.3	18.3	28.7	33.3	32.2		-48.1%
11.2	8.0	10.8	12.0	3.6	3.8	3.0		-73.5%
1.5	0.0	0.0	0.0	0.3	0.5	0.5		139.5%
33.3	36.6	40.0	47.3	39.3	36.1	35.6		118.8%
523.7	494.7	533.3	493.1	533.1	577.9	552.1		22.7%
76.7	77.4	79.9	78.9	79.3	79.4	79.0		36.9%
125.1	127.0	126.9	128.5	135.9	140.8	145.1		167.1%
63.5	60.3	63.6	63.4	64.1	63.6	58.1		-3.8%
107.6	109.7	110.3	110.5	111.0	114.3	112.0		33.4%
39.7	54.2	55.3	60.4	44.7	46.6	55.3		82.2%
7.1	7.5	7.6	7.5	7.6	7.6	7.7		-14.2%

## Commercial/Institutional Sector

## Commercial/Institutional Secondary Energy Use (Final Demand) by Energy Source, End Use and Activity Type (cont.)

	1990	1995	2005	2006	2007	2008
<b>Energy Use by Activity Type<sup>2</sup> (PJ)<sup>b</sup></b>						
Wholesale Trade	53.2	56.9	58.7	55.1	57.8	57.7
Retail Trade	123.0	135.3	157.7	150.0	158.8	160.3
Transportation and Warehousing	45.1	47.0	41.4	38.1	39.7	39.5
Information and Cultural Industries	14.2	17.0	20.2	19.0	20.1	20.0
Offices <sup>3</sup>	234.5	273.7	331.4	311.4	327.8	334.2
Educational Services	95.7	108.4	121.4	113.7	118.9	118.0
Health Care and Social Assistance	83.0	93.7	102.4	97.0	101.6	100.9
Arts, Entertainment and Recreation	16.5	20.9	23.3	22.1	23.6	23.5
Accommodation and Food Services	54.9	61.8	68.9	66.1	69.3	70.2
Other Services	16.5	17.9	18.1	16.8	17.3	17.0
<b>Activity</b>						
Total Floor Space (million m <sup>2</sup> ) <sup>c</sup>	509.9	558.7	654.2	667.3	679.7	693.2
<b>Energy Intensity<sup>2</sup> (GJ/m<sup>2</sup>)<sup>a,c</sup></b>						
	<b>1.44</b>	<b>1.49</b>	<b>1.44</b>	<b>1.33</b>	<b>1.38</b>	<b>1.36</b>
<b>Heating Degree-Day Index<sup>b,d</sup></b>						
	<b>0.92</b>	<b>0.98</b>	<b>0.92</b>	<b>0.85</b>	<b>0.93</b>	<b>0.95</b>
<b>Cooling Degree-Day Index<sup>b,e</sup></b>						
	<b>1.05</b>	<b>1.18</b>	<b>1.79</b>	<b>1.38</b>	<b>1.45</b>	<b>1.08</b>

2) Excludes street lighting.

3) "Offices" includes activities related to finance and insurance; real estate and rental and leasing; professional, scientific and technical services; public administration; and others.

## Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, 2017.  
c) Informetrica Limited, *The Informetrica Model*, 1990–2011. Data for 2012 onward are provided by Environment and Climate Change Canada. They assumed responsibility for operating *The Informetrica Model* as Informetrica Limited ceased its operations.  
d) Environment and Climate Change Canada, *Climate Summaries, Monthly Values of Degree-Days Below 18.0°C, 1990–2015*, Ottawa.  
e) Environment and Climate Change Canada, *Climate Summaries, Monthly Values of Degree-Days Above 18.0°C, 1990–2015*, Ottawa.  
f) Statistics Canada, *Electric Power Generation, Transmission and Distribution 1990–2007* (Cat. No. 57-202-X). Data for reference year 2008 onward were provided on request.

## Commercial/Institutional Sector

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
57.2	55.4	57.7	55.1	55.9	58.8	57.1	7.4%
159.4	155.4	162.6	156.4	159.0	167.7	163.5	33.0%
38.3	37.5	39.3	37.0	37.7	39.7	38.0	-15.8%
20.4	20.2	21.1	20.4	20.5	21.8	21.2	49.9%
331.0	325.9	341.3	329.1	347.9	364.1	355.7	51.7%
117.8	117.9	124.5	120.6	123.1	130.9	127.9	33.6%
100.8	100.7	107.0	104.9	110.4	120.0	120.5	45.2%
23.9	23.7	24.9	24.1	24.7	26.2	25.9	56.5%
70.8	70.2	74.1	71.5	72.7	76.9	75.9	38.2%
16.7	16.2	16.8	15.9	16.0	16.7	16.0	-3.3%
703.8	713.9	721.6	732.1	739.0	743.3	751.5	47.4%
1.33	1.29	1.34	1.28	1.31	1.38	1.33	-7.7%
0.96	0.87	0.90	0.84	0.93	0.98	0.92	–
0.93	1.59	1.51	1.70	1.18	1.11	1.37	–

## Commercial/Institutional Sector

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

	1990	1995	2005	2006	2007	2008
<b>Total GHG Emissions Including Electricity (Mt of CO<sub>2</sub>e)<sup>a,d</sup></b>	<b>41.0</b>	<b>44.2</b>	<b>51.3</b>	<b>47.8</b>	<b>50.3</b>	<b>49.1</b>
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)<sup>b,d</sup></b>						
Electricity	15.1	15.2	19.3	18.6	20.2	19.3
Natural Gas	19.6	21.5	25.2	23.4	24.2	24.7
Light Fuel Oil and Kerosene	4.4	4.3	3.1	2.4	2.4	1.7
Heavy Fuel Oil	0.9	0.7	1.8	1.5	1.5	1.1
Steam	0.0	0.0	0.0	0.0	0.0	0.0
Other <sup>1</sup>	1.0	2.5	1.8	1.8	2.1	2.2
<b>GHG Emissions by End Use (Mt of CO<sub>2</sub>e)<sup>b,d</sup></b>						
Space Heating	24.4	27.3	28.8	26.1	27.5	27.2
Water Heating	3.2	3.3	4.1	4.0	4.3	4.2
Auxiliary Equipment	3.1	3.2	5.6	5.7	5.9	6.0
Auxiliary Motors	3.4	3.5	3.4	3.3	3.4	3.3
Lighting	4.7	4.8	5.5	5.5	5.7	5.4
Space Cooling	1.7	1.6	3.5	2.8	3.0	2.6
Street Lighting <sup>c</sup>	0.5	0.4	0.5	0.4	0.5	0.4
<b>GHG Emissions by Activity Type<sup>2</sup> (Mt of CO<sub>2</sub>e)<sup>b,d</sup></b>						
Wholesale Trade	2.9	3.0	3.1	2.9	3.1	3.0
Retail Trade	6.7	7.1	8.5	8.0	8.4	8.3
Transportation and Warehousing	2.5	2.5	2.2	2.0	2.1	2.0
Information and Cultural Industries	0.8	0.9	1.1	1.0	1.1	1.0
Offices <sup>3</sup>	12.9	14.4	17.8	16.5	17.4	17.3
Educational Services	5.3	5.7	6.6	6.1	6.3	6.1
Health Care and Social Assistance	4.6	5.0	5.6	5.2	5.4	5.2
Arts, Entertainment and Recreation	0.9	1.1	1.3	1.2	1.3	1.2
Accommodation and Food Services	3.0	3.3	3.8	3.6	3.7	3.7
Other Services	0.9	1.0	1.0	0.9	0.9	0.9
<b>GHG Intensity (tonne/TJ)<sup>a,d</sup></b>	<b>54.9</b>	<b>52.6</b>	<b>53.9</b>	<b>53.3</b>	<b>53.3</b>	<b>51.7</b>

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; public administration; and others.

## Commercial/Institutional Sector

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	46.9	46.9	46.8	43.9	45.4	46.7	45.2	10.3%
Electricity	17.5	19.0	17.0	15.9	16.2	15.6	15.5	2.8%
Natural Gas	25.3	23.7	24.9	22.9	24.4	26.2	24.9	27.3%
Light Fuel Oil and Kerosene	1.3	1.3	1.6	1.3	2.0	2.3	2.2	-49.2%
Heavy Fuel Oil	0.8	0.6	0.8	0.9	0.3	0.3	0.2	-74.0%
Steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
Other	2.0	2.2	2.4	2.9	2.5	2.3	2.2	124.9%
Space Heating	26.6	25.3	27.0	25.0	26.7	28.6	27.1	11.1%
Water Heating	4.0	4.0	4.1	4.1	4.0	4.0	4.0	25.1%
Auxiliary Equipment	6.0	6.3	5.5	5.3	5.6	5.4	5.5	80.5%
Auxiliary Motors	3.0	2.9	2.7	2.5	2.6	2.4	2.1	-37.5%
Lighting	5.1	5.4	4.7	4.4	4.4	4.2	4.1	-13.3%
Space Cooling	1.9	2.6	2.4	2.4	1.8	1.8	2.1	21.3%
Street Lighting <sup>c</sup>	0.3	0.4	0.3	0.3	0.3	0.3	0.3	-44.3%
Wholesale Trade	2.8	2.8	2.7	2.6	2.6	2.6	2.5	-12.3%
Retail Trade	7.9	7.8	7.8	7.3	7.4	7.6	7.3	8.9%
Transportation and Warehousing	1.9	1.9	1.9	1.7	1.8	1.8	1.7	-30.4%
Information and Cultural Industries	1.0	1.0	1.0	0.9	1.0	1.0	1.0	21.0%
Offices <sup>3</sup>	16.5	16.4	16.4	15.3	16.2	16.4	15.8	23.0%
Educational Services	5.8	5.9	6.0	5.6	5.7	6.0	5.8	8.9%
Health Care and Social Assistance	5.0	5.1	5.2	4.9	5.2	5.5	5.5	19.3%
Arts, Entertainment and Recreation	1.2	1.2	1.2	1.1	1.1	1.2	1.2	26.4%
Accommodation and Food Services	3.5	3.6	3.6	3.4	3.4	3.5	3.4	14.1%
Other Services	0.8	0.8	0.8	0.7	0.7	0.8	0.7	-22.5%
<b>GHG Intensity (tonne/TJ)<sup>a,d</sup></b>	<b>49.7</b>	<b>50.3</b>	<b>47.9</b>	<b>46.6</b>	<b>46.5</b>	<b>45.3</b>	<b>44.8</b>	<b>-18.5%</b>

## Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.b) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, 2017.c) Statistics Canada, *Electric Power Generation, Transmission and Distribution 1990–2007* (Cat. No. 57-202-X). Data for reference year 2008 onward were provided on request.d) Environment and Climate Change Canada, *National Inventory Report 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

## Commercial/Institutional Sector

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

	1990	1995	2005	2006	2007	2008
<b>Total GHG Emissions Excluding Electricity (Mt of CO<sub>2</sub>e)<sup>a,d</sup></b>	<b>25.8</b>	<b>29.0</b>	<b>32.0</b>	<b>29.2</b>	<b>30.1</b>	<b>29.8</b>
<b>GHG Emissions by End Use (Mt of CO<sub>2</sub>e)<sup>b,d</sup></b>						
Space Heating	22.6	25.5	27.5	24.7	25.5	25.2
Water Heating	3.0	3.2	3.9	3.9	4.0	4.0
Auxiliary Equipment	0.2	0.3	0.5	0.5	0.5	0.5
Auxiliary Motors	0.0	0.0	0.0	0.0	0.0	0.0
Lighting	0.0	0.0	0.0	0.0	0.0	0.0
Space Cooling	0.1	0.1	0.2	0.2	0.2	0.2
Street Lighting <sup>c</sup>	0.0	0.0	0.0	0.0	0.0	0.0
<b>GHG Emissions by Activity Type<sup>1</sup> (Mt of CO<sub>2</sub>e)<sup>b,d</sup></b>						
Wholesale Trade	1.8	2.0	1.9	1.8	1.8	1.8
Retail Trade	4.2	4.6	5.3	4.9	5.0	5.0
Transportation and Warehousing	1.6	1.7	1.5	1.3	1.3	1.3
Information and Cultural Industries	0.5	0.6	0.7	0.6	0.6	0.6
Offices <sup>2</sup>	8.2	9.5	11.2	10.2	10.7	10.7
Educational Services	3.4	3.8	4.1	3.7	3.8	3.6
Health Care and Social Assistance	3.0	3.3	3.5	3.2	3.3	3.2
Arts, Entertainment and Recreation	0.6	0.7	0.8	0.7	0.7	0.7
Accommodation and Food Services	1.9	2.2	2.4	2.2	2.3	2.3
Other Services	0.6	0.6	0.6	0.5	0.5	0.5
<b>GHG Intensity (tonne/TJ)<sup>a,d</sup></b>	<b>34.7</b>	<b>34.5</b>	<b>33.6</b>	<b>32.5</b>	<b>31.9</b>	<b>31.4</b>

1) Excludes street lighting.

2 "Offices" includes activities related to finance and insurance; real estate and rental and leasing; professional, scientific and technical services; public administration; and others.

## Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Natural Resources Canada, *Commercial/Institutional End-Use Model*, Ottawa, 2017.  
c) Statistics Canada, *Electric Power Generation, Transmission and Distribution 1990–2007* (Cat. No. 57-202-X). Data for reference year 2008 onward were provided on request.  
d) Environment and Climate Change Canada, *National Inventory Report 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

## Commercial/Institutional Sector

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
29.4	27.9	29.8	28.0	29.1	31.0	29.6	14.6%
24.9	23.3	25.0	23.4	24.6	26.4	25.0	11.0%
3.9	3.8	4.0	3.9	3.8	3.8	3.8	26.2%
0.6	0.6	0.6	0.6	0.6	0.6	0.6	175.3%
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	–
0.1	0.2	0.2	0.2	0.1	0.1	0.2	203.6%
0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
1.8	1.6	1.7	1.6	1.7	1.8	1.7	-9.4%
4.9	4.6	4.9	4.6	4.7	5.0	4.8	12.9%
1.3	1.2	1.3	1.2	1.2	1.3	1.2	-26.9%
0.6	0.6	0.6	0.6	0.6	0.7	0.6	25.3%
10.5	9.9	10.5	9.9	10.3	10.8	10.3	25.5%
3.6	3.5	3.8	3.6	3.7	4.0	3.8	12.5%
3.2	3.1	3.3	3.2	3.4	3.8	3.7	25.6%
0.7	0.7	0.8	0.7	0.7	0.8	0.8	31.2%
2.3	2.2	2.3	2.2	2.3	2.4	2.3	20.2%
0.5	0.5	0.5	0.5	0.5	0.5	0.5	-20.2%
31.2	30.0	30.5	29.7	29.9	30.1	29.4	-15.3%

## Commercial/Institutional Sector

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

	1990	1995	2005	2006	2007	2008
<b>Total Energy Use for Wholesale Trade (PJ)<sup>a</sup></b>	<b>53.2</b>	<b>56.9</b>	<b>58.7</b>	<b>55.1</b>	<b>57.8</b>	<b>57.7</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	18.8	20.2	21.3	21.0	22.7	23.0
Natural Gas	29.0	30.3	32.1	29.4	30.3	30.5
Light Fuel Oil and Kerosene	3.5	3.2	2.1	1.6	1.4	0.9
Heavy Fuel Oil	0.6	0.5	1.2	1.0	1.0	0.8
Steam	0.0	0.0	0.2	0.2	0.2	0.2
Other <sup>1</sup>	1.2	2.8	1.9	1.9	2.1	2.3
<b>Activity</b>						
Floor Space (million m <sup>2</sup> ) <sup>b</sup>	38.61	39.95	42.78	43.38	44.16	44.84
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a,b</sup></b>	<b>1.38</b>	<b>1.43</b>	<b>1.37</b>	<b>1.27</b>	<b>1.31</b>	<b>1.29</b>
<b>Total Energy Use for Retail Trade (PJ)<sup>a</sup></b>	<b>123.0</b>	<b>135.3</b>	<b>157.7</b>	<b>150.0</b>	<b>158.8</b>	<b>160.3</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	43.7	47.9	57.4	57.2	62.3	62.9
Natural Gas	66.9	71.8	84.7	79.2	82.2	85.1
Light Fuel Oil and Kerosene	8.2	7.7	6.7	5.1	4.8	3.0
Heavy Fuel Oil	1.5	1.2	3.4	2.9	3.0	2.4
Steam	0.0	0.0	0.4	0.4	0.6	0.6
Other <sup>1</sup>	2.6	6.7	5.1	5.2	5.9	6.4
<b>Activity</b>						
Floor Space (million m <sup>2</sup> ) <sup>b</sup>	80.84	86.04	104.12	106.89	109.96	113.08
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a,b</sup></b>	<b>1.52</b>	<b>1.57</b>	<b>1.51</b>	<b>1.40</b>	<b>1.44</b>	<b>1.42</b>

1) "Other" includes coal and propane.

## Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Informetrica Limited, *The Informetrica Model*, 1990–2011. Data for 2012 onward are provided by Environment and Climate Change Canada. They assumed responsibility for operating *The Informetrica Model* as Informetrica Limited ceased its operations.

## Commercial/Institutional Sector

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	57.2	55.4	57.7	55.1	55.9	58.8	57.1	7.4%
	22.7	23.3	23.9	23.6	23.3	24.0	24.0	27.4%
	31.3	28.7	30.0	27.4	29.1	31.3	29.8	2.5%
	0.5	0.7	0.8	0.5	1.0	1.2	1.2	-66.8%
	0.6	0.4	0.5	0.8	0.2	0.2	0.2	-74.2%
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
	2.1	2.3	2.5	2.8	2.3	2.1	2.0	75.1%
	45.11	45.23	45.34	45.52	45.49	45.41	45.63	18.2%
	1.27	1.23	1.27	1.21	1.23	1.29	1.25	-9.1%
	159.4	155.4	162.6	156.4	159.0	167.7	163.5	33.0%
	63.2	65.3	67.2	67.0	66.0	68.2	68.5	56.8%
	87.0	80.2	84.3	77.5	82.7	88.9	84.8	26.7%
	1.7	2.2	2.5	1.6	3.2	4.0	3.9	-52.8%
	1.6	1.2	1.4	2.2	0.5	0.7	0.5	-66.2%
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
	6.0	6.5	7.1	8.1	6.6	5.9	5.9	122.6%
	114.49	115.46	116.22	117.52	118.14	118.35	119.45	47.8%
	1.39	1.35	1.40	1.33	1.35	1.42	1.37	-10.0%

## Commercial/Institutional Sector

Commercial/Institutional Secondary Energy Use (Final Demand)  
by Activity Type and Energy Source (cont.)

	1990	1995	2005	2006	2007	2008
<b>Total Energy Use for Transportation and Warehousing (PJ)<sup>a</sup></b>	<b>45.1</b>	<b>47.0</b>	<b>41.4</b>	<b>38.1</b>	<b>39.7</b>	<b>39.5</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	14.7	15.2	13.1	12.8	13.8	13.8
Natural Gas	25.0	25.6	23.7	21.5	22.0	22.4
Light Fuel Oil and Kerosene	3.9	3.5	2.2	1.6	1.5	0.9
Heavy Fuel Oil	0.7	0.5	1.0	0.9	0.8	0.6
Steam	0.0	0.0	0.2	0.2	0.3	0.3
Other <sup>1</sup>	0.9	2.3	1.2	1.2	1.4	1.5
<b>Activity</b>						
Floor Space (million m <sup>2</sup> ) <sup>b</sup>	33.92	34.22	33.26	33.37	33.70	33.85
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a,b</sup></b>	<b>1.33</b>	<b>1.37</b>	<b>1.24</b>	<b>1.14</b>	<b>1.18</b>	<b>1.17</b>
<b>Total Energy Use for Information and Cultural Industries (PJ)<sup>a</sup></b>	<b>14.2</b>	<b>17.0</b>	<b>20.2</b>	<b>19.0</b>	<b>20.1</b>	<b>20.0</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	5.1	6.1	7.4	7.4	8.1	8.2
Natural Gas	7.0	8.3	10.4	9.7	9.9	10.1
Light Fuel Oil and Kerosene	1.5	1.6	1.2	0.9	0.8	0.5
Heavy Fuel Oil	0.3	0.1	0.4	0.3	0.3	0.3
Steam	0.0	0.0	0.0	0.0	0.1	0.1
Other <sup>1</sup>	0.3	0.8	0.7	0.7	0.8	0.9
<b>Activity</b>						
Floor Space (million m <sup>2</sup> ) <sup>b</sup>	8.97	10.49	12.93	13.19	13.39	13.66
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a,b</sup></b>	<b>1.58</b>	<b>1.62</b>	<b>1.56</b>	<b>1.44</b>	<b>1.50</b>	<b>1.47</b>

1) "Other" includes coal and propane.

## Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Informetrica Limited, *The Informetrica Model*, 1990–2011. Data for 2012 onward are provided by Environment and Climate Change Canada. They assumed responsibility for operating *The Informetrica Model* as Informetrica Limited ceased its operations.

## Commercial/Institutional Sector

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
<b>38.3</b>	<b>37.5</b>	<b>39.3</b>	<b>37.0</b>	<b>37.7</b>	<b>39.7</b>	<b>38.0</b>		<b>-15.8%</b>
13.4	13.9	14.5	14.0	13.9	14.3	14.1		-3.7%
22.7	21.0	22.0	19.9	21.2	22.6	21.3		-14.8%
0.5	0.6	0.7	0.5	0.8	1.1	1.0		-73.6%
0.4	0.4	0.5	0.7	0.1	0.2	0.1		-80.9%
0.0	0.0	0.0	0.0	0.0	0.0	0.0		-100.0%
1.3	1.5	1.7	1.9	1.6	1.4	1.4		61.2%
33.83	33.74	33.69	33.61	33.43	33.28	33.35		-1.7%
<b>1.13</b>	<b>1.11</b>	<b>1.16</b>	<b>1.10</b>	<b>1.13</b>	<b>1.19</b>	<b>1.14</b>		<b>-14.3%</b>
<b>20.4</b>	<b>20.2</b>	<b>21.1</b>	<b>20.4</b>	<b>20.5</b>	<b>21.8</b>	<b>21.2</b>		<b>49.9%</b>
8.2	8.6	8.8	8.9	8.6	8.9	8.9		74.4%
10.8	10.2	10.8	9.8	10.4	11.3	10.8		54.1%
0.4	0.4	0.5	0.4	0.6	0.7	0.7		-54.8%
0.2	0.1	0.1	0.1	0.0	0.0	0.0		-87.8%
0.0	0.0	0.0	0.0	0.0	0.0	0.0		–
0.8	0.9	1.0	1.1	0.9	0.8	0.8		175.4%
13.96	14.15	14.29	14.50	14.55	14.56	14.65		63.4%
<b>1.46</b>	<b>1.43</b>	<b>1.48</b>	<b>1.40</b>	<b>1.41</b>	<b>1.50</b>	<b>1.45</b>		<b>-8.3%</b>

## Commercial/Institutional Sector

Commercial/Institutional Secondary Energy Use (Final Demand)  
by Activity Type and Energy Source (cont.)

	1990	1995	2005	2006	2007	2008
<b>Total Energy Use for Offices<sup>2</sup> (PJ)<sup>a</sup></b>	<b>234.5</b>	<b>273.7</b>	<b>331.4</b>	<b>311.4</b>	<b>327.8</b>	<b>334.2</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	83.4	97.2	117.9	116.9	124.5	127.4
Natural Gas	122.9	139.3	180.6	166.6	172.0	178.1
Light Fuel Oil and Kerosene	19.5	20.3	13.3	10.3	11.9	10.4
Heavy Fuel Oil	3.6	2.8	9.3	7.4	7.4	5.4
Steam	0.1	0.4	1.1	1.0	1.5	1.5
Other <sup>1</sup>	5.1	13.8	9.2	9.2	10.5	11.4
<b>Activity</b>						
Floor Space (million m <sup>2</sup> ) <sup>b</sup>	193.95	219.73	267.84	273.72	278.83	284.96
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a,b</sup></b>	<b>1.21</b>	<b>1.25</b>	<b>1.24</b>	<b>1.14</b>	<b>1.18</b>	<b>1.17</b>
<b>Total Energy Use for Educational Services (PJ)<sup>a</sup></b>	<b>95.7</b>	<b>108.4</b>	<b>121.4</b>	<b>113.7</b>	<b>118.9</b>	<b>118.0</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	33.9	38.6	44.5	43.6	47.5	47.8
Natural Gas	48.8	54.3	63.0	58.3	59.6	60.3
Light Fuel Oil and Kerosene	9.1	8.8	6.0	4.2	3.7	2.2
Heavy Fuel Oil	1.7	1.3	3.4	2.9	2.8	2.1
Steam	0.0	0.0	0.3	0.3	0.5	0.5
Other <sup>1</sup>	2.1	5.4	4.4	4.4	4.9	5.1
<b>Activity</b>						
Floor Space (million m <sup>2</sup> ) <sup>b</sup>	68.14	74.28	86.06	87.09	87.98	89.11
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a,b</sup></b>	<b>1.40</b>	<b>1.46</b>	<b>1.41</b>	<b>1.31</b>	<b>1.35</b>	<b>1.32</b>

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; public administration; and others.

## Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.b) Informetrica Limited, *The Informetrica Model*, 1990–2011. Data for 2012 onward are provided by Environment and Climate Change Canada. They assumed responsibility for operating *The Informetrica Model* as Informetrica Limited ceased its operations.

## Commercial/Institutional Sector

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
<b>331.0</b>	<b>325.9</b>	<b>341.3</b>	<b>329.1</b>	<b>347.9</b>	<b>364.1</b>	<b>355.7</b>		<b>51.7%</b>
127.1	134.3	137.4	137.1	146.6	151.5	152.4		82.7%
180.7	169.8	178.1	165.5	175.9	187.7	179.3		45.9%
8.5	8.3	9.8	8.7	11.7	12.4	12.0		-38.5%
4.5	2.8	4.2	3.7	1.9	1.5	1.3		-64.3%
0.0	0.0	0.0	0.0	0.3	0.5	0.5		700.4%
10.2	10.8	11.8	14.0	11.5	10.5	10.2		100.6%
290.43	294.44	297.66	302.35	304.65	305.68	308.66		59.1%
<b>1.14</b>	<b>1.11</b>	<b>1.15</b>	<b>1.09</b>	<b>1.14</b>	<b>1.19</b>	<b>1.15</b>		<b>-4.7%</b>
<b>117.8</b>	<b>117.9</b>	<b>124.5</b>	<b>120.6</b>	<b>123.1</b>	<b>130.9</b>	<b>127.9</b>		<b>33.6%</b>
47.0	49.6	51.4	51.8	51.2	53.3	53.6		57.9%
62.3	60.1	63.9	58.3	62.6	67.7	64.8		32.8%
1.5	2.0	2.3	1.5	2.9	3.7	3.5		-61.9%
1.4	1.0	1.2	1.8	0.4	0.6	0.4		-76.1%
0.8	0.0	0.0	0.0	0.0	0.0	0.0		-100.0%
4.6	5.2	5.7	7.1	6.1	5.6	5.6		163.4%
90.11	92.73	94.42	96.15	97.07	98.02	98.82		45.0%
<b>1.31</b>	<b>1.27</b>	<b>1.32</b>	<b>1.25</b>	<b>1.27</b>	<b>1.34</b>	<b>1.29</b>		<b>-7.9%</b>

## Commercial/Institutional Sector

Commercial/Institutional Secondary Energy Use (Final Demand)  
by Activity Type and Energy Source (cont.)

	1990	1995	2005	2006	2007	2008
<b>Total Energy Use for Health Care and Social Assistance (PJ)<sup>a</sup></b>	<b>83.0</b>	<b>93.7</b>	<b>102.4</b>	<b>97.0</b>	<b>101.6</b>	<b>100.9</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	29.2	32.9	36.4	36.2	39.2	39.2
Natural Gas	41.8	46.7	53.1	50.0	51.2	52.0
Light Fuel Oil and Kerosene	8.5	8.3	6.3	5.0	5.1	3.7
Heavy Fuel Oil	1.6	1.2	3.3	2.6	2.4	1.9
Steam	0.0	0.0	0.3	0.3	0.4	0.4
Other <sup>1</sup>	1.9	4.6	3.0	3.0	3.4	3.6
<b>Activity</b>						
Floor Space (million m <sup>2</sup> ) <sup>b</sup>	38.16	41.58	47.42	48.53	49.47	50.08
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a,b</sup></b>	<b>2.18</b>	<b>2.25</b>	<b>2.16</b>	<b>2.00</b>	<b>2.05</b>	<b>2.01</b>
<b>Total Energy Use for Arts, Entertainment and Recreation (PJ)<sup>a</sup></b>	<b>16.5</b>	<b>20.9</b>	<b>23.3</b>	<b>22.1</b>	<b>23.6</b>	<b>23.5</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	6.0	7.5	8.5	8.5	9.5	9.5
Natural Gas	8.3	10.3	11.8	11.1	11.5	11.9
Light Fuel Oil and Kerosene	1.7	1.9	1.5	1.2	1.0	0.6
Heavy Fuel Oil	0.3	0.2	0.5	0.4	0.4	0.3
Steam	0.0	0.0	0.0	0.0	0.1	0.1
Other <sup>1</sup>	0.3	1.0	0.9	0.9	1.0	1.1
<b>Activity</b>						
Floor Space (million m <sup>2</sup> ) <sup>b</sup>	10.40	12.59	14.92	15.25	15.70	15.98
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a,b</sup></b>	<b>1.59</b>	<b>1.66</b>	<b>1.56</b>	<b>1.45</b>	<b>1.50</b>	<b>1.47</b>

1) "Other" includes coal and propane.

## Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Informetrica Limited, *The Informetrica Model*, 1990–2011. Data for 2012 onward are provided by Environment and Climate Change Canada. They assumed responsibility for operating *The Informetrica Model* as Informetrica Limited ceased its operations.

## Commercial/Institutional Sector

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	<b>100.8</b>	<b>100.7</b>	<b>107.0</b>	<b>104.9</b>	<b>110.4</b>	<b>120.0</b>	<b>120.5</b>	<b>45.2%</b>
	38.8	41.0	42.9	44.1	44.4	46.9	48.5	66.0%
	54.0	51.8	54.8	50.6	56.0	62.0	61.1	46.0%
	2.7	2.8	3.2	2.8	4.9	6.0	6.0	-30.0%
	1.4	1.4	1.9	1.8	0.3	0.4	0.3	-79.8%
	0.7	0.0	0.0	0.0	0.0	0.0	0.0	–
	3.3	3.8	4.3	5.6	4.8	4.6	4.6	147.8%
	50.99	52.36	53.41	55.12	57.72	59.72	61.63	61.5%
	<b>1.98</b>	<b>1.92</b>	<b>2.00</b>	<b>1.90</b>	<b>1.91</b>	<b>2.01</b>	<b>1.96</b>	<b>-10.1%</b>
	<b>23.9</b>	<b>23.7</b>	<b>24.9</b>	<b>24.1</b>	<b>24.7</b>	<b>26.2</b>	<b>25.9</b>	<b>56.5%</b>
	9.5	10.0	10.3	10.4	10.3	10.6	10.8	81.6%
	12.7	12.1	12.8	11.8	12.6	13.7	13.3	60.6%
	0.4	0.4	0.5	0.4	0.6	0.8	0.7	-57.0%
	0.2	0.1	0.1	0.2	0.0	0.0	0.0	-85.7%
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
	1.0	1.2	1.2	1.4	1.2	1.0	1.0	198.9%
	16.40	16.72	17.00	17.29	17.59	17.71	18.06	73.6%
	<b>1.46</b>	<b>1.42</b>	<b>1.47</b>	<b>1.39</b>	<b>1.40</b>	<b>1.48</b>	<b>1.43</b>	<b>-9.9%</b>

## Commercial/Institutional Sector

Commercial/Institutional Secondary Energy Use (Final Demand)  
by Activity Type and Energy Source (cont.)

	1990	1995	2005	2006	2007	2008
<b>Total Energy Use for Accommodation and Food Services (PJ)<sup>a</sup></b>	<b>54.9</b>	<b>61.8</b>	<b>68.9</b>	<b>66.1</b>	<b>69.3</b>	<b>70.2</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	19.0	21.2	24.2	24.4	26.5	27.1
Natural Gas	29.1	32.2	35.5	33.8	34.6	35.9
Light Fuel Oil and Kerosene	4.4	4.3	4.4	3.6	3.4	2.3
Heavy Fuel Oil	0.8	0.6	1.9	1.5	1.4	1.0
Steam	0.0	0.0	0.1	0.1	0.2	0.2
Other <sup>1</sup>	1.5	3.6	2.9	2.7	3.3	3.7
<b>Activity</b>						
Floor Space (million m <sup>2</sup> ) <sup>b</sup>	24.40	26.76	31.41	32.42	33.02	34.16
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a,b</sup></b>	<b>2.25</b>	<b>2.31</b>	<b>2.19</b>	<b>2.04</b>	<b>2.10</b>	<b>2.05</b>
<b>Total Energy Use for Other Services (PJ)<sup>a</sup></b>	<b>16.5</b>	<b>17.9</b>	<b>18.1</b>	<b>16.8</b>	<b>17.3</b>	<b>17.0</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	5.9	6.4	6.6	6.4	6.8	6.8
Natural Gas	8.2	8.8	10.0	9.0	9.0	8.9
Light Fuel Oil and Kerosene	1.8	1.6	0.5	0.3	0.3	0.2
Heavy Fuel Oil	0.3	0.2	0.4	0.4	0.4	0.3
Steam	0.0	0.0	0.0	0.0	0.1	0.1
Other <sup>1</sup>	0.4	0.8	0.6	0.6	0.7	0.7
<b>Activity</b>						
Floor Space (million m <sup>2</sup> ) <sup>b</sup>	12.54	13.07	13.47	13.49	13.46	13.46
<b>Energy Intensity (GJ/m<sup>2</sup>)<sup>a,b</sup></b>	<b>1.32</b>	<b>1.37</b>	<b>1.34</b>	<b>1.24</b>	<b>1.28</b>	<b>1.26</b>

1) "Other" includes coal and propane.

## Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Informetrica Limited, *The Informetrica Model*, 1990–2011. Data for 2012 onward are provided by Environment and Climate Change Canada. They assumed responsibility for operating *The Informetrica Model* as Informetrica Limited ceased its operations.

## Commercial/Institutional Sector

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	<b>70.8</b>	<b>70.2</b>	<b>74.1</b>	<b>71.5</b>	<b>72.7</b>	<b>76.9</b>	<b>75.9</b>	<b>38.2%</b>
	27.0	28.4	29.2	29.3	28.6	29.6	30.1	58.4%
	38.1	36.0	38.2	35.4	37.6	40.7	39.2	34.7%
	1.6	1.6	1.8	1.7	2.7	3.0	3.0	-32.9%
	0.7	0.5	0.8	0.6	0.1	0.1	0.1	-87.2%
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
	3.4	3.8	4.1	4.5	3.8	3.5	3.5	131.9%
	35.03	35.71	36.26	36.73	37.28	37.59	38.36	57.2%
	<b>2.02</b>	<b>1.97</b>	<b>2.04</b>	<b>1.95</b>	<b>1.95</b>	<b>2.05</b>	<b>1.98</b>	<b>-12.1%</b>
	<b>16.7</b>	<b>16.2</b>	<b>16.8</b>	<b>15.9</b>	<b>16.0</b>	<b>16.7</b>	<b>16.0</b>	<b>-3.3%</b>
	6.7	6.8	6.9	6.8	6.6	6.8	6.7	13.0%
	9.1	8.5	8.8	8.0	8.5	9.0	8.4	3.4%
	0.1	0.2	0.3	0.2	0.3	0.4	0.3	-81.0%
	0.2	0.1	0.1	0.2	0.0	0.0	0.0	-90.7%
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
	0.7	0.6	0.7	0.8	0.6	0.5	0.5	40.9%
	13.45	13.38	13.34	13.29	13.10	12.97	12.84	2.4%
	<b>1.24</b>	<b>1.21</b>	<b>1.26</b>	<b>1.20</b>	<b>1.22</b>	<b>1.29</b>	<b>1.25</b>	<b>-5.6%</b>

## Commercial/Institutional Energy Prices and Background Indicators

	1990	1995	2005	2006	2007	2008
<b>Energy Prices by Energy Source (incl. taxes)</b>						
Natural Gas (cents/m <sup>3</sup> ) <sup>a,d</sup>	15.3	17.7	43.4	46.0	42.0	46.4
Light Fuel Oil (cents/litre) <sup>e</sup>	25.8	22.1	61.9	64.2	68.6	94.3
Heavy Fuel Oil (cents/litre) <sup>e</sup>	14.1	16.2	38.2	39.2	44.3	57.6
Electricity (40 kW/10,000 kWh) <sup>1</sup> (cents/kWh) <sup>b,d</sup>	7.6	9.4	10.1	10.3	10.7	10.9
Electricity (500 kW/100,000 kWh) <sup>1</sup> (cents/kWh) <sup>b,d</sup>	8.1	10.0	11.5	11.2	11.4	12.2
<b>Background Indicators</b>						
Commercial/Institutional Floor Space (million m <sup>2</sup> ) <sup>c</sup>	509.9	558.7	654.2	667.3	679.7	693.2
Commercial/Institutional Employees (thousands) <sup>f</sup>	8,708	9,191	11,369	11,678	12,034	12,236
Employees (per thousand m <sup>2</sup> ) <sup>c,f</sup>	17.1	16.4	17.4	17.5	17.7	17.7
Commercial/Institutional GDP (million \$ 2007) <sup>g</sup>	553,450	613,500	872,436	907,354	937,792	955,434

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

## Sources:

- a) Statistics Canada, *Sales of natural gas*, CANSIM (Table 129-0003), Ottawa, 2017  
b) Hydro-Québec, *Comparison of Electricity Prices in Major North American Cities*, 2015.  
c) Informetrica Limited, *The Informetrica Model*, 1990–2011. Data for 2012 onward are provided by Environment and Climate Change Canada. They assumed responsibility for operating *The Informetrica Model* as Informetrica Limited ceased its operations.  
d) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
e) Natural Resources Canada, Petroleum Resources Branch, Pipelines, Gas and LNG Division, Ottawa, 2017.  
f) Statistics Canada, *Labour Force Survey*, CANSIM (Table 282-0008), and *Survey of Employment, Payrolls and Hours*, CANSIM (Tables 281-0005 and 281-0024), Ottawa, 2017.  
g) Statistics Canada, *Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS)* CANSIM (Table 379-0031), Ottawa, 2017. Data prior to 1997 were estimated by Natural Resources Canada using GDP at basic prices, CANSIM (Table 379-0027).

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
37.8	38.0	33.8	31.0	31.4	35.9	34.2	122.7%
60.9	70.5	94.6	96.9	98.5	99.3	76.4	196.8%
46.1	54.7	72.2	77.0	74.2	72.2	55.6	296.1%
10.7	10.8	12.4	12.3	12.7	12.9	13.5	78.5%
11.3	12.3	13.2	14.0	15.3	15.0	14.0	72.1%
703.8	713.9	721.6	732.1	739.0	743.3	751.5	47.4%
12,241	12,481	12,629	12,763	12,953	13,064	13,215	51.8%
17.4	17.5	17.5	17.4	17.5	17.6	17.6	3.0%
956,078	978,056	1,004,582	1,023,114	1,046,637	1,070,748	1,092,747	97.4%

## Chapter 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 and Demand in Canada* (RES-D) (Cat. No. 57-003-X). The RES-D 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 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)<sup>1</sup> 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 used 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 Energy End-Use Data and Analysis Centre (CIEEDAC). The OEE also updates its energy end-use database by including energy consumption data from the Annual Census of Mines and other industry associations.

*Gross domestic product (GDP) at basic prices* are from Statistics Canada's CANSIM Table 379-0031, Ottawa, 2017; data prior to 1997 were estimated by the CIEEDAC.

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<sup>1</sup> From 1991 to 1994, not all of the 59 industries are available because of the conversion to the North American Industrial Classification System (NAICS) in 2001.

## Industrial Sector

Industrial oil and natural gas prices are weighted averages of regional prices. Heating oil prices are provided by the Petroleum Resources Branch of Natural Resources Canada. Natural gas prices are from Statistics Canada's CANSIM Table 129-0003. 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.*

### Industrial Secondary Energy Use (Final Demand) and GHG Emissions by Energy Source

	1990	1995	2005	2006	2007	2008
<b>Total Energy Use (PJ)<sup>a,d</sup></b>	<b>2,710.0</b>	<b>3,017.3</b>	<b>3,305.9</b>	<b>3,306.8</b>	<b>3,434.8</b>	<b>3,294.0</b>
<b>Energy Use by Energy Source (PJ)<sup>a,d</sup></b>						
Electricity	658.4	732.8	841.8	833.7	819.1	794.5
Natural Gas	837.2	909.6	904.3	895.5	1,036.3	1,036.7
Diesel Fuel Oil, Light Fuel Oil and Kerosene	127.7	114.6	169.6	172.7	185.5	189.5
Heavy Fuel Oil	201.1	147.2	134.5	118.7	119.7	101.3
Still Gas and Petroleum Coke	309.9	412.0	469.8	509.0	526.4	473.7
LPG and Gas Plant NGL	26.0	32.3	46.0	48.7	51.9	55.3
Coal	49.4	46.9	52.8	57.4	57.5	57.1
Coke and Coke Oven Gas	131.3	134.4	125.5	134.6	126.4	125.8
Wood Waste and Pulping Liquor	341.0	457.6	523.2	498.8	477.0	426.9
Other <sup>1</sup>	27.9	30.1	38.4	38.0	35.3	33.2
<b>Activity</b>						
GDP (million \$2007) <sup>b,d</sup>	291,400	311,745	414,589	418,352	418,169	407,172
<b>Energy Intensity (MJ/\$2007 – GDP)<sup>a,b,d</sup></b>	<b>9.3</b>	<b>9.7</b>	<b>8.0</b>	<b>7.9</b>	<b>8.2</b>	<b>8.1</b>

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

#### Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Statistics Canada, *Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS)* CANSIM (Table 379-0031), Ottawa, 2017. Data prior to 1997 were estimated by Canadian Industrial Energy End-Use Data and Analysis Centre, 1990 to 2015, Simon Fraser University, 2017 and Natural Resources Canada.  
d) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2015*, Simon Fraser University, 2017.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	<b>3,136.0</b>	<b>3,237.0</b>	<b>3,321.5</b>	<b>3,415.9</b>	<b>3,525.1</b>	<b>3,584.4</b>	<b>3,540.5</b>	<b>30.6%</b>
	720.8	729.8	730.5	721.4	722.8	720.8	711.3	8.0%
	1,006.8	1,111.3	1,185.0	1,292.6	1,428.1	1,476.0	1,508.1	80.1%
	174.6	210.7	225.8	221.1	222.5	208.2	212.2	66.2%
	89.7	60.4	44.7	43.9	42.1	40.4	30.5	-84.8%
	512.6	500.9	500.5	498.0	476.7	468.3	470.8	51.9%
	50.8	59.7	64.7	77.7	66.5	63.0	60.0	130.7%
	48.2	54.2	56.3	54.0	46.5	43.7	43.0	-12.9%
	97.7	109.8	120.4	120.0	99.1	103.4	X	–
	394.0	374.9	363.7	356.3	390.8	423.2	387.5	13.6%
	40.9	25.3	30.0	31.0	30.0	37.5	27.2	-2.7%
	362,958	384,636	402,490	410,780	417,281	431,486	424,825	45.8%
	<b>8.6</b>	<b>8.4</b>	<b>8.3</b>	<b>8.3</b>	<b>8.5</b>	<b>8.3</b>	<b>8.3</b>	<b>-10.4%</b>

### Industrial Secondary Energy Use (Final Demand) and GHG Emissions by Energy Source (cont.)

	1990	1995	2005	2006	2007	2008
<b>Total GHG Emissions Including Electricity (Mt of CO<sub>2</sub>e)<sup>a,c,d</sup></b>	<b>141.5</b>	<b>148.0</b>	<b>166.6</b>	<b>167.4</b>	<b>177.8</b>	<b>169.6</b>
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)<sup>a,c,d</sup></b>						
Electricity	37.0	37.0	47.1	45.3	44.7	40.9
Natural Gas	43.6	47.3	49.4	49.3	58.6	58.7
Diesel Fuel Oil, Light Fuel Oil and Kerosene	9.3	8.4	12.5	12.8	13.7	14.1
Heavy Fuel Oil	15.3	11.2	10.1	8.9	9.0	7.6
Still Gas and Petroleum Coke	17.6	24.3	27.7	29.5	30.6	27.2
LPG and Gas Plant NGL	1.6	2.0	2.8	3.0	3.2	3.4
Coal	4.5	4.3	4.7	5.1	5.1	5.1
Coke and Coke Oven Gas	12.2	12.9	11.7	12.7	12.1	12.0
Wood Waste and Pulping Liquor	0.2	0.3	0.4	0.4	0.3	0.3
Other <sup>1</sup>	0.1	0.3	0.2	0.4	0.5	0.4
<b>GHG Intensity (tonne/TJ)<sup>a,c,d</sup></b>	<b>52.2</b>	<b>49.1</b>	<b>50.4</b>	<b>50.6</b>	<b>51.8</b>	<b>51.5</b>
<b>Total GHG Emissions Excluding Electricity (Mt of CO<sub>2</sub>e)<sup>a,c,d</sup></b>	<b>104.5</b>	<b>111.0</b>	<b>119.5</b>	<b>122.0</b>	<b>133.2</b>	<b>128.7</b>
<b>GHG Intensity (tonne/TJ)<sup>a,c,d</sup></b>	<b>38.5</b>	<b>36.8</b>	<b>36.1</b>	<b>36.9</b>	<b>38.8</b>	<b>39.1</b>

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

#### Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
 c) Environment and Climate Change Canada, *National Inventory Report 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.  
 d) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2015*, Simon Fraser University, 2017.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	158.3	169.0	169.5	175.3	179.0	177.9	177.6	25.5%
	34.0	35.6	31.1	28.6	28.9	26.7	26.0	-29.8%
	57.5	63.5	67.7	74.1	82.3	85.1	87.1	99.6%
	13.0	15.6	16.8	16.4	16.5	15.4	15.8	69.5%
	6.7	4.5	3.4	3.3	3.2	3.0	2.3	-85.1%
	29.6	29.7	29.5	31.3	30.2	29.4	29.7	68.8%
	3.1	3.7	4.0	4.8	4.1	3.9	3.7	132.3%
	4.4	4.9	5.2	4.9	4.3	4.0	3.9	-12.8%
	9.3	10.5	11.4	11.3	9.1	9.7	X	–
	0.3	0.3	0.3	0.2	0.3	0.3	0.3	25.0%
	0.5	0.7	0.4	0.4	0.3	0.3	0.3	133.3%
	50.5	52.2	51.0	51.3	50.8	49.6	50.2	-3.9%
	124.3	133.4	138.4	146.7	150.1	151.2	151.6	45.2%
	39.6	41.2	41.7	43.0	42.6	42.2	42.8	11.1%

## Industrial Secondary Energy Use (Final Demand) by Industry

	1990	1995	2005	2006	2007	2008
<b>Total Energy Use (PJ)<sup>a,c</sup></b>	<b>2,710.0</b>	<b>3,017.3</b>	<b>3,305.9</b>	<b>3,306.8</b>	<b>3,434.8</b>	<b>3,294.0</b>
<b>Energy Use by Industry (PJ)<sup>a,c</sup></b>						
Copper, Nickel, Lead and Zinc Mines	36.6	29.2	24.4	23.2	24.8	27.9
Iron Mines	39.8	37.3	32.3	31.1	28.8	40.7
Gold and Silver Mines	13.2	12.6	13.0	12.6	12.9	13.0
Other Metal Mines	9.1	5.6	6.6	6.7	6.9	7.3
Salt Mines	2.9	3.4	2.5	2.6	2.5	2.6
Potash Mines	27.4	31.8	28.6	34.0	35.4	33.3
Other Non-Metal Mines	8.0	6.3	9.2	9.3	9.0	10.7
Upstream Mining	210.7	319.8	550.3	592.6	742.9	736.5
Fruit and Vegetable Industries	9.2	9.9	14.5	14.1	15.0	13.6
Dairy Products Industry	11.8	10.5	10.7	10.2	10.1	10.2
Meat Products Industries	12.6	13.1	18.5	19.0	19.3	22.7
Bakery Products Industries	9.2	6.4	9.6	9.7	10.6	10.6
Beverage Industries (excluding breweries)	3.3	5.4	6.5	6.1	6.5	5.9
Breweries Industries	7.8	6.1	5.2	4.2	4.4	4.4
Tobacco Products Industries	1.3	1.0	0.8	0.7	0.5	0.3
Textile Mills	14.0	14.7	7.7	7.4	6.7	5.3
Textile Products Mills	6.8	7.0	3.6	3.0	3.1	2.8
Clothing Industries	6.0	5.3	2.2	1.8	1.6	1.7
Leather and Allied Products Industries	1.4	1.0	0.3	0.2	0.3	0.3
Wood Products Industries	44.5	47.7	50.8	51.6	54.6	57.1
Pulp Mills	300.2	370.6	346.8	319.6	317.1	270.1
Paper Mills (except newsprint)	99.8	107.3	120.9	88.2	85.2	76.5
Newsprint Mills	247.7	272.3	213.7	195.0	187.6	160.8
Paperboard Mills	62.6	65.2	65.2	56.9	50.0	49.2
Other Pulp and Paper Manufacturing	18.0	17.1	80.8	90.0	84.6	75.9
Converted Paper Products Industry	11.2	11.1	20.1	16.6	19.4	16.3
Printing and Related Support Activities	10.9	7.9	8.9	8.5	8.8	10.8
Petroleum Refining	323.3	356.3	356.9	371.3	380.0	346.6

## Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
 c) Environment and Climate Change Canada, *National Inventory Report 1990-2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	<b>3,136.0</b>	<b>3,237.0</b>	<b>3,321.5</b>	<b>3,415.9</b>	<b>3,525.1</b>	<b>3,584.4</b>	<b>3,540.5</b>	<b>30.6%</b>
	23.7	25.4	26.4	29.7	31.0	31.9	32.3	-11.6%
	44.3	38.7	30.9	34.2	37.4	38.3	35.6	-10.4%
	14.1	14.6	16.2	18.3	23.5	26.6	26.8	103.8%
	5.8	5.7	6.5	7.3	7.8	9.5	6.9	-24.5%
	2.8	2.2	2.1	2.1	2.3	2.6	2.4	-17.0%
	18.0	23.2	38.7	35.8	31.3	31.0	32.9	19.9%
	9.5	9.4	9.1	8.8	8.4	8.5	8.6	7.9%
	824.8	892.3	918.4	1,019.9	1,102.6	1,127.5	1,190.9	465.2%
	15.4	14.5	14.4	14.7	12.9	14.2	14.1	53.5%
	10.4	10.5	10.6	10.1	11.0	11.5	11.6	-1.7%
	26.6	24.8	25.7	27.9	26.6	22.1	19.4	54.2%
	11.4	9.8	9.2	10.9	10.8	9.1	8.7	-4.8%
	6.4	7.3	6.3	6.1	6.2	7.3	4.3	27.5%
	3.9	3.6	3.3	3.3	3.3	3.3	3.4	-56.3%
	0.2	0.4	0.4	0.3	0.4	0.4	0.3	-74.6%
	3.9	4.1	3.8	4.1	4.2	3.1	3.3	-76.1%
	2.2	2.5	2.4	2.4	2.9	2.9	2.5	-62.8%
	1.3	1.4	1.5	1.7	1.7	1.5	1.3	-78.8%
	0.3	0.3	0.3	0.2	0.3	0.3	0.3	-80.1%
	50.6	62.3	64.4	65.1	58.9	61.1	67.7	52.1%
	255.1	235.6	235.5	230.3	235.8	269.8	288.3	-4.0%
	87.2	86.9	89.6	92.7	69.7	91.0	77.9	-22.0%
	124.0	119.3	103.1	94.3	117.4	91.8	88.9	-64.1%
	44.6	47.8	51.1	46.1	40.7	36.2	33.9	-45.8%
	68.3	63.6	62.0	61.3	96.5	87.7	68.6	281.9%
	23.0	18.4	16.3	15.6	18.0	18.1	13.2	17.7%
	12.2	11.4	10.8	10.2	10.7	7.2	5.2	-52.2%
	338.7	343.8	339.3	342.8	321.0	319.0	305.1	-5.6%

## Industrial Secondary Energy Use (Final Demand) by Industry (cont.)

	1990	1995	2005	2006	2007	2008
Petrochemical Industry	32.3	34.2	63.3	61.2	62.5	60.9
Industrial Gas Industry	5.9	5.8	8.4	13.7	14.6	12.1
Alkali and chlorine manufacturing	30.4	30.1	17.1	15.0	9.7	8.8
All other basic inorganic chemical manufacturing	28.7	30.9	37.7	34.1	32.2	30.9
Chemical fertilizer (except potash) manufacturing	31.9	55.9	54.3	56.0	54.3	50.5
Other Chemical Manufacturing	94.0	91.3	55.4	68.0	69.7	78.4
Resin and Synthetic Rubber Industries	48.3	30.8	24.8	33.4	34.6	38.3
Motor Vehicle Plastic Parts Manufacturing	2.8	2.7	4.7	4.5	4.2	4.1
Rubber Products Industries	9.7	10.0	10.4	9.7	10.2	9.6
Cement Industry	59.3	61.9	71.4	75.7	67.5	65.3
Iron and Steel	219.4	247.0	239.7	252.0	253.9	246.9
Primary Production of Alumina and Aluminum	109.8	138.2	187.3	188.5	192.3	195.4
Other Non-Ferrous Smelting and Refining	73.5	81.0	73.8	74.4	63.8	66.0
Fabricated Metal Products Industries	37.4	36.6	40.8	38.6	42.1	46.5
Machinery Industries	12.2	13.8	18.0	16.8	18.8	18.5
Computer and Electronic Products Industries	4.6	5.9	5.6	5.4	6.2	6.0
Electrical Equipment and Components Industries	8.6	7.9	7.3	6.8	6.9	6.7
Motor Vehicle Industry	18.7	24.9	22.6	21.1	21.7	20.2
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	3.1	2.9	3.5	3.1	3.4	2.8
Motor Vehicle Electrical and Electronic Equipment Manufacturing	0.3	0.3	0.6	0.3	0.5	0.4
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	2.1	2.1	1.4	1.3	1.4	1.1
Motor Vehicle Brake System Manufacturing	1.8	2.2	1.2	0.9	0.7	0.8
Motor Vehicle Transmission and Power Train Parts Manufacturing	3.0	2.0	3.7	3.5	3.4	3.0

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	56.2	44.1	56.7	52.9	59.7	62.8	57.4	77.6%
	15.0	18.8	17.7	25.8	25.7	36.0	35.8	503.0%
	8.1	2.8	3.1	3.0	3.1	3.1	2.8	-91.0%
	27.3	28.2	30.5	30.7	29.3	32.8	31.6	10.4%
	45.9	53.7	58.8	59.2	68.8	64.4	66.1	107.1%
	79.1	101.0	104.9	100.8	97.9	93.3	101.6	8.1%
	40.2	49.7	57.3	53.2	54.1	45.2	42.7	-11.7%
	2.8	4.0	4.3	3.6	3.4	3.8	4.4	58.4%
	9.2	9.0	8.8	8.7	8.1	8.3	7.7	-20.2%
	62.0	59.5	58.0	57.0	54.9	57.1	57.3	-3.5%
	187.4	213.2	227.0	231.1	214.8	231.0	202.8	-7.5%
	173.0	176.4	187.5	175.9	179.4	187.9	184.9	68.4%
	54.8	63.4	61.3	53.7	45.9	41.4	45.1	-38.7%
	37.4	36.7	39.1	40.5	39.4	33.8	31.9	-14.6%
	16.6	17.5	18.8	21.6	22.4	23.1	20.9	71.1%
	5.3	6.1	6.4	7.1	6.4	6.4	6.6	41.5%
	5.5	5.5	5.3	5.7	6.6	7.1	6.2	-27.4%
	15.6	16.0	17.0	16.3	16.6	16.7	16.2	-13.1%
	2.2	1.9	2.4	2.4	1.9	2.4	2.3	-26.8%
	0.3	0.5	0.4	0.4	0.4	0.3	0.2	-16.0%
	1.3	0.7	1.2	1.1	1.0	1.3	0.9	-60.3%
	0.5	0.4	0.4	0.4	0.4	0.4	0.5	-75.3%
	2.2	2.3	1.8	3.6	1.9	2.1	2.4	-18.1%

## Industrial Secondary Energy Use (Final Demand) by Industry (cont.)

	1990	1995	2005	2006	2007	2008
Motor Vehicle Seating and Interior Trim Manufacturing	1.2	1.2	1.9	1.8	1.7	1.5
Motor Vehicle Metal Stamping	3.3	3.5	3.8	3.7	3.8	3.8
Other Motor Vehicle Parts Manufacturing	3.3	3.2	5.1	4.5	4.9	5.4
Furniture and Related Products Industries	6.8	6.8	11.7	10.1	11.2	12.1
Miscellaneous Manufacturing	4.7	4.1	6.1	4.8	6.4	7.3
Other Manufacturing n.e.c.	229.4	242.1	214.1	209.0	199.1	172.3
Construction	66.9	48.6	71.0	72.1	74.7	74.9
Forestry	7.7	7.9	28.8	31.3	30.0	30.9

## Activity

GDP (million \$2007) <sup>b,d</sup>	291,400	311,745	414,589	418,352	418,169	407,172
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Energy Intensity (MJ/\$2007 – GDP) <sup>a,b,c</sup>	9.3	9.7	8.0	7.9	8.2	8.1
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## Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Statistics Canada, *Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS)* CANSIM (Table 379-0031), Ottawa, 2017. Data prior to 1997 were estimated by Canadian Industrial Energy End-Use Data and Analysis Centre, 1990 to 2015, Simon Fraser University, 2017 and Natural Resources Canada.  
c) Environment and Climate Change Canada, *National Inventory Report 1990-2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.  
d) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2015*, Simon Fraser University, 2017.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
1.4	1.7	1.6	1.5	1.4	1.6	1.2	-2.5%
2.8	3.2	3.1	3.2	3.1	2.7	2.6	-21.2%
4.6	3.7	2.9	2.9	2.8	2.9	3.0	-8.5%
11.1	10.4	10.5	9.8	10.1	8.9	9.2	35.4%
8.2	8.0	8.0	7.3	7.6	6.6	5.7	21.1%
143.8	123.3	130.2	139.4	166.6	173.3	134.6	-41.3%
66.1	73.3	78.8	82.0	79.3	76.5	82.2	22.8%
21.4	22.3	19.8	19.0	19.1	18.4	19.7	154.4%

362,958	384,636	402,490	410,780	417,281	431,486	424,825	45.8%
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8.6	8.4	8.3	8.3	8.5	8.3	8.3	-10.4%
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Industrial GHG Emissions by Industry – Including Electricity-Related Emissions<sup>1</sup>

	1990	1995	2005	2006	2007	2008
<b>Total GHG Emissions Including Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>141.5</b>	<b>148.0</b>	<b>166.6</b>	<b>167.4</b>	<b>177.8</b>	<b>169.6</b>
<b>GHG Emissions by Industry (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>						
Copper, Nickel, Lead and Zinc Mines	2.3	1.7	1.6	1.5	1.6	1.7
Iron Mines	3.1	2.7	2.3	2.3	2.1	2.9
Gold and Silver Mines	0.8	0.7	0.8	0.8	0.8	0.8
Other Metal Mines	0.6	0.3	0.4	0.4	0.4	0.5
Salt Mines	0.2	0.2	0.2	0.2	0.2	0.2
Potash Mines	1.8	2.1	1.9	2.2	2.3	2.1
Other Non-Metal Mines	0.5	0.4	0.7	0.7	0.7	0.8
Upstream Mining	13.2	19.6	34.5	37.0	47.2	46.7
Fruit and Vegetable Industries	0.5	0.6	0.8	0.8	0.9	0.8
Dairy Products Industry	0.7	0.5	0.6	0.5	0.5	0.5
Meat Products Industries	0.7	0.7	1.0	1.0	1.0	1.2
Bakery Products Industries	0.5	0.3	0.5	0.5	0.6	0.5
Beverage Industries (excluding breweries)	0.2	0.3	0.4	0.3	0.3	0.3
Breweries Industries	0.4	0.3	0.3	0.2	0.2	0.2
Tobacco Products Industries	0.1	0.1	0.0	0.0	0.0	0.0
Textile Mills	0.7	0.8	0.4	0.4	0.4	0.3
Textile Products Mills	0.4	0.4	0.2	0.2	0.2	0.1
Clothing Industries	0.3	0.3	0.1	0.1	0.1	0.1
Leather and Allied Products Industries	0.1	0.1	0.0	0.0	0.0	0.0
Wood Products Industries	1.6	1.6	1.8	1.7	1.9	1.8
Pulp Mills	6.7	6.0	5.7	5.3	5.2	4.2
Paper Mills (except newsprint)	3.4	3.1	3.5	2.8	2.7	2.4
Newsprint Mills	11.3	10.5	8.2	6.9	6.8	5.3
Paperboard Mills	2.2	2.0	1.8	1.7	1.5	1.5
Other Pulp and Paper Manufacturing	0.9	0.9	0.8	0.9	1.0	0.8

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

## Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Environment and Climate Change Canada, *National Inventory Report 1990-2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.  
c) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2015*, Simon Fraser University, 2017.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
158.3	169.0	169.5	175.3	179.0	177.9	177.6	25.5%
1.4	1.5	1.5	1.7	1.8	1.8	1.8	-23.1%
3.2	2.7	2.0	2.2	2.3	2.4	2.2	-28.9%
0.8	0.9	0.9	1.0	1.3	1.4	1.4	75.6%
0.4	0.3	0.4	0.4	0.4	0.5	0.4	-36.2%
0.2	0.1	0.1	0.1	0.1	0.2	0.1	-30.0%
1.1	1.4	2.4	2.2	1.8	1.8	1.9	3.3%
0.7	0.7	0.6	0.6	0.6	0.6	0.6	14.8%
51.9	56.8	58.1	65.2	70.8	71.9	75.9	474.8%
0.8	0.8	0.8	0.7	0.6	0.6	0.7	27.5%
0.5	0.5	0.5	0.5	0.5	0.5	0.5	-18.5%
1.3	1.2	1.2	1.3	1.3	1.0	0.9	29.4%
0.6	0.5	0.4	0.5	0.5	0.4	0.4	-20.8%
0.3	0.4	0.3	0.3	0.3	0.3	0.2	5.6%
0.2	0.2	0.2	0.2	0.2	0.2	0.2	-61.0%
0.0	0.0	0.0	0.0	0.0	0.0	0.0	-85.7%
0.2	0.2	0.2	0.2	0.2	0.1	0.2	-79.7%
0.1	0.1	0.1	0.1	0.1	0.1	0.1	-66.7%
0.1	0.1	0.1	0.1	0.1	0.1	0.1	-81.3%
0.0	0.0	0.0	0.0	0.0	0.0	0.0	-85.7%
1.4	1.7	1.6	1.7	1.6	1.5	1.5	-3.9%
3.8	3.9	3.6	3.4	3.5	3.8	4.0	-40.8%
2.5	2.2	2.1	1.8	1.8	2.0	1.7	-50.1%
3.8	3.7	3.0	2.7	3.0	2.3	2.2	-80.4%
1.2	1.2	1.4	1.3	1.2	1.0	0.9	-59.4%
1.1	0.9	0.8	0.7	0.9	0.8	0.6	-28.2%

Industrial GHG Emissions by Industry – Including Electricity-Related Emissions<sup>1</sup> (cont.)

	1990	1995	2005	2006	2007	2008
Converted Paper Products Industry	0.6	0.6	1.0	0.8	1.0	0.8
Printing and Related Support Activities	0.6	0.4	0.5	0.5	0.5	0.6
Petroleum Refining	18.2	20.7	20.9	21.1	21.7	19.2
Petrochemical Industry	1.7	1.6	2.8	2.7	2.8	2.8
Industrial Gas Industry	0.3	0.3	0.5	0.7	0.8	0.6
Alkali and chlorine manufacturing	1.6	1.5	1.0	0.8	0.4	0.4
All other basic inorganic chemical manufacturing	1.6	1.4	2.0	1.8	1.7	1.6
Chemical fertilizer (except potash) manufacturing	1.6	2.8	2.7	2.8	2.8	2.5
Other Chemical Manufacturing	4.0	4.3	2.9	3.6	3.7	4.0
Resin and Synthetic Rubber Industries	2.5	1.4	1.1	1.5	1.6	1.7
Motor Vehicle Plastic Parts Manufacturing	0.2	0.1	0.3	0.2	0.2	0.2
Rubber Products Industries	0.6	0.5	0.6	0.5	0.6	0.5
Cement Industry	4.4	4.7	5.8	6.2	5.5	5.3
Iron and Steel	16.5	18.2	17.4	18.6	18.8	18.1
Primary Production of Alumina and Aluminum	6.2	7.1	10.6	10.3	10.6	10.2
Other Non-Ferrous Smelting and Refining	4.7	4.8	4.5	4.5	4.1	4.1
Fabricated Metal Products Industries	2.0	1.9	2.1	2.0	2.2	2.4
Machinery Industries	0.7	0.7	1.0	0.9	1.0	1.0
Computer and Electronic Products Industries	0.3	0.3	0.3	0.3	0.3	0.3
Electrical Equipment and Components Industries	0.5	0.4	0.4	0.4	0.4	0.3
Motor Vehicle Industry	1.0	1.3	1.2	1.1	1.1	1.0
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	0.2	0.1	0.2	0.2	0.2	0.1

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

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	1.1	0.9	0.7	0.7	0.8	0.8	0.6	-6.7%
	0.6	0.6	0.5	0.5	0.5	0.3	0.2	-62.1%
	18.8	19.8	19.1	20.3	19.1	18.9	18.1	-0.5%
	2.6	2.0	2.6	2.4	2.8	2.9	2.6	51.8%
	0.7	0.9	0.8	1.2	1.2	1.6	1.6	387.9%
	0.3	0.1	0.1	0.1	0.1	0.1	0.1	-93.9%
	1.3	1.4	1.3	1.3	1.3	1.3	1.2	-22.3%
	2.3	2.7	2.9	2.9	3.3	3.1	3.2	92.7%
	3.7	4.7	4.9	4.5	4.2	4.0	4.4	9.3%
	1.7	2.2	2.3	2.1	2.2	1.7	1.6	-36.1%
	0.1	0.2	0.2	0.2	0.2	0.2	0.2	26.7%
	0.5	0.5	0.5	0.4	0.4	0.4	0.4	-32.7%
	5.0	4.8	4.7	4.3	4.1	4.3	4.3	-2.3%
	13.6	15.6	16.5	16.6	14.7	15.8	13.9	-15.7%
	8.2	8.7	8.2	7.2	7.4	7.3	7.1	13.7%
	3.3	3.8	3.6	3.1	2.7	2.1	2.3	-51.1%
	1.8	1.8	1.9	1.9	1.8	1.5	1.4	-27.0%
	0.8	0.9	0.9	1.0	1.0	1.1	1.0	46.2%
	0.3	0.3	0.3	0.3	0.3	0.3	0.3	4.0%
	0.3	0.3	0.2	0.3	0.3	0.3	0.3	-43.5%
	0.8	0.8	0.8	0.7	0.8	0.7	0.7	-29.7%
	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-47.1%

Industrial GHG Emissions by Industry – Including Electricity-Related Emissions<sup>1</sup> (cont.)

	1990	1995	2005	2006	2007	2008
Motor Vehicle Electrical and Electronic Equipment Manufacturing	0.0	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	0.1
Motor Vehicle Brake System Manufacturing	0.1	0.1	0.1	0.1	0.0	0.0
Motor Vehicle Transmission and Power Train Parts Manufacturing	0.3	0.1	0.2	0.2	0.2	0.2
Motor Vehicle Seating and Interior Trim Manufacturing	0.1	0.1	0.1	0.1	0.1	0.1
Motor Vehicle Metal Stamping	0.2	0.2	0.2	0.2	0.2	0.2
Other Motor Vehicle Parts Manufacturing	0.2	0.2	0.3	0.2	0.3	0.3
Furniture and Related Products Industries	0.3	0.3	0.6	0.5	0.6	0.5
Miscellaneous Manufacturing	0.3	0.2	0.3	0.3	0.3	0.4
Other Manufacturing n.e.c.	12.3	11.8	9.8	8.8	8.5	7.2
Construction	4.3	3.2	4.7	4.8	5.0	5.0
Forestry	0.6	0.6	2.1	2.3	2.2	2.3
<b>GHG Intensity (tonne/TJ)<sup>a,b,c</sup></b>	<b>52.2</b>	<b>49.1</b>	<b>50.4</b>	<b>50.6</b>	<b>51.8</b>	<b>51.5</b>

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

## Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Environment and Climate Change Canada, *National Inventory Report 1990-2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.  
c) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2015*, Simon Fraser University, 2017.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
0.1	0.0	0.1	0.1	0.0	0.1	0.0	-63.6%
0.0	0.0	0.0	0.0	0.0	0.0	0.0	-80.0%
0.1	0.1	0.1	0.2	0.1	0.1	0.1	-60.0%
0.1	0.1	0.1	0.1	0.1	0.1	0.1	-16.7%
0.1	0.2	0.1	0.1	0.1	0.1	0.1	-38.9%
0.2	0.2	0.1	0.1	0.1	0.1	0.1	-31.6%
0.5	0.5	0.5	0.4	0.4	0.4	0.4	17.6%
0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.0%
5.5	5.8	6.1	6.4	6.8	6.1	5.9	-52.2%
4.5	4.9	5.3	5.5	5.4	5.1	5.6	27.9%
1.6	1.6	1.5	1.4	1.4	1.4	1.5	158.9%
<b>50.5</b>	<b>52.2</b>	<b>51.0</b>	<b>51.3</b>	<b>50.8</b>	<b>49.6</b>	<b>50.2</b>	<b>-3.9%</b>

Industrial GHG Emissions by Industry – Excluding Electricity-Related Emissions<sup>1</sup>

	1990	1995	2005	2006	2007	2008
<b>Total GHG Emissions Excluding Electricity (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>104.5</b>	<b>111.0</b>	<b>119.5</b>	<b>122.0</b>	<b>133.2</b>	<b>128.7</b>
<b>GHG Emissions by Industry (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>						
Copper, Nickel, Lead and Zinc Mines	1.1	0.8	0.8	0.8	0.9	1.0
Iron Mines	2.3	2.0	1.6	1.9	1.6	2.2
Gold and Silver Mines	0.4	0.4	0.3	0.3	0.3	0.3
Other Metal Mines	0.3	0.2	0.2	0.3	0.3	0.3
Salt Mines	0.2	0.2	0.1	0.1	0.1	0.1
Potash Mines	1.5	1.8	1.5	1.9	1.9	1.8
Other Non-Metal Mines	0.4	0.3	0.6	0.6	0.6	0.7
Upstream Mining	10.5	16.4	30.6	33.0	43.0	43.2
Fruit and Vegetable Industries	0.4	0.5	0.7	0.6	0.7	0.6
Dairy Products Industry	0.5	0.4	0.4	0.4	0.4	0.4
Meat Products Industries	0.5	0.5	0.7	0.7	0.7	0.7
Bakery Products Industries	0.4	0.3	0.4	0.3	0.3	0.3
Beverage Industries (excluding breweries)	0.1	0.2	0.3	0.3	0.3	0.2
Breweries Industries	0.3	0.3	0.2	0.2	0.2	0.2
Tobacco Products Industries	0.0	0.0	0.0	0.0	0.0	0.0
Textile Mills	0.5	0.5	0.2	0.2	0.2	0.2
Textile Products Mills	0.3	0.3	0.1	0.1	0.1	0.1
Clothing Industries	0.2	0.2	0.1	0.0	0.0	0.0
Leather and Allied Products Industries	0.0	0.0	0.0	0.0	0.0	0.0
Wood Products Industries	1.1	1.0	0.8	0.9	1.1	0.9
Pulp Mills	4.2	3.8	2.6	2.4	2.4	2.0
Paper Mills (except newsprint)	2.2	2.2	1.7	1.2	1.2	1.0
Newsprint Mills	5.6	4.6	2.1	1.7	1.7	1.1
Paperboard Mills	1.7	1.5	1.3	1.1	1.0	1.0
Other Pulp and Paper Manufacturing	0.9	0.2	0.6	0.6	0.7	0.6

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

## Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Environment and Climate Change Canada, *National Inventory Report 1990-2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.  
c) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2015*, Simon Fraser University, 2017.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
124.3	133.4	138.4	146.7	150.1	151.2	151.6	45.2%
0.9	0.9	0.9	1.1	1.2	1.2	1.2	10.5%
2.6	2.1	1.5	1.6	1.7	1.8	1.7	-28.6%
0.3	0.4	0.5	0.6	0.8	0.9	0.9	142.1%
0.3	0.2	0.3	0.3	0.3	0.4	0.3	-20.6%
0.2	0.1	0.1	0.1	0.1	0.1	0.1	-29.4%
0.9	1.1	2.0	1.8	1.5	1.4	1.5	2.1%
0.6	0.6	0.6	0.6	0.6	0.6	0.6	39.5%
48.7	53.8	55.5	62.5	68.5	69.7	73.9	603.0%
0.6	0.6	0.6	0.6	0.5	0.4	0.5	16.3%
0.4	0.4	0.4	0.3	0.4	0.4	0.4	-17.0%
0.8	0.9	0.9	1.0	1.0	0.7	0.6	36.2%
0.3	0.3	0.3	0.3	0.3	0.3	0.2	-42.5%
0.3	0.3	0.2	0.2	0.2	0.3	0.2	25.0%
0.2	0.1	0.1	0.1	0.1	0.1	0.1	-67.6%
0.0	0.0	0.0	0.0	0.0	0.0	0.0	-75.0%
0.1	0.1	0.1	0.1	0.1	0.1	0.1	-80.0%
0.1	0.1	0.1	0.1	0.1	0.1	0.1	-68.0%
0.0	0.0	0.0	0.0	0.0	0.1	0.0	-78.9%
0.0	0.0	0.0	0.0	0.0	0.0	0.0	-75.0%
0.7	0.8	0.8	1.0	1.0	1.0	1.0	-4.7%
2.0	2.0	2.0	2.0	2.0	2.2	2.2	-48.2%
1.1	0.8	0.9	0.8	0.9	0.8	0.7	-70.5%
0.8	0.7	0.6	0.7	0.6	0.5	0.5	-90.7%
0.8	0.8	1.1	1.0	1.0	0.8	0.7	-57.9%
0.8	0.6	0.6	0.5	0.6	0.6	0.4	-50.6%

Industrial GHG Emissions by Industry – Excluding Electricity-Related Emissions<sup>1</sup> (cont.)

	1990	1995	2005	2006	2007	2008
Converted Paper Products Industry	0.4	0.4	0.6	0.5	0.6	0.5
Printing and Related Support Activities	0.3	0.2	0.2	0.2	0.2	0.2
Petroleum Refining	17.1	19.8	19.9	20.1	20.6	18.2
Petrochemical Industry	1.6	1.4	2.5	2.4	2.5	2.5
Industrial Gas Industry	0.0	0.0	0.0	0.0	0.0	0.0
Alkali and chlorine manufacturing	0.8	0.8	0.3	0.3	0.1	0.1
All other basic inorganic chemical manufacturing	0.4	0.3	0.5	0.3	0.4	0.3
Chemical fertilizer (except potash) manufacturing	1.4	2.6	2.4	2.5	2.4	2.2
Other Chemical Manufacturing	2.9	3.2	1.8	2.4	2.5	2.8
Resin and Synthetic Rubber Industries	2.1	1.0	0.5	0.9	1.0	1.2
Motor Vehicle Plastic Parts Manufacturing	0.1	0.1	0.1	0.1	0.1	0.1
Rubber Products Industries	0.3	0.4	0.3	0.3	0.3	0.3
Cement Industry	4.1	4.4	5.4	5.8	5.1	4.9
Iron and Steel	14.8	16.7	15.4	16.5	16.9	16.4
Primary Production of Alumina and Aluminum	0.5	0.7	1.2	0.9	1.1	1.1
Other Non-Ferrous Smelting and Refining	2.9	2.8	2.5	2.6	2.9	2.7
Fabricated Metal Products Industries	1.4	1.4	1.4	1.3	1.4	1.5
Machinery Industries	0.4	0.4	0.5	0.5	0.5	0.5
Computer and Electronic Products Industries	0.1	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	0.2
Motor Vehicle Industry	0.7	1.0	0.8	0.8	0.8	0.7
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	0.1	0.1	0.1	0.1	0.1	0.1

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

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	0.8	0.6	0.5	0.4	0.5	0.5	0.4	-14.0%
	0.3	0.2	0.2	0.2	0.3	0.2	0.1	-61.3%
	17.9	18.8	18.3	19.6	18.4	18.3	17.5	2.2%
	2.5	1.9	2.5	2.3	2.6	2.7	2.4	55.1%
	0.3	0.4	0.5	1.0	1.0	1.3	1.2	–
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-98.8%
	0.2	0.3	0.3	0.3	0.5	0.5	0.4	-14.3%
	2.0	2.4	2.6	2.6	3.1	2.9	2.9	108.5%
	2.8	3.6	3.8	3.5	3.3	3.1	3.4	17.9%
	1.2	1.7	1.8	1.6	1.6	1.3	1.2	-44.2%
	0.1	0.1	0.1	0.1	0.1	0.1	0.1	22.2%
	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-26.5%
	4.7	4.5	4.4	4.0	3.8	4.0	4.1	0.0%
	12.3	14.0	15.1	15.3	13.5	14.6	12.8	-13.7%
	0.6	0.7	1.0	1.0	1.0	1.2	1.1	107.4%
	2.1	2.6	2.5	2.1	1.9	1.4	1.5	-47.1%
	1.2	1.2	1.3	1.3	1.3	1.1	1.0	-30.6%
	0.5	0.6	0.6	0.6	0.6	0.8	0.7	94.6%
	0.1	0.1	0.1	0.1	0.1	0.1	0.1	28.6%
	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-60.6%
	0.5	0.5	0.6	0.5	0.6	0.5	0.5	-29.7%
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-50.0%

Industrial GHG Emissions by Industry – Excluding Electricity-Related Emissions<sup>1</sup> (cont.)

	1990	1995	2005	2006	2007	2008
Motor Vehicle Electrical and Electronic Equipment Manufacturing	0.0	0.0	0.0	0.0	0.0	0.0
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	0.1	0.1	0.0	0.0	0.0	0.0
Motor Vehicle Brake System Manufacturing	0.1	0.1	0.0	0.0	0.0	0.0
Motor Vehicle Transmission and Power Train Parts Manufacturing	0.2	0.1	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	0.0
Motor Vehicle Metal Stamping	0.1	0.1	0.1	0.1	0.1	0.1
Other Motor Vehicle Parts Manufacturing	0.1	0.1	0.2	0.1	0.2	0.2
Furniture and Related Products Industries	0.2	0.2	0.4	0.2	0.2	0.3
Miscellaneous Manufacturing	0.2	0.1	0.2	0.1	0.2	0.2
Other Manufacturing n.e.c.	10.3	10.1	7.0	6.0	6.1	5.3
Construction	4.3	3.2	4.7	4.8	5.0	5.0
Forestry	0.6	0.6	2.1	2.3	2.2	2.3
<b>GHG Intensity (tonne/TJ)<sup>a,b,c</sup></b>	<b>38.5</b>	<b>36.8</b>	<b>36.1</b>	<b>36.9</b>	<b>38.8</b>	<b>39.1</b>

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

## Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Environment and Climate Change Canada, *National Inventory Report 1990-2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.  
c) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2015*, Simon Fraser University, 2017.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
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	-71.4%
0.0	0.0	0.0	0.0	0.0	0.0	0.0	-83.3%
0.1	0.1	0.0	0.1	0.0	0.0	0.0	-81.0%
0.0	0.1	0.0	0.0	0.0	0.0	0.0	-25.0%
0.1	0.1	0.1	0.1	0.1	0.1	0.1	-33.3%
0.2	0.1	0.1	0.1	0.1	0.1	0.1	-33.3%
0.3	0.2	0.3	0.2	0.3	0.2	0.2	9.5%
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0%
3.7	3.8	4.3	4.7	4.8	4.8	4.4	-57.2%
4.5	4.9	5.3	5.5	5.4	5.1	5.6	27.9%
1.6	1.6	1.5	1.4	1.4	1.4	1.5	158.9%
<b>39.6</b>	<b>41.2</b>	<b>41.7</b>	<b>43.0</b>	<b>42.6</b>	<b>42.2</b>	<b>42.8</b>	<b>11.1%</b>

## Industrial Gross Domestic Product by Industry

	1990	1995	2005	2006	2007	2008
<b>Total Gross Domestic Product (million \$2007)<sup>a,b</sup></b>	<b>291,400</b>	<b>311,745</b>	<b>414,589</b>	<b>418,352</b>	<b>418,169</b>	<b>407,172</b>
<b>Gross Domestic Product by Industry (million \$2007)<sup>a,b</sup></b>						
Copper, Nickel, Lead and Zinc Mines	12,823	11,140	11,048	11,618	11,761	12,398
Iron Mines	2,184	1,875	1,554	1,703	1,539	1,501
Gold and Silver Mines	3,802	3,218	2,512	1,992	1,791	1,740
Other Metal Mines	1,583	1,195	2,030	1,854	1,539	1,514
Salt Mines	200	233	262	285	243	312
Potash Mines	773	955	1,388	1,019	1,708	1,372
Other Non-Metal Mines	205	234	1,318	1,334	1,751	1,620
Upstream Mining	61,829	82,148	98,295	101,946	102,775	99,880
Fruit and Vegetable Industries	1,305	1,636	2,132	2,131	2,207	2,205
Dairy Products Industry	2,827	2,476	2,446	2,533	2,590	2,757
Meat Products Industries	3,990	3,605	5,744	5,872	5,811	5,914
Bakery Products Industries	1,692	2,067	2,368	2,506	2,492	2,764
Beverage Industries (excluding breweries)	1,337	1,252	2,103	2,238	2,330	2,314
Breweries Industries	3,250	3,471	3,286	3,339	3,103	3,067
Tobacco Products Industries	3,891	3,891	1,778	1,509	960	753
Textile Mills	1,674	1,695	1,317	1,124	937	833
Textile Products Mills	926	892	1,144	1,038	955	800
Clothing Industries	3,473	3,358	2,653	2,456	2,023	1,645
Leather and Allied Products Industries	678	521	208	187	200	174
Wood Products Industries	3,173	3,328	4,893	4,754	4,148	3,648
Pulp Mills	912	1,057	1,373	1,272	1,323	1,189
Paper Mills (except newsprint)	1,401	1,418	2,107	1,734	1,872	1,765
Newsprint Mills	2,219	2,334	2,305	2,085	2,051	1,757
Paperboard Mills	755	758	621	595	577	606
Other Pulp and Paper Manufacturing	3,026	3,481	4,029	3,689	3,481	3,298

## Source:

a) Statistics Canada, *Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS)* CANSIM (Table 379-0031), Ottawa, 2017. Data prior to 1997 were estimated by Canadian Industrial Energy End-Use Data and Analysis Centre, 1990 to 2015, Simon Fraser University, 2017 and Natural Resources Canada.

b) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2015*, Simon Fraser University, 2017.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	<b>362,958</b>	<b>384,636</b>	<b>402,490</b>	<b>410,780</b>	<b>417,281</b>	<b>431,486</b>	<b>424,825</b>	<b>45.8%</b>
	8,410	8,697	11,286	11,186	11,484	11,845	11,644	-9.2%
	1,380	1,593	1,531	1,607	1,699	1,871	2,111	-3.3%
	1,849	1,796	1,696	1,707	2,125	2,360	2,500	-34.2%
	1,677	1,719	1,645	1,749	1,495	1,827	2,087	31.8%
	285	231	276	240	261	280	294	47.0%
	342	1,159	1,319	1,084	1,186	1,244	1,358	75.7%
	1,351	1,335	1,267	1,165	1,258	1,380	1,391	578.5%
	93,088	98,555	104,299	101,988	105,255	111,386	107,732	74.2%
	2,137	2,044	1,969	2,003	1,977	1,983	1,943	48.9%
	2,706	2,693	2,674	2,719	2,833	2,829	2,880	1.9%
	5,876	6,358	6,311	5,682	5,492	5,680	5,561	39.4%
	2,859	2,684	2,454	2,383	2,352	2,511	2,634	55.7%
	2,217	2,317	2,298	2,391	2,432	2,504	2,552	90.9%
	2,969	2,831	2,813	2,863	2,836	2,883	2,964	-8.8%
	792	896	862	865	869	829	802	-79.4%
	720	735	747	749	670	720	735	-56.1%
	584	605	564	565	506	543	555	-40.1%
	1,367	1,447	1,405	1,428	1,425	1,469	1,475	-57.5%
	160	169	176	179	179	184	185	-72.7%
	2,919	3,274	3,339	3,450	3,640	3,780	4,110	29.5%
	917	1,136	1,126	988	1,000	1,037	1,072	17.5%
	1,404	1,461	1,371	1,203	1,218	1,263	1,306	-6.8%
	1,238	1,490	1,408	1,236	1,250	1,297	1,341	-39.6%
	452	538	532	467	472	490	507	-32.8%
	3,018	2,981	2,891	3,038	2,859	3,011	3,216	6.3%

## Industrial Gross Domestic Product by Industry (cont.)

	1990	1995	2005	2006	2007	2008
Converted Paper Products Industry	2,810	3,443	4,011	3,655	3,482	3,298
Printing and Related Support Activities	7,058	5,148	6,386	6,209	6,055	5,970
Petroleum Refining	5,415	5,667	6,408	6,045	6,147	6,007
Petrochemical Industry	811	846	604	709	724	663
Industrial Gas Industry	140	149	352	361	272	305
Alkali and chlorine manufacturing	326	319	266	292	217	176
All other basic inorganic chemical manufacturing	316	330	586	665	689	581
Chemical fertilizer (except potash) manufacturing	738	841	1,346	1,363	1,218	971
Other Chemical Manufacturing	690	614	722	621	612	655
Resin and Synthetic Rubber Industries	576	915	1,691	1,587	1,722	1,588
Motor Vehicle Plastic Parts Manufacturing	549	845	1,960	1,876	1,711	1,466
Rubber Products Industries	1,051	1,634	1,817	1,597	1,501	1,409
Cement Industry	906	723	1,238	1,254	1,217	1,112
Iron and Steel	3,537	3,897	3,807	3,791	3,809	3,298
Primary Production of Alumina and Aluminum	1,007	1,378	3,740	3,915	3,964	3,942
Other Non-Ferrous Smelting and Refining	2,906	3,163	5,525	5,090	4,682	4,613
Fabricated Metal Products Industries	8,257	8,371	14,053	14,331	14,361	13,102
Machinery Industries	7,643	10,455	13,858	14,074	14,000	13,675
Computer and Electronic Products Industries	3,600	5,555	8,100	8,148	7,859	7,675
Electrical Equipment and Components Industries	4,240	3,542	3,955	3,746	3,735	3,827
Motor Vehicle Industry	5,894	8,259	10,257	9,742	9,533	7,229
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	965	1,443	2,030	1,942	2,010	1,515
Motor Vehicle Electrical and Electronic Equipment Manufacturing	223	333	409	416	376	285
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	273	408	506	495	498	410
Motor Vehicle Brake System Manufacturing	365	546	539	473	408	335

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	3,018	2,982	2,891	3,038	2,859	3,011	3,216	14.4%
	5,123	4,681	4,471	4,437	4,461	4,420	4,247	-39.8%
	6,320	5,947	5,617	5,800	5,821	5,678	5,633	4.0%
	446	618	652	630	646	680	674	-16.9%
	250	271	320	309	317	333	330	135.7%
	143	62	74	79	78	56	43	-86.8%
	499	633	657	683	649	669	582	84.2%
	666	636	663	609	681	636	599	-18.8%
	628	795	817	735	809	891	975	41.3%
	1,095	1,324	1,493	1,484	1,809	1,823	1,998	246.9%
	1,128	1,487	1,642	1,696	1,788	1,842	1,909	247.7%
	1,243	1,396	1,544	1,538	1,505	1,501	1,518	44.4%
	933	914	932	958	921	969	943	4.1%
	2,018	2,728	3,033	3,157	2,991	3,316	3,004	-15.1%
	3,400	3,347	3,500	3,357	3,153	3,114	3,116	209.4%
	3,811	4,095	4,308	4,186	4,155	4,079	4,085	40.6%
	11,141	11,592	12,547	13,466	12,957	13,241	12,656	53.3%
	11,273	11,422	13,678	14,248	14,119	14,420	13,785	80.4%
	6,912	7,234	7,149	6,271	5,745	5,950	6,072	68.7%
	3,506	3,433	3,773	3,723	3,811	3,717	3,611	-14.8%
	5,057	7,623	7,789	8,870	8,582	8,801	8,683	47.3%
	1,238	1,406	1,359	1,527	1,486	1,612	1,659	71.9%
	189	247	307	345	335	364	374	67.7%
	307	469	517	580	565	613	631	131.1%
	232	265	300	337	328	356	367	0.5%

## Industrial Gross Domestic Product by Industry (cont.)

	1990	1995	2005	2006	2007	2008
Motor Vehicle Transmission and Power Train Parts Manufacturing	610	912	985	981	966	695
Motor Vehicle Seating and Interior Trim Manufacturing	463	693	1,354	1,301	1,118	914
Motor Vehicle Metal Stamping	649	971	1,664	1,434	1,334	1,063
Other Motor Vehicle Parts Manufacturing	785	1,175	2,097	2,103	1,881	1,568
Furniture and Related Products Industries	3,746	3,947	6,340	5,905	5,563	5,167
Miscellaneous Manufacturing	2,402	2,525	4,323	4,457	4,248	3,865
Other Manufacturing n.e.c.	23,851	29,050	44,398	45,290	44,820	44,503
Construction	72,696	59,346	94,414	98,021	102,098	104,738
Forestry	5,974	6,064	6,402	6,147	5,730	5,352

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
397	484	508	571	556	603	620	1.6%
693	913	978	1,098	1,069	1,160	1,193	157.7%
755	916	1,039	1,167	1,136	1,232	1,268	95.4%
1,118	1,260	1,450	1,628	1,585	1,719	1,769	125.4%
4,203	4,236	4,082	4,084	4,319	4,439	4,579	22.2%
3,646	3,719	3,936	3,746	4,281	4,212	4,531	88.6%
38,842	38,802	40,189	41,227	41,947	44,220	44,899	88.2%
98,211	105,559	109,208	117,567	120,026	121,668	117,121	61.1%
4,509	5,037	5,451	5,339	5,531	5,383	5,825	-2.5%

## Industrial Energy Intensity by Industry

	1990	1995	2005	2006	2007	2008
<b>Aggregate Energy Intensity (MJ/\$2007 – GDP)<sup>a,b,c</sup></b>	<b>9.3</b>	<b>9.7</b>	<b>8.0</b>	<b>7.9</b>	<b>8.2</b>	<b>8.1</b>
<b>Energy Intensity by Industry (MJ/\$2007 – GDP)<sup>a,b,c</sup></b>						
Copper, Nickel, Lead and Zinc Mines	2.9	2.6	2.2	2.0	2.1	2.3
Iron Mines	18.2	19.9	20.8	18.2	18.7	27.1
Gold and Silver Mines	3.5	3.9	5.2	6.3	7.2	7.5
Other Metal Mines	5.8	4.7	3.2	3.6	4.5	4.8
Salt Mines	14.7	14.7	9.7	9.2	10.3	8.4
Potash Mines	35.5	33.3	20.6	33.4	20.7	24.3
Other Non-Metal Mines	38.8	26.8	7.0	7.0	5.2	6.6
Upstream Mining	3.4	3.9	5.6	5.8	7.2	7.4
Fruit and Vegetable Industries	7.0	6.0	6.8	6.6	6.8	6.2
Dairy Products Industry	4.2	4.2	4.4	4.0	3.9	3.7
Meat Products Industries	3.2	3.6	3.2	3.2	3.3	3.8
Bakery Products Industries	5.4	3.1	4.1	3.9	4.3	3.8
Beverage Industries (excluding breweries)	2.5	4.3	3.1	2.7	2.8	2.5
Breweries Industries	2.4	1.8	1.6	1.3	1.4	1.4
Tobacco Products Industries	0.3	0.3	0.5	0.5	0.6	0.5
Textile Mills	8.3	8.7	5.8	6.6	7.2	6.4
Textile Products Mills	7.4	7.8	3.1	2.9	3.2	3.5
Clothing Industries	1.7	1.6	0.8	0.7	0.8	1.0
Leather and Allied Products Industries	2.1	2.0	1.5	1.2	1.4	1.8
Wood Products Industries	14.0	14.3	10.4	10.8	13.2	15.7
Pulp Mills	329.2	350.6	252.6	251.3	239.7	227.1
Paper Mills (except newsprint)	71.2	75.7	57.4	50.9	45.5	43.3
Newsprint Mills	111.6	116.7	92.7	93.5	91.5	91.5

## Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Statistics Canada, *Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS)* CANSIM (Table 379-0031), Ottawa, 2017. Data prior to 1997 were estimated by Canadian Industrial Energy End-Use Data and Analysis Centre, 1990 to 2015, Simon Fraser University, 2017 and Natural Resources Canada.  
c) Canadian Industrial Energy End-Use Data and Analysis Centre, *Development of Energy Intensity Indicators for Canadian Industry 1990 to 2015*, Simon Fraser University, 2017.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	8.6	8.4	8.3	8.3	8.5	8.3	8.3	-10.4%
	2.8	2.9	2.3	2.7	2.7	2.7	2.8	-2.8%
	32.1	24.3	20.2	21.3	22.0	20.5	16.9	-7.3%
	7.6	8.1	9.6	10.7	11.1	11.3	10.7	210.4%
	3.4	3.3	4.0	4.2	5.2	5.2	3.3	-42.8%
	9.7	9.6	7.5	8.7	8.8	9.2	8.3	-43.6%
	52.6	20.0	29.4	33.0	26.4	24.9	24.2	-31.7%
	7.0	7.0	7.2	7.5	6.7	6.2	6.2	-84.1%
	8.9	9.1	8.8	10.0	10.5	10.1	11.1	224.0%
	7.2	7.1	7.3	7.4	6.5	7.2	7.3	3.1%
	3.8	3.9	4.0	3.7	3.9	4.1	4.0	-3.6%
	4.5	3.9	4.1	4.9	4.9	3.9	3.5	10.4%
	4.0	3.7	3.7	4.6	4.6	3.6	3.3	-38.7%
	2.9	3.2	2.7	2.6	2.6	2.9	1.7	-33.2%
	1.3	1.3	1.2	1.2	1.2	1.1	1.2	-52.1%
	0.3	0.5	0.4	0.4	0.4	0.5	0.4	25.0%
	5.4	5.5	5.1	5.5	6.3	4.2	4.5	-45.6%
	3.8	4.1	4.3	4.2	5.8	5.3	4.6	-37.9%
	1.0	1.0	1.1	1.2	1.2	1.0	0.9	-50.3%
	1.9	1.9	1.5	1.4	1.7	1.8	1.5	-28.0%
	17.3	19.0	19.3	18.9	16.2	16.2	16.5	17.4%
	278.2	207.4	209.1	233.1	235.8	260.2	268.9	-18.3%
	62.1	59.5	65.3	77.1	57.3	72.0	59.6	-16.3%
	100.2	80.1	73.2	76.3	93.9	70.8	66.3	-40.6%

## Industrial Energy Intensity by Industry (cont.)

	1990	1995	2005	2006	2007	2008
Paperboard Mills	82.9	86.0	105.0	95.6	86.6	81.3
Other Pulp and Paper Manufacturing	5.9	4.9	20.1	24.4	24.3	23.0
Converted Paper Products Industry	4.0	3.2	5.0	4.5	5.6	4.9
Printing and Related Support Activities	1.5	1.5	1.4	1.4	1.5	1.8
Petroleum Refining	59.7	62.9	55.7	61.4	61.8	57.7
Petrochemical Industry	39.8	40.4	104.8	86.3	86.3	91.8
Industrial Gas Industry	42.3	38.6	23.7	37.9	53.8	39.6
Alkali and chlorine manufacturing	93.3	94.4	64.3	51.3	44.6	50.1
All other basic inorganic chemical manufacturing	90.7	93.7	64.3	51.2	46.8	53.1
Chemical fertilizer (except potash) manufacturing	43.3	66.5	40.4	41.1	44.6	52.0
Other Chemical Manufacturing	136.2	148.6	76.7	109.4	113.9	119.7
Resin and Synthetic Rubber Industries	83.9	33.6	14.6	21.0	20.1	24.1
Motor Vehicle Plastic Parts Manufacturing	5.1	3.2	2.4	2.4	2.4	2.8
Rubber Products Industries	9.2	6.1	5.7	6.0	6.8	6.8
Cement Industry	65.5	85.6	57.6	60.3	55.5	58.7
Iron and Steel	62.0	63.4	63.0	66.5	66.7	74.9
Primary Production of Alumina and Aluminum	109.0	100.3	50.1	48.1	48.5	49.6
Other Non-Ferrous Smelting and Refining	25.3	25.6	13.4	14.6	13.6	14.3
Fabricated Metal Products Industries	4.5	4.4	2.9	2.7	2.9	3.6
Machinery Industries	1.6	1.3	1.3	1.2	1.3	1.4
Computer and Electronic Products Industries	1.3	1.1	0.7	0.7	0.8	0.8
Electrical Equipment and Components Industries	2.0	2.2	1.8	1.8	1.8	1.8
Motor Vehicle Industry	3.2	3.0	2.2	2.2	2.3	2.8
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	3.3	2.0	1.7	1.6	1.7	1.8

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	98.7	88.9	96.1	98.7	86.2	73.8	66.9	-19.4%
	22.6	21.3	21.4	20.2	33.8	29.1	0.1	-97.8%
	7.6	6.2	5.7	5.1	6.3	6.0	4.1	2.8%
	2.4	2.4	2.4	2.3	2.4	1.6	1.2	-20.8%
	53.6	57.8	60.4	59.1	55.2	56.2	54.2	-9.3%
	126.0	71.4	87.0	84.0	92.5	92.4	85.1	113.7%
	59.8	69.4	55.2	83.4	81.1	108.1	108.4	156.0%
	56.5	44.7	41.6	38.1	39.8	55.3	63.9	-31.5%
	54.7	44.6	46.4	45.0	45.2	49.0	54.3	-40.1%
	68.9	84.5	88.8	97.2	101.0	101.3	110.4	155.2%
	126.0	127.0	128.4	137.2	121.0	104.7	104.2	-23.5%
	36.7	37.5	38.4	35.9	29.9	24.8	21.4	-74.5%
	2.4	2.7	2.6	2.1	1.9	2.1	2.3	-54.3%
	7.4	6.4	5.7	5.7	5.4	5.5	5.1	-44.8%
	66.5	65.2	62.2	59.5	59.6	59.0	60.7	-7.3%
	92.9	78.2	74.8	73.2	71.8	69.7	67.5	8.9%
	50.9	52.7	53.6	52.4	56.9	60.4	59.3	-45.6%
	14.4	15.5	14.2	12.8	11.1	10.2	11.0	-56.4%
	3.4	3.2	3.1	3.0	3.0	2.6	2.5	-44.4%
	1.5	1.5	1.4	1.5	1.6	1.6	1.5	-5.0%
	0.8	0.8	0.9	1.1	1.1	1.1	1.1	-16.3%
	1.6	1.6	1.4	1.5	1.7	1.9	1.7	-14.8%
	3.1	2.1	2.2	1.8	1.9	1.9	1.9	-41.0%
	1.8	1.4	1.8	1.6	1.3	1.5	1.4	-57.5%

## Industrial Energy Intensity by Industry (cont.)

	1990	1995	2005	2006	2007	2008
Motor Vehicle Electrical and Electronic Equipment Manufacturing	1.1	0.8	1.5	0.6	1.3	1.3
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	7.8	5.2	2.7	2.6	2.8	2.7
Motor Vehicle Brake System Manufacturing	5.0	3.9	2.2	2.0	1.7	2.5
Motor Vehicle Transmission and Power Train Parts Manufacturing	4.9	2.2	3.8	3.6	3.6	4.4
Motor Vehicle Seating and Interior Trim Manufacturing	2.6	1.8	1.4	1.4	1.5	1.6
Motor Vehicle Metal Stamping	5.0	3.6	2.3	2.6	2.8	3.5
Other Motor Vehicle Parts Manufacturing	4.2	2.7	2.4	2.1	2.6	3.4
Furniture and Related Products Industries	1.8	1.7	1.8	1.7	2.0	2.3
Miscellaneous Manufacturing	2.0	1.6	1.4	1.1	1.5	1.9
Other Manufacturing n.e.c.	9.6	8.3	4.8	4.6	4.4	3.9
Construction	0.9	0.8	0.8	0.7	0.7	0.7
Forestry	1.3	1.3	4.5	5.1	5.2	5.8

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
1.7	1.8	1.2	1.1	1.0	0.9	0.6	-51.8%
4.2	1.6	2.2	2.0	1.8	2.1	1.3	-82.9%
2.0	1.6	1.4	1.2	1.1	1.1	1.2	-75.5%
5.4	4.8	3.6	6.4	3.4	3.4	3.9	-19.4%
2.1	1.9	1.7	1.3	1.3	1.3	1.0	-62.2%
3.7	3.5	2.9	2.8	2.7	2.2	2.0	-59.6%
4.1	3.0	2.0	1.8	1.8	1.7	1.7	-59.3%
2.6	2.5	2.6	2.4	2.3	2.0	2.0	11.0%
2.3	2.1	2.0	1.9	1.8	1.6	1.3	-35.5%
3.7	3.2	3.2	3.4	4.0	3.9	3.0	-68.8%
0.7	0.7	0.7	0.7	0.7	0.6	0.7	-23.9%
4.8	4.4	3.6	3.6	3.5	3.4	3.4	162.0%

## Industrial Energy Prices and Background Indicators

	1990	1995	2005	2006	2007	2008
<b>Energy Prices by Energy Source (incl. taxes)</b>						
Natural Gas (cents/m <sup>3</sup> ) <sup>a,e</sup>	10.5	10.6	36.9	36.6	27.2	33.5
Light Fuel Oil (cents/litre) <sup>f</sup>	25.8	22.1	61.9	64.2	68.6	94.3
Heavy Fuel Oil (cents/litre) <sup>f</sup>	14.1	16.2	38.2	39.2	44.3	57.6
Electricity (1,000 kW/400,000 kWh) <sup>1</sup> (cents/kWh) <sup>b,e</sup>	5.6	7.0	8.1	8.2	8.4	9.0
Electricity (5,000 kW/3,060,000 kWh) <sup>1</sup> (cents/kWh) <sup>b,e</sup>	4.0	4.9	6.2	6.3	6.5	7.1
<b>Background Indicators</b>						
Industrial GDP (million \$2007) <sup>g</sup>	291,400	311,745	414,589	418,352	418,169	407,172
<b>Capacity Utilization Rate (%)<sup>c</sup></b>						
Mining	79.8	88.6	85.1	84.1	83.0	78.9
Manufacturing	78.2	83.7	83.5	82.6	82.8	76.1
<i>Pulp and Paper</i>	<i>83.7</i>	<i>92.0</i>	<i>89.4</i>	<i>88.3</i>	<i>87.4</i>	<i>87.9</i>
<i>Primary Metals<sup>2</sup></i>	<i>85.1</i>	<i>88.3</i>	<i>91.5</i>	<i>91.9</i>	<i>92.1</i>	<i>89.0</i>
<i>Petroleum Refining</i>	<i>87.5</i>	<i>89.5</i>	<i>88.3</i>	<i>83.2</i>	<i>82.5</i>	<i>75.0</i>
<i>Chemicals</i>	<i>86.6</i>	<i>85.2</i>	<i>80.2</i>	<i>79.8</i>	<i>82.0</i>	<i>75.0</i>
Forestry	78.3	84.9	92.7	89.6	83.7	81.0
Construction	96.2	80.9	91.7	91.6	91.3	89.1
<b>Industrial Employees (thousands)<sup>d</sup></b>						
Mining	192	173	213	245	259	266
Manufacturing	2,050	1,904	2,203	2,102	2,026	1,927
<i>Pulp and Paper</i>	<i>124</i>	<i>100</i>	<i>88</i>	<i>84</i>	<i>79</i>	<i>74</i>
<i>Primary Metals<sup>2</sup></i>	<i>91</i>	<i>85</i>	<i>79</i>	<i>81</i>	<i>79</i>	<i>69</i>
<i>Petroleum Refining</i>	<i>19</i>	<i>12</i>	<i>16</i>	<i>16</i>	<i>17</i>	<i>18</i>
<i>Chemicals</i>	<i>96</i>	<i>81</i>	<i>93</i>	<i>91</i>	<i>89</i>	<i>89</i>
Forestry	73	93	70	63	60	54
Construction	816	726	1,022	1,066	1,127	1,236

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.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
23.4	20.5	18.6	14.0	16.4	20.8	15.6	48.8%
60.9	70.5	94.6	96.9	98.5	99.3	76.4	196.8%
46.1	54.7	72.2	77.0	74.2	72.2	55.6	296.1%
8.4	9.0	9.5	10.0	11.1	10.4	9.9	74.9%
6.5	7.0	7.5	8.0	9.1	8.3	7.6	92.2%
362,958	384,636	402,490	410,780	417,281	431,486	424,825	45.8%
70.4	75.8	79.8	75.7	75.8	77.8	75.3	–
72.0	77.2	79.6	80.6	79.7	81.5	81.8	–
82.0	88.6	87.9	86.4	88.5	88.9	90.1	–
76.0	78.5	85.1	83.0	83.2	81.3	73.7	–
77.9	83.8	79.5	79.4	79.0	83.0	85.0	–
70.9	75.3	75.8	77.0	77.2	77.8	83.8	–
66.0	79.0	88.1	86.2	90.0	84.5	90.5	–
80.5	84.4	84.1	87.4	88.4	89.6	85.7	–
246	252	272	297	300	308	290	50.9%
1,745	1,711	1,722	1,747	1,723	1,711	1,712	-16.5%
67	63	62	58	58	57	56	-55.0%
59	61	62	61	58	58	57	-37.3%
16	18	19	19	20	19	19	-3.7%
81	79	81	85	83	82	89	-7.8%
48	51	48	51	50	49	49	-33.0%
1,190	1,242	1,295	1,323	1,370	1,372	1,371	68.1%

## Sources:

- a) Statistics Canada, *Energy Statistics Handbook, 1990–2010*, (Cat. No. 57-601-X). Data for 2011 onward are taken from Statistics Canada, *Average retail prices for gasoline and fuel oil by urban centre*, Table 326-0009, Ottawa, 2017 (CANSIM).
- b) Hydro-Québec, *Comparison of Electricity Prices in Major North American Cities*, 2015.
- c) Statistics Canada, Table 028-0002, Ottawa, 2017 (CANSIM).
- d) Statistics Canada, *Labour Force Survey*, Table 282-0008, and *Survey of Employment, Payrolls and Hours*, Tables 281-0005 and 281-0024, Ottawa, 2017 (CANSIM).
- e) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.
- f) Natural Resources Canada, Petroleum Resources Branch, Pipelines, Gas and LNG Division, Ottawa, 2017.
- g) Statistics Canada, *Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS)* CANSIM (Table 379-0031), Ottawa, 2017. Data prior to 1997 were estimated by Canadian Industrial Energy End-Use Data and Analysis Centre, 1990 to 2015, Simon Fraser University, 2017 and Natural Resources Canada.

## Chapter 5

# Transportation Sector

## The Data Situation

The aggregate data on transportation energy use by energy source are from Statistics Canada's *Report on Energy Supply and 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 Canadian Socio-Economic Information Management System (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* (CANSIM Table 403-0004), 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

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car and truck stock data for years in which data from the CVIOC and/or the TIP were 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) as well as CANSIM updates.

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 are 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 seat belt 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.

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* and adjusted using a TEUM assumption. 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 (motor gasoline and diesel fuel) are weighted averages of regional prices from Statistics Canada's CANSIM Table 326-0009. Other transportation price indices are from Statistics Canada's CANSIM Table 326-0021.

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In Canada, the availability of biofuel data is limited (not reported). In the 2015 edition of this handbook, it is assumed that no biodiesel fuel was consumed before 2001. Starting in 2001, there might have been biodiesel fuel available in Canada, but there are no published data available. For ethanol, there were no published data before 2005, even though ethanol might have been available at that time. No data for ethanol were published for 2015.

*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 (Final Demand) by Energy Source and Transportation Mode**

	1990	1995	2005	2006	2007	2008
<b>Total Energy Use (PJ)<sup>a</sup></b>	<b>1,877.9</b>	<b>2,011.7</b>	<b>2,477.6</b>	<b>2,457.6</b>	<b>2,557.3</b>	<b>2,545.1</b>
Passenger Transportation <sup>b</sup>	1,154.0	1,176.8	1,339.2	1,313.9	1,360.0	1,328.9
Freight Transportation <sup>b</sup>	670.5	772.7	1,039.0	1,042.9	1,094.9	1,112.7
Off-Road <sup>1, b</sup>	53.3	62.1	99.5	100.8	102.3	103.5
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	3.1	3.0	3.5	3.5	3.3	3.8
Natural Gas	1.7	2.4	1.9	1.9	1.9	1.9
Motor Gasoline	1,120.4	1,179.2	1,368.7	1,370.2	1,393.6	1,375.5
Diesel Fuel Oil	469.8	549.6	745.2	740.4	772.2	789.1
Ethanol	n.a.	n.a.	6.5	6.6	30.8	33.0
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.	n.a.
Light Fuel Oil and Kerosene	0.0	0.0	0.0	0.0	0.0	0.0
Heavy Fuel Oil	60.1	56.6	83.0	68.7	84.4	84.9
Aviation Gasoline	5.5	4.2	3.3	3.0	3.1	3.0
Aviation Turbo Fuel	181.9	183.9	253.6	251.7	254.2	239.6
Propane	35.4	32.8	11.9	11.6	13.8	14.3

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 and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, 2017.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
<b>Total Energy Use (PJ)<sup>a</sup></b>	<b>2,504.6</b>	<b>2,608.3</b>	<b>2,612.4</b>	<b>2,637.0</b>	<b>2,689.4</b>	<b>2,646.7</b>	<b>2,637.5</b>	<b>40.4 %</b>
Passenger Transportation <sup>b</sup>	1,314.8	1,338.6	1,334.5	1,356.4	1,388.3	1,350.8	1,368.1	18.6 %
Freight Transportation <sup>b</sup>	1,086.7	1,165.9	1,171.8	1,172.9	1,191.3	1,184.2	1,154.8	72.2 %
Off-Road <sup>1, b</sup>	103.1	103.8	106.2	107.7	109.7	111.8	114.6	114.8 %
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>								
Electricity	3.5	3.8	3.8	4.0	4.4	3.8	3.8	22.8 %
Natural Gas	1.9	1.9	1.6	1.7	1.5	3.9	3.9	135.7 %
Motor Gasoline	1,394.9	1,414.2	1,377.7	1,379.8	1,422.8	1,394.3	1,484.2	32.5 %
Diesel Fuel Oil	749.2	817.3	856.7	841.2	851.2	845.3	828.1	76.3 %
Ethanol	36.8	45.2	66.4	69.4	64.2	68.2	n.a.	–
Biodiesel Fuel	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
Light Fuel Oil and Kerosene	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
Heavy Fuel Oil	87.0	86.1	61.2	62.8	59.4	50.8	34.6	-42.5 %
Aviation Gasoline	2.9	2.6	2.1	2.6	2.2	1.9	2.2	-60.6 %
Aviation Turbo Fuel	216.1	224.6	229.1	260.9	271.8	268.1	270.0	48.4 %
Propane	12.4	12.7	13.8	14.6	12.0	10.4	10.6	-70.0 %

**Transportation Secondary Energy Use (Final Demand) by Energy Source  
and Transportation Mode (cont.)**

	1990	1995	2005	2006	2007	2008
<b>Energy Use by Transportation Mode (PJ)<sup>a</sup></b>						
Cars	705.5	669.1	618.0	605.1	620.9	602.3
Passenger Light Trucks	215.5	271.8	410.4	404.9	426.7	424.5
Freight Light Trucks	97.6	118.2	160.1	159.9	170.2	169.6
Medium Trucks	120.6	147.7	208.9	239.3	247.1	260.9
Heavy Trucks	253.6	319.3	452.4	437.9	454.4	458.1
Motorcycles	2.4	2.1	3.3	3.5	3.7	3.8
School Buses	13.5	16.2	13.2	13.5	13.6	14.9
Urban Transit	24.6	26.2	35.4	30.2	33.9	35.5
Inter-City Buses	7.9	8.2	7.1	6.5	7.0	7.1
Passenger Air	180.9	180.8	249.1	247.5	251.4	237.7
Freight Air	6.5	7.3	7.8	7.2	5.8	4.9
Passenger Rail	3.8	2.3	2.7	2.7	2.8	3.2
Freight Rail	85.7	78.6	81.7	85.6	91.8	97.0
Marine	106.5	101.7	128.1	113.0	125.7	122.2
Off-Road <sup>1</sup>	53.3	62.1	99.5	100.8	102.3	103.5
<b>Activity</b>						
Total Passenger-kilometres <sup>2</sup> (millions) <sup>b</sup>	492,296	545,583	660,562	666,645	689,369	689,523
Total Tonne-kilometres (millions) <sup>b</sup>	574,543	650,961	895,702	895,938	897,386	870,012
<b>Passenger Transportation Energy Intensity<sup>2</sup> (MJ/Pkm)<sup>b</sup></b>	<b>2.26</b>	<b>2.10</b>	<b>1.98</b>	<b>1.92</b>	<b>1.91</b>	<b>1.87</b>
<b>Freight Transportation Energy Intensity (MJ/Tkm)<sup>b</sup></b>	<b>1.17</b>	<b>1.19</b>	<b>1.16</b>	<b>1.16</b>	<b>1.22</b>	<b>1.28</b>

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.

**Source:**

b) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2017.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
600.8	595.5	577.6	565.0	562.5	533.4	530.9	-24.8 %
435.8	453.2	460.1	468.4	489.4	487.8	507.6	135.6 %
172.3	178.6	179.7	184.9	193.0	192.7	199.6	104.6 %
278.5	312.0	305.4	302.3	317.0	314.8	305.4	153.2 %
451.0	466.6	489.7	491.1	495.2	497.2	486.9	92.0 %
5.1	5.3	5.4	5.6	5.6	5.4	5.5	130.9 %
14.7	15.5	16.3	14.4	13.1	12.1	12.2	-9.2 %
36.2	39.2	41.1	38.0	42.0	39.8	37.3	51.3 %
5.3	5.5	5.4	5.2	6.0	6.2	5.8	-26.2 %
214.6	221.9	225.7	257.4	267.7	264.0	266.7	47.4 %
4.4	5.3	5.4	6.1	6.3	6.0	5.5	-15.0 %
2.3	2.5	2.8	2.4	2.1	2.0	2.1	-43.7 %
62.5	81.2	93.0	94.2	90.9	93.4	92.4	7.8 %
118.0	122.3	98.5	94.4	89.0	80.1	65.0	-39.0 %
103.1	103.8	106.2	107.7	109.7	111.8	114.6	114.8 %
696,179	723,450	736,150	741,558	751,811	742,317	761,751	54.7 %
783,671	850,925	852,589	886,318	917,325	959,523	971,527	69.1 %
1.85	1.82	1.78	1.80	1.82	1.79	1.77	-21.9 %
1.39	1.37	1.37	1.32	1.30	1.23	1.19	1.8 %

## Transportation GHG Emissions by Energy Source and Transportation Mode

	1990	1995	2005	2006	2007	2008
<b>Total GHG Emissions (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>132.3</b>	<b>142.7</b>	<b>174.5</b>	<b>172.6</b>	<b>179.2</b>	<b>178.0</b>
Passenger Transportation <sup>b,c</sup>	80.9	83.5	93.4	91.2	94.0	91.5
Freight Transportation <sup>b,c</sup>	47.7	54.9	74.4	74.5	78.2	79.5
Off-Road <sup>1,b,c</sup>	3.7	4.3	6.8	6.9	7.0	7.1
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>						
Electricity	0.2	0.2	0.2	0.2	0.2	0.2
Natural Gas	0.1	0.1	0.1	0.1	0.1	0.1
Motor Gasoline	78.4	83.5	95.4	94.9	96.1	94.5
Diesel Fuel Oil	33.7	39.2	53.8	53.5	55.8	57.0
Ethanol	n.a.	n.a.	0.4	0.4	2.1	2.2
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.	n.a.
Light Fuel Oil and Kerosene	0.0	0.0	0.0	0.0	0.0	0.0
Heavy Fuel Oil	4.6	4.3	6.2	5.2	6.3	6.4
Aviation Gasoline	0.4	0.3	0.2	0.2	0.2	0.2
Aviation Turbo Fuel	12.9	13.1	17.5	17.4	17.5	16.5
Propane	2.1	2.0	0.7	0.7	0.8	0.9

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 and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, 2017.  
c) Environment and Climate Change Canada, *National Inventory Report 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
<b>174.6</b>	<b>181.7</b>	<b>181.6</b>	<b>182.9</b>	<b>186.2</b>	<b>182.9</b>	<b>182.3</b>	<b>182.3</b>	<b>37.8 %</b>
90.2	91.6	91.0	92.2	94.2	91.3	92.6	92.6	14.5 %
77.3	83.0	83.3	83.4	84.6	84.0	81.8	81.8	71.4 %
7.1	7.1	7.3	7.4	7.5	7.6	7.9	7.9	112.7 %
0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	-20.2 %
0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	126.9 %
95.5	96.5	93.7	93.6	96.2	94.1	100.1	100.1	27.8 %
54.0	59.0	61.9	60.8	61.5	61.1	59.8	59.8	77.6 %
2.4	3.0	4.3	4.5	4.2	4.4	n.a.	n.a.	–
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
6.5	6.5	4.6	4.7	4.5	3.8	2.6	2.6	-43.6 %
0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	-60.6 %
14.9	15.5	15.8	18.0	18.8	18.5	18.6	18.6	44.4 %
0.8	0.8	0.8	0.9	0.7	0.6	0.6	0.6	-69.8 %

## Transportation GHG Emissions by Energy Source and Transportation Mode (cont.)

	1990	1995	2005	2006	2007	2008
<b>GHG Emissions by Transportation Mode</b> (Mt of CO <sub>2</sub> e) <sup>a,b,c</sup>						
Cars	49.3	47.5	43.0	41.9	42.8	41.3
Passenger Light Trucks	15.1	19.4	28.8	28.2	29.6	29.3
Freight Light Trucks	6.7	8.3	11.2	11.1	11.7	11.6
Medium Trucks	8.2	10.1	14.5	16.6	17.2	18.1
Heavy Trucks	17.8	22.4	32.3	31.3	32.4	32.7
Motorcycles	0.2	0.1	0.2	0.2	0.2	0.3
School Buses	0.9	1.1	0.9	1.0	1.0	1.1
Urban Transit	1.7	1.8	2.4	2.1	2.4	2.4
Inter-City Buses	0.6	0.6	0.5	0.5	0.5	0.5
Passenger Air	12.9	12.8	17.2	17.1	17.4	16.4
Freight Air	0.5	0.5	0.5	0.5	0.4	0.3
Passenger Rail	0.3	0.2	0.2	0.2	0.2	0.2
Freight Rail	6.7	6.1	6.4	6.7	7.2	7.6
Marine	7.9	7.5	9.4	8.3	9.3	9.0
Off-Road <sup>1</sup>	3.7	4.3	6.8	6.9	7.0	7.1
<b>GHG Intensity (tonne/TJ)<sup>a,b,c</sup></b>	<b>70.5</b>	<b>70.9</b>	<b>70.4</b>	<b>70.2</b>	<b>70.1</b>	<b>69.9</b>
<b>GHG Emissions Related to Electricity</b> (Mt of CO <sub>2</sub> e) <sup>a,c</sup>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>

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 and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.

b) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, 2017.

c) Environment and Climate Change Canada, *National Inventory Report 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
41.0	40.5	39.1	38.2	37.9	35.8	35.7	-27.5 %
29.9	31.0	31.3	31.7	33.0	32.8	34.2	125.8 %
11.8	12.2	12.2	12.5	13.0	12.9	13.4	99.9 %
19.4	21.7	21.3	21.0	22.1	21.9	21.3	157.9 %
32.2	33.3	35.0	35.1	35.4	35.5	34.8	95.3 %
0.3	0.4	0.4	0.4	0.4	0.4	0.4	124.9 %
1.0	1.1	1.2	1.0	0.9	0.9	0.9	-4.0 %
2.5	2.7	2.8	2.6	2.8	2.7	2.5	47.7 %
0.4	0.4	0.4	0.4	0.4	0.4	0.4	-24.9 %
14.8	15.3	15.6	17.8	18.5	18.2	18.4	43.2 %
0.3	0.4	0.4	0.4	0.4	0.4	0.4	-17.3 %
0.2	0.2	0.2	0.2	0.2	0.2	0.2	-43.3 %
4.9	6.4	7.3	7.4	7.1	7.3	7.2	8.4 %
8.7	9.0	7.2	7.0	6.6	5.9	4.8	-39.5 %
7.1	7.1	7.3	7.4	7.5	7.6	7.9	112.7 %
69.7	69.7	69.5	69.4	69.2	69.1	69.1	-1.9 %
0.2	0.2	0.2	0.2	0.2	0.1	0.1	-20.2 %

## Transportation Energy Prices and Background Indicators

	1990	1995	2005	2006	2007	2008
<b>Energy Prices by Energy Source (incl. taxes)</b>						
Regular Unleaded Gasoline <sup>1</sup> (cents/litre) <sup>a,d,e</sup>	58.7	55.6	93.4	98.6	103.1	116.4
Diesel Fuel Oil <sup>1</sup> (cents/litre) <sup>a,d,e</sup>	51.4	51.1	92.8	96.6	99.0	125.2
Propane (cents/litre) <sup>a,d,f</sup>	26.6	29.3	58.0	62.0	62.3	72.9
<b>Excise Tax (cents/litre)<sup>b</sup></b>						
Unleaded Gasoline	8.5	10.0	10.0	10.0	10.0	10.0
Leaded Gasoline	9.5	11.0	11.0	11.0	11.0	11.0
Diesel Fuel Oil	4.0	4.0	4.0	4.0	4.0	4.0
<b>Background Indicators</b>						
<b>Consumer Price Index (2007 = 100)<sup>c</sup></b>						
Gasoline and Other Fuels <sup>2</sup>	56.6	54.8	90.8	95.7	100.0	112.7
Public Transportation	45.6	60.0	94.8	99.1	100.0	105.9
Inter-City Transportation	42.4	56.3	95.6	99.8	100.0	106.8
Local and Commuter	50.9	66.0	93.3	97.7	100.0	104.3
<b>GDP at Factor Cost (million \$2007)<sup>c</sup></b>						
Business Sector	733,190	807,991	1,167,255	1,197,688	1,222,180	1,222,661
Transportation	37,406	42,498	57,798	59,272	60,246	60,293
<b>Real Personal Disposable Income per Household (\$2007)<sup>c</sup></b>	<b>57,605</b>	<b>54,073</b>	<b>59,357</b>	<b>61,694</b>	<b>62,548</b>	<b>63,712</b>

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*, 1990–2010, (Cat. No. 57-601-X). Data for 2011 onward are taken from Statistics Canada, *Average retail prices for gasoline, diesel and fuel oil by urban centre*, Table 326-0009, Ottawa, 2017 (CANSIM).b) Canada Revenue Agency, *Current Rates of Excise Taxes – Revised*, Ottawa, 2008; [www.cra-arc.gc.ca/E/pub/et/currate/currate-e.html](http://www.cra-arc.gc.ca/E/pub/et/currate/currate-e.html).c) Statistics Canada, *Consumer Price Index*, Table 326-0021, Ottawa, 2017 (CANSIM).d) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, Ottawa, 2017.e) Statistics Canada, *Total Population, Census Divisions and Census Metropolitan Areas*, Tables 051-0014, 051-0034 and 051-0046, Ottawa, 2017 (CANSIM).

f) Natural Resources Canada, Petroleum Resources Branch, Pipelines, Gas and LNG Division, Ottawa, 2017.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
95.8	104.8	125.6	128.5	127.5	127.8	107.8	83.7 %
89.7	101.0	123.3	124.8	124.5	124.2	124.7	142.8 %
61.6	67.9	71.2	71.4	71.6	80.0	73.9	177.5 %
10.0	10.0	10.0	10.0	10.0	11.0	12.0	41.2 %
11.0	11.0	11.0	11.0	11.0	12.0	13.0	36.8 %
4.0	4.0	4.0	4.0	4.0	5.0	6.0	50.0 %
93.0	101.4	121.7	124.8	125.5	125.8	105.0	85.5 %
106.7	105.7	111.6	114.2	116.4	117.7	119.1	161.0 %
106.0	101.2	108.9	111.4	113.3	113.7	114.6	170.5 %
107.9	113.4	116.2	119.0	121.6	124.7	127.1	149.7 %
1,166,021	1,206,805	1,251,275	1,276,587	1,306,982	1,343,883	1,367,098	86.5 %
57,838	60,279	62,725	63,635	64,476	67,049	69,922	86.9 %
<b>63,985</b>	<b>66,119</b>	<b>65,738</b>	<b>66,635</b>	<b>68,278</b>	<b>68,461</b>	<b>69,938</b>	<b>21.4 %</b>

### Passenger Transportation Secondary Energy Use (Final Demand) by Energy Source and Transportation Mode

	1990	1995	2005	2006	2007	2008
<b>Passenger Transportation Energy Use (PJ)<sup>a</sup></b>	<b>1,154.0</b>	<b>1,176.8</b>	<b>1,339.2</b>	<b>1,313.9</b>	<b>1,360.0</b>	<b>1,328.9</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	3.1	3.0	3.5	3.5	3.3	3.8
Natural Gas	1.6	2.3	1.7	1.7	1.8	1.7
Motor Gasoline	902.4	921.2	1,010.2	994.9	1,014.2	990.9
Diesel Fuel Oil	47.2	53.5	62.8	55.8	60.1	63.2
Ethanol	n.a.	n.a.	4.8	4.7	22.7	24.5
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.	n.a.
Aviation Gasoline	5.4	4.1	3.3	2.9	3.1	3.0
Aviation Turbo Fuel	175.5	176.7	245.8	244.6	248.4	234.7
Propane	18.8	16.0	7.0	5.6	6.6	7.0
<b>Energy Use by Transportation Mode (PJ)<sup>a</sup></b>						
Cars	705.5	669.1	618.0	605.1	620.9	602.3
Light Trucks	215.5	271.8	410.4	404.9	426.7	424.5
Motorcycles	2.4	2.1	3.3	3.5	3.7	3.8
School Buses	13.5	16.2	13.2	13.5	13.6	14.9
Urban Transit	24.6	26.2	35.4	30.2	33.9	35.5
Inter-City Buses	7.9	8.2	7.1	6.5	7.0	7.1
Air	180.9	180.8	249.1	247.5	251.4	237.7
Rail	3.8	2.3	2.7	2.7	2.8	3.2
<b>Activity</b>						
Total Passenger-kilometres <sup>1</sup> (millions) <sup>a,b,c</sup>	492,296	545,583	660,562	666,645	689,369	689,523

1) Excludes non-commercial aviation.

#### Sources:

- a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2017.  
b) Statistics Canada, *Canadian Civil Aviation, 1990–2000*, Ottawa, 2003 (Cat. No. 51-206-X); and Statistics Canada, *Aviation: Service Bulletins*, Ottawa: Vol. 49 No. 4, 2017 (Cat. No. 51-004-X).  
c) Statistics Canada, *Rail in Canada, 1990–2009*, Ottawa, 2011 (Cat. No. 52-216-X); and Tables 404-0012 and 404-0016, Ottawa, 2017 (CANSIM).

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
1,314.8	1,338.6	1,334.5	1,356.4	1,388.3	1,350.8	1,368.1	18.6 %
3.5	3.8	3.8	4.0	4.4	3.8	3.8	22.8 %
1.7	1.7	1.3	1.4	1.2	3.5	3.4	108.5 %
1,000.8	1,006.4	979.6	973.6	996.2	963.0	1,025.9	13.7 %
61.8	66.5	70.2	64.2	67.9	64.2	63.2	34.1 %
27.0	32.5	47.3	48.7	45.1	47.3	n.a.	–
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
2.8	2.6	2.1	2.6	2.2	1.9	2.1	-60.8 %
211.7	219.4	223.7	254.8	265.5	262.2	264.5	50.8 %
5.5	5.8	6.5	7.0	5.7	5.0	5.1	-72.7 %
600.8	595.5	577.6	565.0	562.5	533.4	530.9	-24.8 %
435.8	453.2	460.1	468.4	489.4	487.8	507.6	135.6 %
5.1	5.3	5.4	5.6	5.6	5.4	5.5	130.9 %
14.7	15.5	16.3	14.4	13.1	12.1	12.2	-9.2 %
36.2	39.2	41.1	38.0	42.0	39.8	37.3	51.3 %
5.3	5.5	5.4	5.2	6.0	6.2	5.8	-26.2 %
214.6	221.9	225.7	257.4	267.7	264.0	266.7	47.4 %
2.3	2.5	2.8	2.4	2.1	2.0	2.1	-43.7 %
696,179	723,450	736,150	741,558	751,811	742,317	761,751	54.7 %

### Passenger Transportation Secondary Energy Use (Final Demand) by Energy Source and Transportation Mode (cont.)

	1990	1995	2005	2006	2007	2008
<b>Passenger-kilometres by Transportation Mode (millions)</b>						
Cars <sup>a</sup>	311,376	320,184	320,300	315,770	326,475	319,854
Light Trucks <sup>a</sup>	75,089	105,100	168,852	167,510	177,852	178,827
Motorcycles <sup>a</sup>	1,604	1,398	2,773	2,941	3,195	3,269
School Buses <sup>a</sup>	15,013	21,739	26,856	31,620	26,398	27,963
Urban Transit <sup>a</sup>	12,821	12,905	20,774	20,942	18,546	19,810
Inter-City Buses <sup>a</sup>	7,835	9,349	9,554	7,682	9,116	8,627
Air <sup>1,b</sup>	66,776	73,492	109,975	118,729	126,334	129,600
Rail <sup>c</sup>	1,782	1,415	1,478	1,450	1,453	1,574
<b>Energy Intensity<sup>1</sup> (MJ/Pkm)<sup>a,b,c</sup></b>	<b>2.26</b>	<b>2.10</b>	<b>1.98</b>	<b>1.92</b>	<b>1.91</b>	<b>1.87</b>

1) Excludes non-commercial aviation.

#### Sources:

- a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2017.  
b) Statistics Canada, *Canadian Civil Aviation, 1990–2000*, Ottawa, 2003 (Cat. No. 51-206-X); and Statistics Canada, *Aviation: Service Bulletins*, Ottawa: Vol. 49 No. 4, 2017 (Cat. No. 51-004-X).  
c) Statistics Canada, *Rail in Canada, 1990–2009*, Ottawa, 2011 (Cat. No. 52-216-X); and Tables 404-0012 and 404-0016, Ottawa, 2017 (CANSIM).

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
321,437	320,708	313,350	309,489	310,141	295,273	295,843	-5.0 %
185,531	194,966	200,118	204,423	215,630	216,088	227,075	202.4 %
2,910	3,033	3,088	3,206	3,202	3,092	3,125	94.8 %
32,904	36,276	36,670	34,665	32,295	28,767	28,604	90.5 %
21,546	23,594	26,723	25,391	25,138	23,817	22,247	73.5 %
7,753	7,181	7,689	6,688	8,163	6,843	7,252	-7.4 %
122,683	136,286	147,107	156,323	155,876	167,108	176,255	163.9 %
1,413	1,404	1,404	1,374	1,365	1,327	1,349	-24.3 %
<b>1.85</b>	<b>1.82</b>	<b>1.78</b>	<b>1.80</b>	<b>1.82</b>	<b>1.79</b>	<b>1.77</b>	<b>-21.9 %</b>

## Passenger Transportation GHG Emissions by Energy Source and Transportation Mode

	1990	1995	2005	2006	2007	2008
<b>Passenger Transportation GHG Emissions (Mt of CO<sub>2</sub>e)<sup>b,c</sup></b>	<b>80.9</b>	<b>83.5</b>	<b>93.4</b>	<b>91.2</b>	<b>94.0</b>	<b>91.5</b>
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)<sup>b,c</sup></b>						
Electricity	0.2	0.2	0.2	0.2	0.2	0.2
Natural Gas	0.1	0.1	0.1	0.1	0.1	0.1
Motor Gasoline	63.3	65.6	70.6	69.1	70.1	68.2
Diesel Fuel Oil	3.3	3.8	4.5	4.0	4.3	4.5
Ethanol	n.a.	n.a.	0.3	0.3	1.5	1.6
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.	n.a.
Aviation Gasoline	0.4	0.3	0.2	0.2	0.2	0.2
Aviation Turbo Fuel	12.5	12.5	17.0	16.9	17.1	16.2
Propane	1.1	1.0	0.4	0.3	0.4	0.4
<b>GHG Emissions by Transportation Mode (Mt of CO<sub>2</sub>e)<sup>b,c</sup></b>						
Cars	49.3	47.5	43.0	41.9	42.8	41.3
Light Trucks	15.1	19.4	28.8	28.2	29.6	29.3
Motorcycles	0.2	0.1	0.2	0.2	0.2	0.3
School Buses	0.9	1.1	0.9	1.0	1.0	1.1
Urban Transit	1.7	1.8	2.4	2.1	2.4	2.4
Inter-City Buses	0.6	0.6	0.5	0.5	0.5	0.5
Air	12.9	12.8	17.2	17.1	17.4	16.4
Rail	0.3	0.2	0.2	0.2	0.2	0.2
<b>GHG Intensity (tonne/TJ)<sup>b,c</sup></b>	<b>70.1</b>	<b>71.0</b>	<b>69.7</b>	<b>69.4</b>	<b>69.1</b>	<b>68.8</b>
<b>GHG Emissions Related to Electricity (Mt of CO<sub>2</sub>e)<sup>b,c</sup></b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>

## Sources:

- a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.  
b) Natural Resources Canada, *Transportation End-Use Model*, Ottawa, 2017.  
c) Environment and Climate Change Canada, *National Inventory Report 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	<b>90.2</b>	<b>91.6</b>	<b>91.0</b>	<b>92.2</b>	<b>94.2</b>	<b>91.3</b>	<b>92.6</b>	<b>14.5 %</b>
0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	-20.2 %
0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	100.7 %
68.6	68.7	66.6	66.0	67.3	64.8	69.1		9.1 %
4.4	4.8	5.0	4.6	4.9	4.6	4.5		35.6 %
1.8	2.1	3.1	3.2	2.9	3.0	n.a.		–
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.		–
0.2	0.2	0.2	0.2	0.2	0.1	0.2		-60.8 %
14.6	15.1	15.4	17.6	18.3	18.1	18.3		46.6 %
0.3	0.4	0.4	0.4	0.3	0.3	0.3		-72.5 %
41.0	40.5	39.1	38.2	37.9	35.8	35.7		-27.5 %
29.9	31.0	31.3	31.7	33.0	32.8	34.2		125.8 %
0.3	0.4	0.4	0.4	0.4	0.4	0.4		124.9 %
1.0	1.1	1.2	1.0	0.9	0.9	0.9		-4.0 %
2.5	2.7	2.8	2.6	2.8	2.7	2.5		47.7 %
0.4	0.4	0.4	0.4	0.4	0.4	0.4		-24.9 %
14.8	15.3	15.6	17.8	18.5	18.2	18.4		43.2 %
0.2	0.2	0.2	0.2	0.2	0.2	0.2		-43.3 %
<b>68.6</b>	<b>68.4</b>	<b>68.2</b>	<b>68.0</b>	<b>67.8</b>	<b>67.6</b>	<b>67.7</b>		<b>-3.4 %</b>
<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.1</b>	<b>0.1</b>		<b>-20.2 %</b>

### Passenger Road Transportation Secondary Energy Use (Final Demand) and GHG Emissions by Energy Source

	1990	1995	2005	2006	2007	2008
<b>Passenger Road Transportation Energy Use (PJ)<sup>a</sup></b>	<b>969.3</b>	<b>993.7</b>	<b>1,087.4</b>	<b>1,063.6</b>	<b>1,105.8</b>	<b>1,088.0</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Electricity	3.1	3.0	3.5	3.5	3.3	3.8
Natural Gas	1.6	2.3	1.7	1.7	1.8	1.7
Motor Gasoline	902.4	921.2	1,010.2	994.9	1,014.2	990.9
Diesel Fuel Oil	43.4	51.2	60.2	53.1	57.2	60.1
Ethanol	n.a.	n.a.	4.8	4.7	22.7	24.5
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.	n.a.
Propane	18.8	16.0	7.0	5.6	6.6	7.0
<b>Activity</b>						
Passenger-kilometres (millions) <sup>a</sup>	423,738	470,675	549,109	546,465	561,582	558,348
<b>Energy Intensity (MJ/Pkm)<sup>a</sup></b>	<b>2.29</b>	<b>2.11</b>	<b>1.98</b>	<b>1.95</b>	<b>1.97</b>	<b>1.95</b>
<b>Passenger Road Transportation GHG Emissions (Mt of CO<sub>2</sub>e)<sup>a,b</sup></b>	<b>67.8</b>	<b>70.5</b>	<b>76.0</b>	<b>73.9</b>	<b>76.4</b>	<b>74.8</b>
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)<sup>a,b</sup></b>						
Electricity	0.2	0.2	0.2	0.2	0.2	0.2
Natural Gas	0.1	0.1	0.1	0.1	0.1	0.1
Motor Gasoline	63.3	65.6	70.6	69.1	70.1	68.2
Diesel Fuel Oil	3.1	3.6	4.3	3.8	4.1	4.3
Ethanol	n.a.	n.a.	0.3	0.3	1.5	1.6
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.	n.a.
Propane	1.1	1.0	0.4	0.3	0.4	0.4
<b>GHG Intensity (tonne/TJ)<sup>a,b</sup></b>	<b>69.9</b>	<b>70.9</b>	<b>69.9</b>	<b>69.5</b>	<b>69.1</b>	<b>68.7</b>

#### Sources:

a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2017.

b) Environment and Climate Change Canada, *National Inventory Report 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	<b>1,098.0</b>	<b>1,114.2</b>	<b>1,105.9</b>	<b>1,096.6</b>	<b>1,118.5</b>	<b>1,084.8</b>	<b>1,099.3</b>	<b>13.4 %</b>
	3.5	3.8	3.8	4.0	4.4	3.8	3.8	22.8 %
	1.7	1.7	1.3	1.4	1.2	3.5	3.4	108.5 %
	1,000.8	1,006.4	979.6	973.6	996.2	963.0	1,025.9	13.7 %
	59.5	64.0	67.4	61.8	65.8	62.2	61.1	40.8 %
	27.0	32.5	47.3	48.7	45.1	47.3	n.a.	–
	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
	5.5	5.8	6.5	7.0	5.7	5.0	5.1	-72.7 %
	572,082	585,759	587,638	583,862	594,569	573,881	584,147	37.9 %
	<b>1.92</b>	<b>1.90</b>	<b>1.88</b>	<b>1.88</b>	<b>1.88</b>	<b>1.89</b>	<b>1.88</b>	<b>-17.7 %</b>
	<b>75.2</b>	<b>76.1</b>	<b>75.1</b>	<b>74.2</b>	<b>75.5</b>	<b>72.9</b>	<b>74.0</b>	<b>9.3 %</b>
	0.2	0.2	0.2	0.2	0.2	0.1	0.1	-20.2 %
	0.1	0.1	0.1	0.1	0.1	0.2	0.2	100.7 %
	68.6	68.7	66.6	66.0	67.3	64.8	69.1	9.1 %
	4.3	4.6	4.8	4.4	4.7	4.4	4.4	43.1 %
	1.8	2.1	3.1	3.2	2.9	3.0	n.a.	–
	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
	0.3	0.4	0.4	0.4	0.3	0.3	0.3	-72.5 %
	<b>68.5</b>	<b>68.3</b>	<b>67.9</b>	<b>67.7</b>	<b>67.5</b>	<b>67.2</b>	<b>67.4</b>	<b>-3.6 %</b>

## Passenger Transportation Explanatory Variables

	1990	1995	2005	2006	2007	2008
<b>Light-Duty Vehicles</b>						
<b>Sales (thousands)</b>						
Cars <sup>1,a,d</sup>	872	641	846	866	881	914
Light Trucks <sup>1,a,d</sup>	282	331	493	499	542	524
Motorcycles	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<b>Stock (thousands)</b>						
Cars <sup>a,f</sup>	11,100	10,936	11,124	11,263	11,607	12,000
Light Trucks <sup>a,f</sup>	2,761	3,372	5,458	5,525	5,872	6,243
Motorcycles <sup>a,c</sup>	306	275	444	485	522	567
<b>Average Distance Travelled per Year (km)</b>						
Cars <sup>a</sup>	18,071	18,602	18,189	17,709	17,764	16,831
Light Trucks <sup>a</sup>	17,538	18,650	18,127	17,760	17,739	16,772
Motorcycles <sup>a</sup>	4,770	4,628	4,921	4,776	4,816	4,540
<b>On-Road Average Fuel Consumption (L/100 km)</b>						
Cars <sup>a,g</sup>						
Motor Gasoline <sup>2</sup>	10.1	9.5	8.8	8.7	8.7	8.6
Diesel Fuel Oil <sup>3</sup>	7.8	7.3	6.2	6.4	6.4	6.5
Light Trucks <sup>a,g</sup>						
Motor Gasoline <sup>2</sup>	12.9	12.4	11.8	11.8	11.8	11.7
Diesel Fuel Oil <sup>3</sup>	10.0	11.3	12.1	12.2	12.1	11.5
Motorcycles <sup>a,e</sup>						
Motor Gasoline <sup>2</sup>	4.7	4.7	4.3	4.3	4.2	4.2

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

2) Includes Ethanol.

3) Includes Biodiesel.

## Sources:

a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2017.

c) Statistics Canada, *Road Motor Vehicle Registrations*, Ottawa, 1999 (Cat. No. 53-219-X); and Statistics Canada, *Motor Vehicle Registration, 2000–2015*, Table 405-0004, Ottawa, 2017 (CANSIM).

d) R.L. Polk & Co., *New Vehicle Registrations, 1990–2015*, Southfield (Detroit), Michigan, 2017.

e) United States Department of Transportation, *National Transportation Statistics*, Table VM-1, 2017.

f) DesRosiers Automotive Consultants, *Canadian Vehicles in Operation Census, 1990–2015*, Richmond Hill (Toronto), 2017.

g) Transport Canada, *Vehicle Fuel Economy Information System, 1979–2009*, Ottawa, 2010.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
760	704	699	748	765	757	721	-17.3 %
484	587	602	608	653	719	792	181.1 %
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
12,098	12,061	11,914	11,921	12,255	12,565	12,859	15.8 %
6,501	6,758	7,003	7,168	7,668	8,164	8,738	216.5 %
595	616	631	661	672	688	709	132.1 %
16,776	16,787	16,602	16,386	15,971	14,828	14,515	-19.7 %
16,705	16,884	16,721	16,682	16,446	15,475	15,191	-13.4 %
4,542	4,570	4,543	4,500	4,420	4,172	4,090	-14.3 %
8.6	8.5	8.5	8.4	8.4	8.3	8.1	-19.8 %
6.5	6.6	6.7	6.7	6.8	6.8	6.8	-12.5 %
11.6	11.5	11.5	11.4	11.3	11.3	10.9	-15.0 %
10.9	10.4	9.9	9.4	9.1	8.8	8.7	-12.5 %
5.4	5.4	5.4	5.4	5.4	5.4	5.4	14.9 %

## Passenger Transportation Explanatory Variables (cont.)

	1990	1995	2005	2006	2007	2008
<b>Lab-Tested New Vehicle Fuel Consumption<sup>3</sup> (L/100 km)<sup>a</sup></b>						
CAFC Standard Cars <sup>4</sup>	8.6	8.6	8.6	8.6	8.6	8.6
CAFC Average Car Fleet <sup>4</sup>	8.2	7.9	7.4	7.5	7.2	7.1
CAFC Standard Light Trucks <sup>4</sup>	11.8	11.4	11.2	10.9	10.6	10.5
CAFC Average Light Truck Fleet <sup>4</sup>	11.4	11.5	10.6	10.4	10.1	9.5
<b>Buses</b>						
<b>Stock (thousands)<sup>a,c</sup></b>						
School Buses	44.7	48.8	46.9	49.2	48.0	48.4
Urban Transit	25.7	21.7	24.0	23.0	25.9	27.1
Inter-City Buses	6.6	6.8	8.0	8.2	8.7	8.6
<b>Average Distance Travelled per Year (km)<sup>a,b</sup></b>						
School Buses	19,523	24,264	27,689	30,741	26,044	27,021
Urban Transit	47,513	55,446	74,055	77,331	60,327	61,093
Inter-City Buses	70,531	80,882	70,615	55,237	61,854	59,138

3) Includes Biodiesel.

4) Growth rate shown in the final column entitled "Total Growth 1990–2015" is for 1990 to 2010.

## Sources:

a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2017.

b) Statistics Canada, *Passenger Bus and Urban Transit Statistics, 1990–2000*, Ottawa, 2002 (Cat. No. 53-215-X); *The Canadian Passenger Bus and Urban Transit Industries, 2001–2010*, Ottawa, 2013 (Cat. No. 50-002-X); and Tables 408-0008 and 408-0010, Ottawa, 2017 (CANSIM).c) Statistics Canada, *Road Motor Vehicle Registrations*, Ottawa, 1999 (Cat. No. 53-219-X); and Statistics Canada, *Motor Vehicle Registration, 2000–2015*, Table 405-0004, Ottawa, 2017 (CANSIM).g) Transport Canada, *Vehicle Fuel Economy Information System, 1979–2009*, Ottawa, 2010.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
8.6	8.6	n.a.	n.a.	n.a.	n.a.	n.a.	0.0 %
6.8	6.8	n.a.	n.a.	n.a.	n.a.	n.a.	-17.1 %
10.2	10.0	n.a.	n.a.	n.a.	n.a.	n.a.	-15.3 %
9.1	8.5	n.a.	n.a.	n.a.	n.a.	n.a.	-25.4 %
49.5	50.0	49.8	49.7	50.1	52.7	52.8	18.2 %
28.1	28.2	28.8	29.5	29.0	28.6	27.7	7.8 %
8.0	8.1	8.0	8.2	9.8	9.4	10.0	52.6 %
30,807	33,225	33,377	31,308	28,951	24,510	24,316	24.6 %
63,531	68,691	75,531	69,578	69,916	67,207	64,795	36.4 %
57,229	52,602	57,099	48,100	49,394	43,269	42,778	-39.3 %

### Freight Transportation Secondary Energy Use (Final Demand) by Energy Source and Transportation Mode

	1990	1995	2005	2006	2007	2008
<b>Freight Transportation Energy Use (PJ)<sup>a</sup></b>	<b>670.5</b>	<b>772.7</b>	<b>1,039.0</b>	<b>1,042.9</b>	<b>1,094.9</b>	<b>1,112.7</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Natural Gas	0.1	0.1	0.2	0.1	0.1	0.1
Motor Gasoline	164.6	195.9	259.5	274.9	279.2	283.3
Diesel Fuel Oil	422.6	496.1	682.4	684.6	712.1	725.8
Ethanol	n.a.	n.a.	1.2	1.4	6.0	6.2
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.	n.a.
Light Fuel Oil and Kerosene	0.0	0.0	0.0	0.0	0.0	0.0
Heavy Fuel Oil	60.1	56.6	83.0	68.7	84.4	84.9
Aviation Gasoline	0.1	0.1	0.0	0.0	0.0	0.0
Aviation Turbo Fuel	6.4	7.2	7.8	7.1	5.8	4.9
Propane	16.6	16.8	4.9	6.1	7.2	7.3
<b>Energy Use by Transportation Mode (PJ)<sup>a</sup></b>						
Light Trucks	97.6	118.2	160.1	159.9	170.2	169.6
Medium Trucks	120.6	147.7	208.9	239.3	247.1	260.9
Heavy Trucks	253.6	319.3	452.4	437.9	454.4	458.1
Air	6.5	7.3	7.8	7.2	5.8	4.9
Rail	85.7	78.6	81.7	85.6	91.8	97.0
Marine	106.5	101.7	128.1	113.0	125.7	122.2
<b>Activity</b>						
Total Tonne-kilometres (millions) <sup>a,b,c,d,e</sup>	574,543	650,961	895,702	895,938	897,386	870,012
<b>Tonne-kilometres by Transportation Mode (millions)</b>						
Light Trucks <sup>a</sup>	10,508	13,618	20,669	20,868	22,487	22,627
Medium Trucks <sup>a</sup>	13,630	17,928	27,962	35,621	37,593	38,833
Heavy Trucks <sup>b</sup>	110,434	148,002	233,583	225,105	224,839	223,802
Air <sup>c</sup>	1,754	2,045	2,236	2,227	1,997	1,809
Rail <sup>d</sup>	248,348	280,477	352,140	352,477	358,832	340,092
Marine <sup>e</sup>	189,869	188,890	259,113	259,640	251,637	242,848
<b>Energy Intensity (MJ/Tkm)<sup>a</sup></b>	<b>1.17</b>	<b>1.19</b>	<b>1.16</b>	<b>1.16</b>	<b>1.22</b>	<b>1.28</b>

#### Sources:

- a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2017.  
b) Statistics Canada, *Trucking in Canada, 1990–2005*, Ottawa, 2007 (Cat. No. 53-222-X); and Table 403-0004, Ottawa, 2017 (CANSIM).  
c) Statistics Canada, *Canadian Civil Aviation, 1990–2000*, Ottawa, 2003 (Cat. No. 51-206-X); and Statistics Canada, *Aviation: Service Bulletin* (Cat. No. 51-004-X), Ottawa: Vol. 49 No. 4, 2017.  
d) Statistics Canada, *Rail in Canada, 1990–2009*, Ottawa, 2011 (Cat. No. 52-216-X); and Tables 404-0012 and 404-0016, Ottawa, 2017 (CANSIM).  
e) Transport Canada, Surface and Marine Statistics and Forecasts Division, Ottawa, 2017.

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	<b>1,086.7</b>	<b>1,165.9</b>	<b>1,171.8</b>	<b>1,172.9</b>	<b>1,191.3</b>	<b>1,184.2</b>	<b>1,154.8</b>	<b>72.2 %</b>
	0.2	0.2	0.3	0.3	0.3	0.4	0.6	924.5 %
	293.5	307.0	296.7	303.6	321.5	324.6	343.8	108.8 %
	687.5	750.9	786.5	777.0	783.3	781.1	764.9	81.0 %
	7.3	9.6	14.3	15.6	14.4	15.9	n.a.	–
	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
	87.0	86.1	61.2	62.8	59.4	50.8	34.6	–42.5 %
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–48.7 %
	4.4	5.2	5.4	6.0	6.3	6.0	5.5	–14.6 %
	6.9	6.8	7.3	7.6	6.2	5.4	5.5	–67.0 %
	172.3	178.6	179.7	184.9	193.0	192.7	199.6	104.6 %
	278.5	312.0	305.4	302.3	317.0	314.8	305.4	153.2 %
	451.0	466.6	489.7	491.1	495.2	497.2	486.9	92.0 %
	4.4	5.3	5.4	6.1	6.3	6.0	5.5	–15.0 %
	62.5	81.2	93.0	94.2	90.9	93.4	92.4	7.8 %
	118.0	122.3	98.5	94.4	89.0	80.1	65.0	–39.0 %
	783,671	850,925	852,589	886,318	917,325	959,523	971,527	69.1 %
	23,253	24,367	24,795	25,615	26,978	27,071	28,328	169.6 %
	38,777	46,542	46,186	46,471	49,479	49,978	49,261	261.4 %
	208,531	221,767	231,631	241,495	251,387	264,702	277,396	151.2 %
	1,628	2,085	2,212	2,283	2,269	2,376	2,283	30.1 %
	299,829	341,325	352,091	371,074	386,132	415,462	411,623	65.7 %
	211,653	214,839	195,675	199,380	201,080	199,935	202,637	6.7 %
	<b>1.39</b>	<b>1.37</b>	<b>1.37</b>	<b>1.32</b>	<b>1.30</b>	<b>1.23</b>	<b>1.19</b>	<b>1.8 %</b>

## Freight Transportation GHG Emissions by Energy Source and Transportation Mode

	1990	1995	2005	2006	2007	2008
<b>Freight Transportation GHG Emissions (Mt of CO<sub>2</sub>e)<sup>a,b</sup></b>	<b>47.7</b>	<b>54.9</b>	<b>74.4</b>	<b>74.5</b>	<b>78.2</b>	<b>79.5</b>
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)<sup>a,b</sup></b>						
Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0
Motor Gasoline	11.4	13.6	17.9	18.9	19.2	19.4
Diesel Fuel Oil	30.3	35.4	49.3	49.5	51.5	52.5
Ethanol	n.a.	n.a.	0.1	0.1	0.4	0.4
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.	n.a.
Light Fuel Oil and Kerosene	0.0	0.0	0.0	0.0	0.0	0.0
Heavy Fuel Oil	4.6	4.3	6.2	5.2	6.3	6.4
Aviation Gasoline	0.0	0.0	0.0	0.0	0.0	0.0
Aviation Turbo Fuel	0.5	0.5	0.5	0.5	0.4	0.3
Propane	1.0	1.0	0.3	0.4	0.4	0.4
<b>GHG Emissions by Transportation Mode (Mt of CO<sub>2</sub>e)<sup>a,b</sup></b>						
Light Trucks	6.7	8.3	11.2	11.1	11.7	11.6
Medium Trucks	8.2	10.1	14.5	16.6	17.2	18.1
Heavy Trucks	17.8	22.4	32.3	31.3	32.4	32.7
Air	0.5	0.5	0.5	0.5	0.4	0.3
Rail	6.7	6.1	6.4	6.7	7.2	7.6
Marine	7.9	7.5	9.4	8.3	9.3	9.0
<b>GHG Intensity (tonne/TJ)<sup>a,b</sup></b>	<b>71.2</b>	<b>71.1</b>	<b>71.6</b>	<b>71.4</b>	<b>71.4</b>	<b>71.4</b>

## Sources:

a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2017.

b) Environment and Climate Change Canada, *National Inventory Report 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
77.3	83.0	83.3	83.4	84.6	84.0	81.8	71.4 %
0.0	0.0	0.0	0.0	0.0	0.0	0.0	886.3 %
20.0	20.9	20.2	20.6	21.8	21.9	23.2	104.5 %
49.5	54.2	56.8	56.2	56.6	56.5	55.3	82.2 %
0.5	0.6	0.9	1.0	0.9	1.0	n.a.	–
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
6.5	6.5	4.6	4.7	4.5	3.8	2.6	-43.6 %
0.0	0.0	0.0	0.0	0.0	0.0	0.0	-48.7 %
0.3	0.4	0.4	0.4	0.4	0.4	0.4	-16.9 %
0.4	0.4	0.4	0.5	0.4	0.3	0.3	-66.7 %
11.8	12.2	12.2	12.5	13.0	12.9	13.4	99.9 %
19.4	21.7	21.3	21.0	22.1	21.9	21.3	157.9 %
32.2	33.3	35.0	35.1	35.4	35.5	34.8	95.3 %
0.3	0.4	0.4	0.4	0.4	0.4	0.4	-17.3 %
4.9	6.4	7.3	7.4	7.1	7.3	7.2	8.4 %
8.7	9.0	7.2	7.0	6.6	5.9	4.8	-39.5 %
71.1	71.2	71.1	71.1	71.0	70.9	70.9	-0.5 %

### Freight Road Transportation Secondary Energy Use (Final Demand) and GHG Emissions by Energy Source

	1990	1995	2005	2006	2007	2008
<b>Freight Road Transportation Energy Use (PJ)<sup>a</sup></b>	<b>471.8</b>	<b>585.1</b>	<b>821.4</b>	<b>837.2</b>	<b>871.7</b>	<b>888.5</b>
<b>Energy Use by Energy Source (PJ)<sup>a</sup></b>						
Natural Gas	0.1	0.1	0.2	0.1	0.1	0.1
Motor Gasoline	164.6	195.9	259.5	274.9	279.2	283.3
Diesel Fuel Oil	290.6	372.4	555.6	554.7	579.1	591.5
Ethanol	n.a.	n.a.	1.2	1.4	6.0	6.2
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.	n.a.
Propane	16.6	16.8	4.9	6.1	7.2	7.3
<b>Activity</b>						
Tonne-kilometres (millions) <sup>a,c</sup>	134,572	179,549	282,214	281,594	284,920	285,262
<b>Energy Intensity (MJ/Tkm)<sup>a</sup></b>	<b>3.51</b>	<b>3.26</b>	<b>2.91</b>	<b>2.97</b>	<b>3.06</b>	<b>3.11</b>
<b>Freight Road Transportation GHG Emissions (Mt of CO<sub>2</sub>e)<sup>a,b</sup></b>	<b>32.8</b>	<b>40.8</b>	<b>58.0</b>	<b>59.0</b>	<b>61.4</b>	<b>62.5</b>
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)<sup>a,b</sup></b>						
Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0
Motor Gasoline	11.4	13.6	17.9	18.9	19.2	19.4
Diesel Fuel Oil	20.4	26.2	39.7	39.6	41.4	42.2
Ethanol	n.a.	n.a.	0.1	0.1	0.4	0.4
Biodiesel Fuel	0.0	0.0	n.a.	n.a.	n.a.	n.a.
Propane	1.0	1.0	0.3	0.4	0.4	0.4
<b>GHG Intensity (tonne/TJ)<sup>a,b</sup></b>	<b>69.5</b>	<b>69.7</b>	<b>70.6</b>	<b>70.5</b>	<b>70.4</b>	<b>70.3</b>

#### Sources:

- a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2017.  
b) Environment and Climate Change Canada, *National Inventory Report 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.  
c) Statistics Canada, *Trucking in Canada, 1990–2005*, Ottawa, 2007 (Cat. No. 53-222-X); and Table 403-0004, Ottawa, 2017 (CANSIM).

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
	<b>901.8</b>	<b>957.2</b>	<b>974.8</b>	<b>978.2</b>	<b>1,005.1</b>	<b>1,004.7</b>	<b>991.9</b>	<b>110.2 %</b>
	0.2	0.2	0.3	0.3	0.3	0.4	0.6	924.5 %
	293.5	307.0	296.7	303.6	321.5	324.6	343.8	108.8 %
	593.9	633.5	656.2	651.2	662.7	658.3	642.1	121.0 %
	7.3	9.6	14.3	15.6	14.4	15.9	n.a.	–
	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
	6.9	6.8	7.3	7.6	6.2	5.4	5.5	-67.0 %
	270,561	292,676	302,611	313,580	327,845	341,750	354,985	163.8 %
	<b>3.33</b>	<b>3.27</b>	<b>3.22</b>	<b>3.12</b>	<b>3.07</b>	<b>2.94</b>	<b>2.79</b>	<b>-20.3 %</b>
	<b>63.4</b>	<b>67.2</b>	<b>68.4</b>	<b>68.6</b>	<b>70.4</b>	<b>70.4</b>	<b>69.5</b>	<b>112.0 %</b>
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	886.3 %
	20.0	20.9	20.2	20.6	21.8	21.9	23.2	104.5 %
	42.4	45.3	46.9	46.5	47.4	47.0	45.9	124.8 %
	0.5	0.6	0.9	1.0	0.9	1.0	n.a.	–
	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
	0.4	0.4	0.4	0.5	0.4	0.3	0.3	-66.7 %
	<b>70.3</b>	<b>70.2</b>	<b>70.2</b>	<b>70.1</b>	<b>70.1</b>	<b>70.0</b>	<b>70.0</b>	<b>0.8 %</b>

## Freight Transportation Explanatory Variables

	1990	1995	2005	2006	2007	2008
<b>Trucks</b>						
<b>Sales (thousands)</b>						
Light Trucks <sup>1,a,b</sup>	102	114	163	165	179	175
Medium Trucks <sup>1,a,b</sup>	40	44	75	110	125	113
Heavy Trucks <sup>1,a,b</sup>	16	26	34	38	29	27
<b>Stock (thousands)</b>						
Light Trucks <sup>a,c</sup>	995	1,165	1,808	1,823	1,944	2,084
Medium Trucks <sup>a,d</sup>	572	581	887	1,001	1,115	1,231
Heavy Trucks <sup>a,d</sup>	297	293	359	376	386	393
<b>Average Distance Travelled per Year (km)</b>						
Light Trucks <sup>a</sup>	21,126	22,635	20,787	20,689	20,778	19,506
Medium Trucks <sup>a,e</sup>	21,663	26,842	25,232	28,350	26,765	25,038
Heavy Trucks <sup>a,e</sup>	51,886	70,538	94,268	86,570	87,019	85,565
<b>On-Road Average Fuel Consumption (L/100 km)</b>						
Light Trucks <sup>a,f</sup>						
Motor Gasoline <sup>2</sup>	13.3	12.7	12.1	12.1	12.1	12.0
Diesel Fuel Oil <sup>3</sup>	10.1	11.4	12.3	12.4	12.4	11.9
Medium Trucks <sup>a,e</sup>						
Motor Gasoline <sup>2</sup>	27.1	26.2	25.3	23.0	22.0	23.2
Diesel Fuel Oil <sup>3</sup>	27.6	26.7	26.0	23.3	23.6	23.3
Heavy Trucks <sup>a,e</sup>						
Diesel Fuel Oil <sup>3</sup>	42.5	40.0	34.9	35.2	35.3	35.6
<b>Lab-Tested Light Truck Fuel Consumption<sup>1</sup> (L/100 km)<sup>f</sup></b>						
CAFC Standard Light Trucks <sup>4</sup>	11.8	11.4	11.2	10.9	10.6	10.5
CAFC Average Light Truck Fleet <sup>4</sup>	11.4	11.5	10.6	10.4	10.1	9.5

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

2) Includes Ethanol.

3) Includes Biodiesel.

4) Growth rate shown in the final column entitled "Total Growth 1990–2015" is for 1990 to 2010.

## Sources:

a) Natural Resources Canada, Transportation End-Use Model, Ottawa, 2017.

b) R.L. Polk & Co., *New Vehicle Registrations*, 1990–2015, Southfield (Detroit), Michigan, 2017.

c) DesRosiers Automotive Consultants, *Canadian Vehicles in Operation Census, 1990–2015*, Richmond Hill (Toronto), 2017.

d) R.L. Polk & Co., *Truck Industry Profile, 1994–2002*, Southfield (Detroit), Michigan, 2004. Data for 2003 to 2010 estimated by Natural Resources Canada. 2010–2015 data were based on CANSIM Table 405-0004.

e) Statistics Canada, *Canadian Vehicle Survey, 2004–2009*, Ottawa, 2010 (Cat. No. 53-223-X).

f) Transport Canada, *Vehicle Fuel Economy Information System, 1979–2009*, Ottawa, 2010.

2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
162	196	201	203	217	240	264	160.1 %
91	110	119	121	127	136	124	210.7 %
15	20	27	33	30	30	30	85.6 %
2,174	2,258	2,338	2,387	2,553	2,722	2,913	192.9 %
1,315	1,405	1,432	1,450	1,513	1,603	1,642	187.1 %
391	396	415	432	433	455	464	56.3 %
19,210	19,388	19,053	19,274	18,985	17,862	17,468	-17.3 %
23,401	26,287	25,603	25,441	25,960	24,744	23,806	9.9 %
89,919	91,657	92,937	90,757	92,261	89,248	86,624	67.0 %
11.9	11.8	11.7	11.7	11.6	11.6	11.2	-15.9 %
11.5	10.9	10.5	10.0	9.6	9.2	9.1	-10.5 %
25.3	23.2	23.0	22.8	22.4	22.1	21.3	-21.3 %
24.4	23.2	22.8	22.4	22.1	21.7	21.4	-22.5 %
33.5	33.5	33.1	32.7	32.4	32.0	31.6	-25.7 %
10.2	10.0	n.a.	n.a.	n.a.	n.a.	n.a.	-15.3 %
9.1	8.5	n.a.	n.a.	n.a.	n.a.	n.a.	-25.4 %

# Chapter 6

## Electricity Generation Sector

### The Data Situation

Energy use and production data for the electricity generation sector are reported in Statistics Canada's *Report on Energy Supply and Demand in Canada* (RES-D) (Cat. No. 57-003-X). The RES-D 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 10.500, 3.600 and 11.564 megajoules per kilowatt-hour, respectively.

Gross domestic product (GDP) data at basic prices are from Statistics Canada, CANSIM Table 379-0031, Ottawa, 2017; data prior to 1997 were estimated by the Canadian Industrial Energy End-Use Data and Analysis Centre.

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

## Electricity Generation Sector

## Electricity Generation Energy Use and Generation by Energy Source

	1990	1995	2005	2006	2007	2008
<b>Total Energy Use (PJ)<sup>a,b</sup></b>	<b>3,002.5</b>	<b>3,484.7</b>	<b>3,979.1</b>	<b>3,980.3</b>	<b>4,058.9</b>	<b>4,031.5</b>
<b>Energy Use by Energy Source (PJ)<sup>a,b</sup></b>						
Natural Gas	80.0	182.1	366.5	411.6	425.7	439.8
Diesel Fuel Oil, Light Fuel Oil and Kerosene	11.5	8.0	9.8	8.1	10.4	7.8
Heavy Fuel Oil	141.4	84.4	85.6	58.2	65.4	57.5
Coal	874.5	907.5	1,062.7	1,014.5	1,075.5	1,015.8
Hydro	1,058.3	1,197.7	1,296.1	1,267.0	1,313.6	1,345.8
Nuclear	795.2	1,067.4	1,004.1	1,068.7	1,019.8	1,047.5
Wood and Other	37.2	28.2	91.0	89.0	89.4	79.4
Petroleum Coke, Still Gas, Coke and Coke Oven Gas <sup>1</sup>	4.3	9.4	63.3	63.2	59.1	37.9
<b>Total Electricity Generated (GWh)<sup>a</sup></b>	<b>467,596</b>	<b>542,739</b>	<b>604,370</b>	<b>592,636</b>	<b>614,583</b>	<b>614,926</b>
<b>Electricity Generated by Energy Source (GWh)<sup>a</sup></b>						
Natural Gas	9,018	18,577	37,325	40,271	41,892	38,905
Diesel Fuel Oil, Light Fuel Oil and Kerosene	994	2,411	911	748	1,026	966
Heavy Fuel Oil	13,394	3,451	14,449	8,921	10,255	8,283
Coal	76,794	85,192	94,483	87,760	97,256	91,384
Hydro	293,985	332,705	360,026	351,936	364,877	373,822
Nuclear	68,761	92,306	86,830	92,419	88,191	90,585
Wood and Other	3,546	2,687	8,669	8,472	8,519	7,564
Petroleum Coke, Still Gas, Coke and Coke Oven Gas <sup>1</sup>	1,105	5,409	1,678	2,109	2,568	3,416
<b>Activity</b>						
GDP (million \$2007) <sup>c</sup>	24,044	26,475	28,538	28,058	29,122	30,433
Production (GWh) <sup>a</sup>	467,596	542,739	604,370	592,636	614,583	614,926
<b>Energy Intensity (GJ/\$2007)<sup>a,b,c</sup></b>	<b>0.125</b>	<b>0.132</b>	<b>0.139</b>	<b>0.142</b>	<b>0.139</b>	<b>0.132</b>
<b>Energy Intensity (GJ/GWh)<sup>a,b</sup></b>	<b>6,421</b>	<b>6,421</b>	<b>6,584</b>	<b>6,716</b>	<b>6,604</b>	<b>6,556</b>

1) Includes manufactured gases, other petroleum products, other fuels and station service.

## Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.

b) Natural Resources Canada, *Electricity Energy-Use Model*, Ottawa, 2017.

c) Statistics Canada, *Gross domestic product (GDP) at basic prices, by North American Industry Classification System (NAICS)* CANSIM (Table 379-0031), Ottawa, 2017. Data prior to 1997 were estimated by Canadian Industrial Energy-End Use Data and Analysis Centre, 1990 to 2015, Simon Fraser University, 2017 and Natural Resources Canada.

## Electricity Generation Sector

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
<b>Total Energy Use (PJ)<sup>a,b</sup></b>	<b>3,773.7</b>	<b>3,788.5</b>	<b>3,838.1</b>	<b>3,899.3</b>	<b>3,815.1</b>	<b>4,036.0</b>	<b>4,038.7</b>	<b>34.5%</b>
<b>Energy Use by Energy Source (PJ)<sup>a,b</sup></b>								
Natural Gas	426.7	509.1	580.2	595.3	584.5	618.3	655.9	719.9%
Diesel Fuel Oil, Light Fuel Oil and Kerosene	8.2	8.3	9.6	10.6	9.7	11.5	13.4	16.7%
Heavy Fuel Oil	53.9	31.3	23.7	22.0	19.8	29.9	31.6	-77.7%
Coal	849.1	853.6	724.8	683.6	689.5	661.1	660.9	-24.4%
Hydro	1,314.4	1,253.2	1,339.5	1,407.0	1,401.0	1,418.6	1,427.5	34.9%
Nuclear	982.8	989.0	1,021.0	1,034.9	952.6	1,170.4	1,106.5	39.2%
Wood and Other	88.9	102.4	101.6	108.6	109.9	86.6	107.2	188.0%
Petroleum Coke, Still Gas, Coke and Coke Oven Gas <sup>1</sup>	49.7	41.5	37.7	37.3	48.0	39.6	35.8	735.2%
<b>Total Electricity Generated (GWh)<sup>a</sup></b>	<b>588,906</b>	<b>579,366</b>	<b>608,180</b>	<b>619,810</b>	<b>609,783</b>	<b>631,821</b>	<b>638,401</b>	<b>36.5%</b>
<b>Electricity Generated by Energy Source (GWh)<sup>a</sup></b>								
Natural Gas	40,971	47,710	56,498	57,241	54,525	58,720	65,477	626.1%
Diesel Fuel Oil, Light Fuel Oil and Kerosene	1,067	1,083	1,050	1,133	1,144	2,136	2,561	157.7%
Heavy Fuel Oil	8,198	5,330	4,559	4,642	4,878	1,314	1,948	-85.5%
Coal	76,684	78,149	72,190	62,766	63,792	65,817	65,717	-14.4%
Hydro	365,108	348,110	372,077	390,837	389,174	394,055	396,536	34.9%
Nuclear	84,992	85,527	88,291	89,492	82,378	101,208	95,682	39.2%
Wood and Other	8,464	9,755	9,677	10,341	10,468	8,245	10,212	188.0%
Petroleum Coke, Still Gas, Coke and Coke Oven Gas <sup>1</sup>	3,422	3,703	3,840	3,359	3,423	n.a.	n.a.	—
<b>Activity</b>								
GDP (million \$2007) <sup>c</sup>	28,027	28,509	29,079	28,265	28,561	28,367	28,178	17.2%
Production (GWh) <sup>a</sup>	588,906	579,366	608,180	619,810	609,783	631,821	638,401	36.5%
<b>Energy Intensity (GJ/\$2007)<sup>a,b,c</sup></b>	<b>0.135</b>	<b>0.133</b>	<b>0.132</b>	<b>0.138</b>	<b>0.134</b>	<b>0.142</b>	<b>0.143</b>	<b>14.8%</b>
<b>Energy Intensity (GJ/GWh)<sup>a,b</sup></b>	<b>6,408</b>	<b>6,539</b>	<b>6,311</b>	<b>6,291</b>	<b>6,256</b>	<b>6,388</b>	<b>6,326</b>	<b>-1.5%</b>

## Electricity Generation Sector

## Electricity Generation GHG Emissions by Energy Source

	1990	1995	2005	2006	2007	2008
<b>Total GHG Emissions (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>96.2</b>	<b>101.0</b>	<b>126.3</b>	<b>122.0</b>	<b>128.4</b>	<b>121.4</b>
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>						
Natural Gas	4.1	9.2	18.5	20.8	21.5	22.2
Diesel Fuel Oil, Light Fuel Oil and Kerosene	0.8	0.6	0.7	0.6	0.8	0.6
Heavy Fuel Oil	10.8	6.4	6.4	4.3	4.9	4.3
Coal	80.1	83.9	95.4	90.9	96.2	91.1
Hydro	0.0	0.0	0.0	0.0	0.0	0.0
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0
Wood and Other	0.0	0.0	0.1	0.1	0.1	0.1
Petroleum Coke, Still Gas, Coke and Coke Oven Gas <sup>1</sup>	0.4	0.8	5.2	5.2	4.9	3.1
<b>GHG Intensity<sup>2</sup> (tonnes/TJ [electricity generated])<sup>a,b,c</sup></b>	<b>57.1</b>	<b>51.7</b>	<b>58.0</b>	<b>57.2</b>	<b>58.0</b>	<b>54.8</b>
<b>GHG Intensity<sup>3</sup> (tonnes/TJ [energy used])<sup>a,b,c</sup></b>	<b>32.0</b>	<b>29.0</b>	<b>31.7</b>	<b>30.7</b>	<b>31.6</b>	<b>30.1</b>

1) Includes 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 conversion losses (energy used to produce electricity versus the amount of electricity generated).

## Sources:

a) Statistics Canada, *Report on Energy Supply and Demand in Canada, 1990–2015*, CANSIM (Table 128-0016), Ottawa, 2017.

b) Natural Resources Canada, *Electricity Energy-Use Model*, Ottawa, 2017.

c) Environment and Climate Change Canada, *National Inventory Report 1990–2015: Greenhouse Gas Sources and Sinks in Canada*, Ottawa, 2017.

## Electricity Generation Sector

	2009	2010	2011	2012	2013	2014	2015	Total Growth 1990–2015
<b>Total GHG Emissions (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>	<b>107.5</b>	<b>109.3</b>	<b>101.0</b>	<b>97.8</b>	<b>98.5</b>	<b>97.2</b>	<b>99.2</b>	<b>3.2%</b>
<b>GHG Emissions by Energy Source (Mt of CO<sub>2</sub>e)<sup>a,b,c</sup></b>								
Natural Gas	21.4	25.4	29.0	29.5	29.0	30.5	32.2	682.5%
Diesel Fuel Oil, Light Fuel Oil and Kerosene	0.6	0.6	0.7	0.8	0.7	0.8	1.0	17.6%
Heavy Fuel Oil	4.0	2.3	1.8	1.6	1.5	2.2	2.4	-78.1%
Coal	77.3	77.4	66.4	62.6	63.3	60.3	60.6	-24.3%
Hydro	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–
Wood and Other	0.1	0.1	0.1	0.1	0.1	0.1	0.1	–
Petroleum Coke, Still Gas, Coke and Coke Oven Gas <sup>1</sup>	4.1	3.4	3.1	3.1	4.0	3.3	3.0	–
<b>GHG Intensity<sup>2</sup> (tonnes/TJ [electricity generated])<sup>a,b,c</sup></b>	<b>50.7</b>	<b>52.4</b>	<b>46.1</b>	<b>43.8</b>	<b>44.9</b>	<b>42.8</b>	<b>43.2</b>	<b>-24.4%</b>
<b>GHG Intensity<sup>3</sup> (tonnes/TJ [energy used])<sup>a,b,c</sup></b>	<b>28.5</b>	<b>28.9</b>	<b>26.3</b>	<b>25.1</b>	<b>25.8</b>	<b>24.1</b>	<b>24.6</b>	<b>-23.3%</b>

# Appendix A

## Reconciliation of Data

### Reconciliation of Data with Statistics Canada's *Report on Energy Supply and Demand in Canada* (RESO) – 2015 (petajoules)

	RESO Data	Residential Wood	Commercial & Public Admin. Diesel	Industrial, Commercial & Public Admin. Aviation Fuels	Industrial, Commercial & Public Admin. Motor Gasoline	LFO – and Kerosene – Transport
<b>Sector</b>						
Residential	1,382	162				
Commercial/ Institutional	1,100		(55)	(19)	(17)	0
Industrial	2,700			(2)	(34)	
Transportation	2,692		55	20	51	(2)
Agriculture	281					
<b>Final Demand</b>	<b>8,156</b>	<b>162</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>(2)</b>
Non-Energy	953					
Producer Consumption	1,417					
<b>Net Supply</b>	<b>10,525</b>	<b>162</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>(2)</b>
<b>Fuel Conversion</b>						
Electricity, Steam & Coal/Coke Input Fuels <sup>1</sup>	4,155					
Electricity, Steam & Coal/Coke Production <sup>2</sup>	(2,387)					
<b>Total Primary</b>	<b>12,293</b>	<b>162</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>(2)</b>

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

**Residential:** Base data taken from RESO (Table 2-1) Residential plus residential wood use (provided by Environment and Climate Change Canada).

**Commercial/Institutional:** Base data taken from RESO (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 RESO (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, less Motor gasoline from Industrial Sector, less Aviation fuels from Industrial Sector.

## Reconciliation of Data

A

LFO – Retail Pump Sales	Pipeline Fuels	Wood Waste & Pulping Liquor	Waste Fuels Used in Cement Industry	Re-allocation of Producer Consumption by Refineries and Mining Industries	Other Adjustments <sup>3</sup>	Data Presented in This Report
					0	1,544
					0	1,009
0		388	3	485	0	3,540
(1)	(178)				0	2,637
0					0	282
<b>0</b>	<b>(178)</b>	<b>388</b>	<b>3</b>	<b>485</b>	<b>0</b>	<b>9,013</b>
						953
	178			(485)		1,110
<b>0</b>	<b>0</b>	<b>388</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>11,076</b>
						4,155
						(2,387)
<b>0</b>	<b>0</b>	<b>388</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>12,844</b>

**Transportation:** Base data taken from RESO (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, plus Motor gasoline from Industrial Sector, plus Aviation fuels from Industrial Sector.

**Agriculture:** Base data taken from RESO (Table 2-1) representing the sum of Agriculture energy source fuels.

- "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.
- "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.
- Discrepancy between the total Canada data and the sum of the provinces.

# Appendix B

## Reconciliation of Definitions

### **Reconciliation of Definitions for Estimated Greenhouse Gas Emissions Found in This Handbook With Environment and Climate Change Canada's *National Inventory Report 1990–2015*<sup>2</sup>**

#### Introduction

In this handbook, *Energy Use Data Handbook 1990 to 2015* (EUDH), the data on greenhouse gas (GHG) emissions are estimated using emissions factors developed by Environment and Climate Change Canada (ECCC). The emissions estimates provided here mirror the sectoral definitions used to calculate the estimates presented in ECCC's *National Inventory Report 1990–2015* (NIR-2015). Both Natural Resources Canada (NRCan) and ECCC use the energy demand data from Statistics Canada's *Report on Energy Supply and Demand in Canada* as a base.

However, the two organizations use different sectoral mappings. ECCC 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 NIR 2015 emissions estimates for the five sectors covered in this handbook.

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<sup>2</sup> Canada's official GHG inventory is available on the Environment and Climate Change Canada website at <https://www.canada.ca/en/environment-climate-change/services/climate-change/greenhouse-gas-emissions/inventory.html>.

# Reconciliation of Definitions

## Residential Sector

EUDH and NIR-2015 differ in their definitions of residential emissions:

- EUDH residential emissions include end-use, electricity-related emissions, which are reported under power generation in NIR-2015.

## Commercial/Institutional Sector

There is only one difference between EUDH and NIR-2015 definitions of commercial/institutional emissions:

- EUDH commercial/institutional emissions include end-use, electricity-related emissions, while NIR-2015 includes them under power generation.

## Industrial Sector

There are many differences between EUDH and NIR-2015 definitions in the industrial sector:

- NIR-2015 reallocates industrial diesel fuel use from the industrial sector to the transportation sector.
- EUDH reallocates producers' consumption of petroleum products from the producers' consumption category to the petroleum refining and upstream mining industries. NIR-2015 reports this as consumption of fossil fuels.
- NIR-2015 reallocates 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. NIR-2015 reports them under power generation.
  - NIR-2015 includes producers' consumption of non-fossil fuels in the fossil fuel categories. EUDH does not report this consumption.
  - NIR-2015 also reallocates estimates of emissions from upstream oil and gas flaring to fugitive emissions from the fossil fuel sector.

## Transportation Sector

EUDH and NIR-2015 differ in their definitions of transportation emissions:

- NIR-2015 reallocates industrial and agriculture diesel and agriculture motor gasoline to the transportation sector.
- NIR-2015 includes pipeline-related emissions in the transportation sector.
- NIR-2015 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 NIR-2015.

## Electricity Generation Sector

There is only one difference between EUDH and NIR-2015 for the electricity generation sector:

- NIR-2015 reports emissions from electricity and steam generation at the aggregate level, while the EUDH reports emissions for electricity generation only. Note that in its Annex 9, "Electricity Intensity Tables," NIR-2015 reports detailed emissions from electricity generation that are similar to those found in this handbook.

# Appendix C

## Glossary of Terms

**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 (Final Demand) 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 items such as televisions, video cassette recorders, digital video disc players, radios, computers and toasters.

**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 perform an operation, 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.

**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<sub>2</sub>):** A compound of carbon and oxygen formed whenever carbon is burned. Carbon dioxide (CO<sub>2</sub>) 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<sub>2</sub> 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).

# Glossary of Terms

**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 (CDD) 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 (or below) 1, the observed temperature is warmer (or 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.

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

**Gigajoule (GJ):** One gigajoule equals  $1 \times 10^9$  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<sub>2</sub>), methane (CH<sub>4</sub>), chlorofluorocarbons (CFC) and nitrous oxide (N<sub>2</sub>O). By far the most abundant GHG is CO<sub>2</sub>, accounting for about 70 percent of total GHG emissions (see Carbon Dioxide).

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

# Glossary of Terms

**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 2007 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 2007 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 (HDD) 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 (or below) 1, the observed temperature is colder (or 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. Housing stock includes both occupied and unoccupied dwellings, as opposed to the number of households, which refers to the number of occupied dwellings only.

**Kilowatt-hour (kWh):** The commercial unit of electrical energy equivalent to 1,000 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).

**Light Truck:** A truck of up to 3,855 kg (8,500 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 3,856 to 14,969 kg (8,501 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  $1 \times 10^6$  joules (see Petajoule).

# Glossary of Terms

**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 subsector describing the transportation of one passenger over a distance of one kilometre.

**Petajoule (PJ):** One petajoule equals  $1 \times 10^{15}$  joules. A joule is the international unit of measure of energy – the energy produced by the power of one watt flowing for one 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.

**Terajoule (TJ):** One terajoule equals  $1 \times 10^{12}$  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 designation 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

\$2007	Constant 2007 dollars
bbl.	Barrel
CACF	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
ECCC	Environment and Climate Change Canada
EER	Energy Efficiency Ratio
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GJ	Gigajoule = $1 \times 10^9$ joules
GO	Gross Output
GWh	Gigawatt-hour = $1 \times 10^9$ Wh
km	Kilometre
kW	Kilowatt
kWh	Kilowatt-hour = $1 \times 10^3$ Wh
L	Litre
LPG	Liquefied Petroleum Gases
m <sup>2</sup>	Square Metre
m <sup>3</sup>	Cubic Metre
MJ	Megajoule = $1 \times 10^6$ joules
Mt of CO <sub>2</sub> e	Megatonne of Carbon Dioxide Equivalent = $1 \times 10^6$ 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

## List of Abbreviations

PJ	Petajoule = $1 \times 10^{15}$ joules
Pkm	Passenger-kilometre
RES D	<i>Report on Energy Supply and Demand in Canada</i>
REUM	Residential End-Use Model
SEER	Seasonal Energy Efficiency Ratio
SIC	Standard Industrial Classification
TEUM	Transportation End-Use Model
TJ	Terajoule = $1 \times 10^{12}$ joules
Tkm	Tonne-kilometre
UEC	Unit Energy Consumption
W	Watt
Wh	Watt-hour